



# 2<sup>nd</sup> Saudi Spine Society Annual Conference

Promoting Excellence in  
Multidisciplinary Spine Care  
**NOVEMBER 17 - 19, 2018**  
**JEDDAH**

## FINAL PROGRAM

### GUEST SOCIETIES

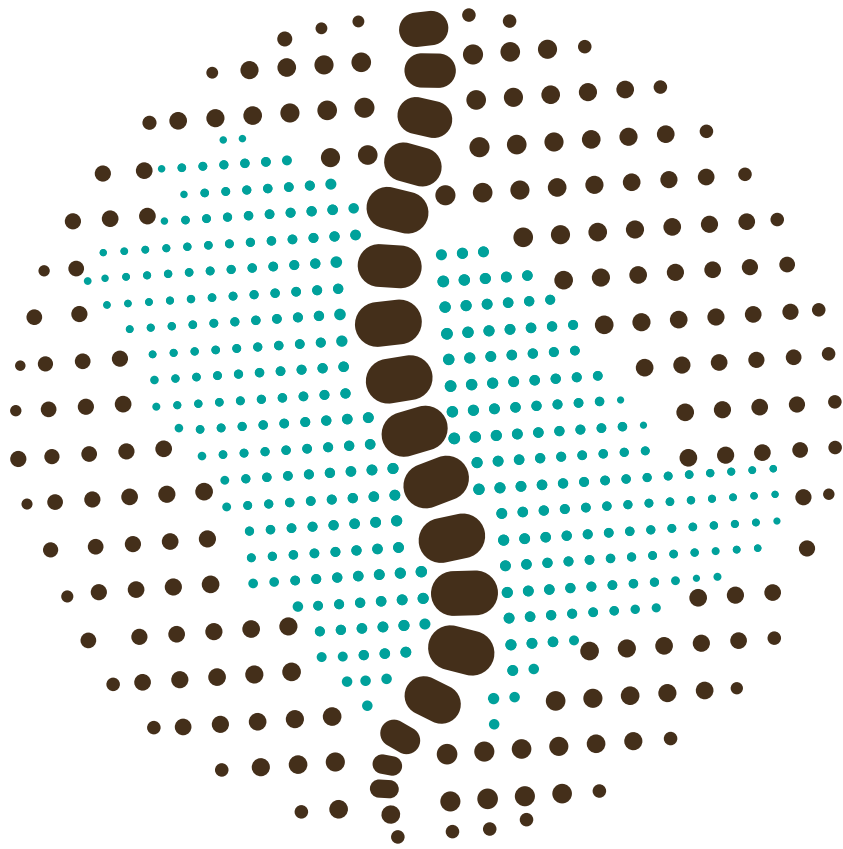


### COLLABORATING SOCIETIES



[www.saudispine.org](http://www.saudispine.org)

[info@saudispine.org](mailto:info@saudispine.org)



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# Introduction

On behalf of the Scientific and Organizing Committees, it is our pleasure to invite you to join us for the 2nd Saudi Spine Society Annual Conference which will be held on November 17-19, 2018, Jeddah, Saudi Arabia.

Through continuous innovations in medical science and technology, Surgical and Non-surgical Spine interventions have advanced into an even broader variety, giving spine care practitioners a wider range of options for intervention and treatment throughout the invasive and non-invasive management processes.

With our usual theme of SSS Annual Conferences "Promoting Excellence in Multidisciplinary Spine Care". We will bring to mind seeking out guidance-in-controversy and wisdom in-judgment when deciding for our clinical challenges, the promotion of team-based medicine and joint contributions to patient welfare. Multidisciplinary approach optimizes our practice as we retool spine care for the twenty-first century.

Our Scientific Sessions will explore various aspects of pathologies affecting the spine, leading researchers for academia, industry and hospitals will present their recent achievements in technologies and clinical studies discussing their most exciting development. The program will consist of plenary lectures by top national and international spine surgeons and oral presentations in parallel sessions featuring speakers from Saudi Arabia and abroad.

The first day of the conference however, is dedicated for preconference workshops. These workshops will address different aspects of spine care including spine surgery, rehabilitation, pain management, radiology, neurophysiology, nursing, and more. This will be a great opportunity in advancing our knowledge and practice in the constantly changing field of spine care.

As aforementioned, this outstanding scientific program will be set in the coastal city of Jeddah, Saudi Arabia. Weather is excellent around this time of year. With an abundant auxiliary program, numerous social events including the Gala dinner with many traditional and local presentations, Middle Eastern food, and the taste of Arabian coffee and dates, this is one meeting you cannot afford to miss!

Make your arrangements today and join us in this great venue!

Sincerely,

**Sohail bajamamal**  
Conference Chairman

**Khaled Al-musrea**  
Chairman, Scientific Committee



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Assistant Professor  
Department of Orthopedic  
Faculty Of Medicine  
Umm Al-Qura University  
Vice President, Saudi Spine Society



**DR. MAHDI MOHAMMED BASSI**  
MBBS, FRCS  
Orthopedic, Spine & Scoliosis Surgeon  
Chief Surgeon & HDR Department  
Dr. Sulaiman Fekaeah Hospital  
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**DR. AYMAN REDA TAYEB**  
Consultant Spine Surgeon  
King Abdullah Medical City  
Makkah, KSA



**DR. FAHAD H. ABULJABBAR,**  
MBBS, FRCS, MMGT  
Assistant Professor  
Department of Orthopedic Surgery  
King Abdulaziz University Hospital  
Jeddah, KSA



**DR. SALAHADDEEN KHALIFAH**  
Orthopedic Spine Surgery Consultant  
HOD of Spine care, Neurosciences center  
HOD of Rehabilitation Administration  
King Abdullah Medical City  
Makkah, KSA



**DR. KHALID ALMAONI**  
Orthopedic, Joints & Spine Consultant  
King Fahad Hospital  
Jeddah, KSA



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Assistant Professor KSAU-HS  
Consultant Orthopedic Trauma  
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Spine Surgeon  
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Spine Surgeon  
Almoor Specialist Hospital  
Makkah, KSA



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HDR & Anesthesiology  
Department East Jeddah Hospital  
Jeddah, KSA



**DR. AHMED Q. ALTURKISTANY**  
MBBS, FRCS, MMGT  
Pediatrics Orthopedic &  
Spine Consultant  
King Faisal Specialist Hospital &  
Research Center  
Jeddah, KSA



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Spine Consultant  
HDD Orthopedic Department  
King Abdulaziz Hospital  
Makkah, KSA



**DR. MOHAMED ALSHUMRANI**  
Pediatric orthopedic & spine consultant  
Head of spine unit  
King Fahad general hospital  
Jeddah, KSA



**DR. ALMAMOON I. JUSTANIAN**  
Vascular & Interventional Radiologist  
King Abdullah Medical City  
Makkah, KSA

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Consultant Neurosurgery & Spine Surgeon  
King Fahad Medical City  
Chairman, Scientific Committee  
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**DR. OSAMA E. SHAMS MD, ABEM, MNPE, DTM**  
Head of Clinical Neurophysiology  
Director of CME  
King Abdullah Medical City  
Makkah, KSA



**DR. FAISAL Koubaz MBS**  
Consultant Orthopedic &  
Spine Surgeon  
King Abdulaziz Medical City  
National Guard Health Affairs  
Riyadh, KSA



**DR. ALI ALSHOAIBY**  
Head of Pain section, Department of Anesthesia  
King Fahad Medical City  
Riyadh, KSA



**DR. AMRO ALHABIB MD, FRCS, MPH**  
Consultant & Associate Professor  
of Neurosurgery & Spine Surgeon  
Department Of Surgery  
King Saud University  
Riyadh, KSA



**DR. AHMED ALHABTER**  
Consultant Physical Medicine  
Rehabilitation & Spinal Cord Injury Medicine  
King Fahad Medical City  
Riyadh, KSA



**DR. HANA I ALSOBAYEL BSC, MSc, PhD**  
Consultant & Associate Professor  
of Physical Therapy  
King Saud University



**DR. ANWAR BOURGHALI**  
Consultant Orthopedic &  
Spine Surgeon  
Kingdom Hospital  
Riyadh, KSA



**DR. FAWAZ ALSHAREEF**  
Consultant Interventional Neuroradiology  
King Fahad Armed Forces Hospital  
Jeddah, KSA



**DR. KHALID AL-ASSIRI**  
Consultant Orthopedic & Spine Surgeon  
National Guard Health Affairs  
Chairperson, CPD Committee  
Saudi Spine Society  
Dammam, KSA



**DR. MOHAMMED ALI KHASHAB**  
Consultant and Assistant Professor of  
Orthopedic & Spine Surgeon  
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The company employs 1000+ people with direct operations in 15 countries in the MENA region. Amico was founded by Akef Al Maghraby M.D and & Mihran Hazarian in 1984 and is headquartered in Dubai United Arab Emirates.

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# **SCIENTIFIC PROGRAM**





# 2<sup>nd</sup> Saudi Spine Society Annual Conference

## Promoting Excellence in Multidisciplinary Spine Care

### Day 1: November 17, 2018 Preconference Workshops

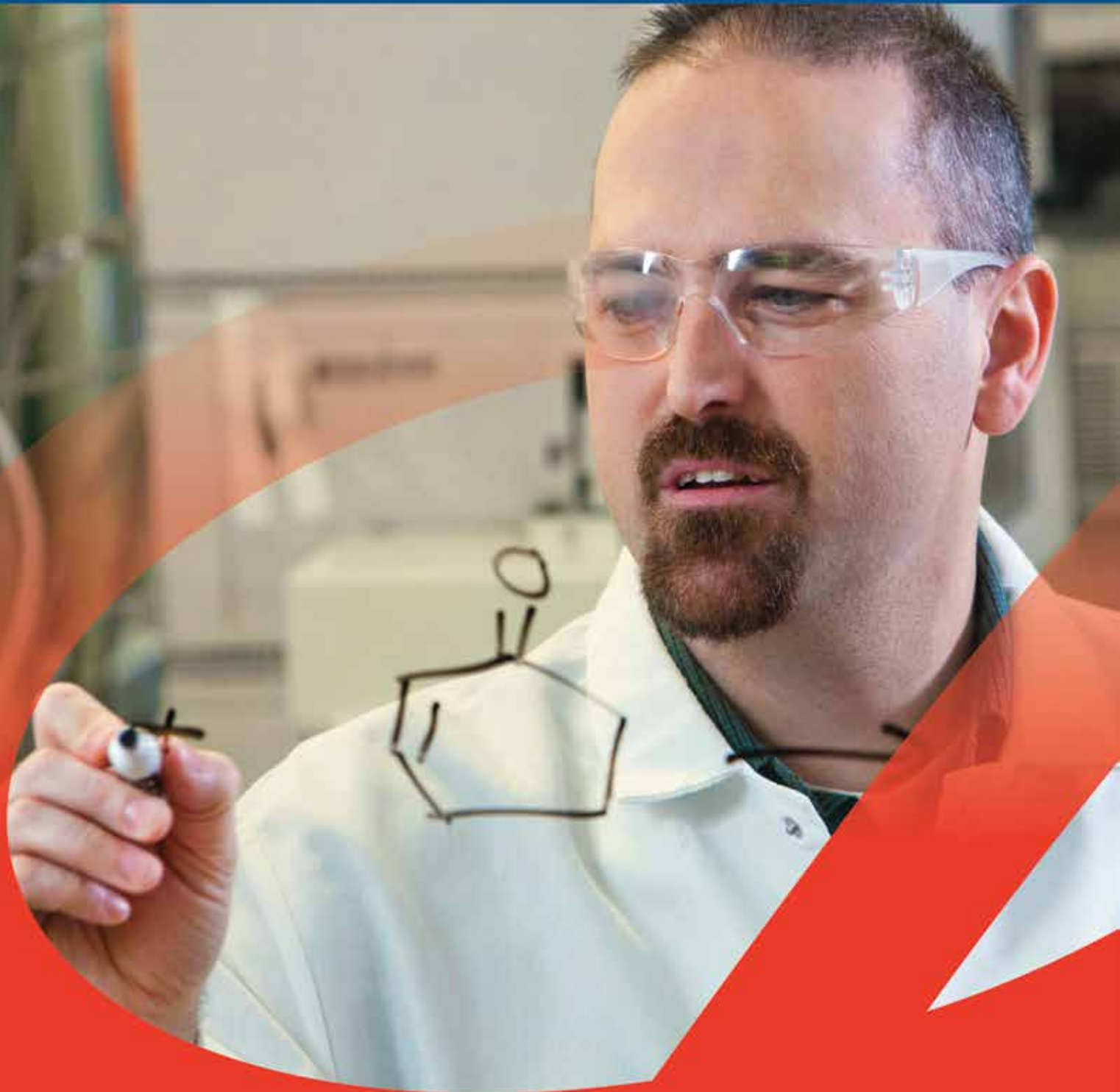
Time	Room 1	Room 2
8:00 – 12:00	Neurolife Spine Trauma	Spine Sagittal Alignment
13:00 – 17:00	Advances in Spine Tumor Surgery	Ultrasound Guided Spine Injections
Time	Room 3	Room 4
8:00 – 12:00	Screening for red flags in people with spine pain in physical therapy practice	Intraoperative Neurophysiological Monitoring (IONM)
13:00 – 17:00	Spine Radiology for non-Radiologist	Management of Scoliosis: Specific Exercises and Manual Techniques

### Day 2: November 18, 2018

Time		
08:00 – 08:45	Session 1 Clinical Practice Guidelines	
08:45 – 10:15	Session 2 Spine Practice when it gets Complex	
10:15 – 10:45	Coffee break + Exhibition	
10:45 – 11:00	Keynote Lecture	
11:00 – 11:30	Session 3: Global Spine Surgery Forum	
11:30 – 12:00	Opening Ceremony	
12:00 – 13:00	Lunch Break, Prayers & Exhibition	
13:00 – 14:00	Session 4A: Abstract	Session 4B: Abstract
14:00 – 15:15	Session 5A: Sacroiliac Joint	Session 5B: Growing Spine
15:15 – 16:00	Coffee Break, Exhibition & Prayers (Green Lab Sessions by Sponsors)	
16:00 – 16:30	Session 6: Saudi Rheumatology Association Spondyloarthropathies	
16:30 – 17:40	Session 7: AOSPINE MIS Spine Surgery	

### Day 3: 19-11-2018

Time		
08:00 – 08:40	Health Care Provider Well Being For The Benefit Of The Patients	
08:40 – 10:00	Session 9: Innovations In Spine Care	
10:00 – 10:15	Coffee Break & Exhibition	
10:15 – 11:15	Session 10A: SPTA biomedical vs biopsychosocial approach for the management of spinal pain	Session 10B: Egyptian Spine Association
11:15 – 12:00	General Assembly	
12:00 – 13:00	Lunch Break, Exhibition & Prayers	
13:00 – 14:00	Session 11A: Abstract	Session 11B: Abstract
14:00 – 14:45	Session 12A: Elderly Spine	Session 12B: Spine Pain Management
14:45 – 15:30	Session 13A: Bleeding Management in Spine Surgery	Session 13B: Updates of DDD Management
15:30 – 16:00	Exhibition break / prayer	
16:00 – 17:00	Session 14: Adult Spine Deformity	
	Closing Remarks / Awards	



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## Promoting Excellence in Multidisciplinary Spine Care

### SESSION 1: CLINICAL PRACTICE GUIDELINES - HALL 1

18<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Khalid Alsaleh   Fahad Abduljabbar	Speaker
08:00 – 08:10	Welcome Address		Scientific committee chairman
08:10 – 08:20	SSS Guidelines our Goals & Objectives		Reem Albunyan
08:20 – 08:35	The Importance of Clinical Guidelines in Spine Diseases: NASS Experience		Scott Kreiner
08:35 – 08:40	Discussion		All Panel

### SESSION 2: SPINE PRACTICE WHEN IT GETS COMPLEX - HALL 1

18<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Khalid Assiri   Ahmed Alkhani	Speaker
08:45 – 09:00	Complex Pediatric Upper Cervical Spine Conditions		Amro Alhabib
09:00 – 09:15	Cervical Cord Decompression in OPLL		Eric Truumees
09:15 – 09:30	Cervical Deformities & Osteotomies		Jeffrey Wang
09:30 – 09:45	Evolution & Management of Severe Kyphotic Deformities in Spine TB		Rajasekaran Shanmuganathan
09:45 – 10:00	Proximal Junctional Complications in long Segment Spine Fusion		Faisal Konbaz
10:00 – 10:15	Discussion		All Panel

10:15 – 10:45

Coffee break + Exhibition



### KEY NOTE LECTURE: HALL 1

10:45 – 11:00	Dynamic MRI for Spine Surgery Planning	Jeffrey Wang
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### SESSION 3: GLOBAL SPINE SURGERY FORUM: HALL 1

18<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : SSS President   Egyptian Spine Society President   NASS President   EUROSPINE President   AOSPINE President   Emirates Society of Neurological Surgeons	Speaker
11:00 – 11:10	Global Spine Surgery		Khaled Alali
11:10 – 11:20	Is Low Resources a Barrier to Quality Spine Care?		Rajasekaran Shanmuganathan
11:20 – 11:30	Panel Discussion		
11:30 – 12:00	Opening Ceremony		

12:00 – 13:00

Lunch break, Prayers & Exhibition







# 2<sup>nd</sup> Saudi Spine Society Annual Conference

## Promoting Excellence in Multidisciplinary Spine Care

### SESSION 4A: ABSTRACT - HALL 1

18<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Hana Alsubayel   Mohammed Khashab	Speaker
13:00 – 13:06	Prevalence and Determinants of low back pain among Healthcare workers in Southwestern Saudi Arabia		Ibrahim Alnaami
13:07 – 13:13	Back pain and Scoliosis Prevalence in Adolescent in Riyadh, a cross Sectional Study		Suhail Al Assiri
13:14 – 13:20	Prevalence of Pelvic floor disorder and Neuropathic Pain among Females seeking Physical therapy for Chronic low back pain		Ghadah Algudairi
13:21 – 13:27	Burnout and quality of life in Spine Surgeons: results of a worldwide Survey		Fahad Abduljabbar
13:28 – 13:34	Discussion		All Panel
13:35 – 13:41	Relationship of Gluteus Maximus Insufficiency in the Patients with Chronic Mechanical low back pain among Saudi Military Personnel		Mohammad Sidiq
13:42 - 13:48	Effectiveness of Spinal Manipulative therapy for Chronic low-back pain (Systematic Review)		Kholoud AlHomoud
13:49 - 13:55	Physical therapy Intervention for the Management of Coccydynia: a Systematic Review		Yousef Alyousef
13:55 – 14:00	Discussion		All Panel

### SESSION 4B: ABSTRACT - HALL 2

18<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Faisal Konbaz   Anouar Bourghli	Speaker
13:00 – 13:06	Anterior Cervical Discectomy and Fusion (ACDF) complications and 30 days Mortality and Morbidity		Sarah Aldeghaither
13:07 – 13:13	Percutaneous Transforaminal Interbody Fusion with Expandable Mesh Bag system – Preliminary results		Muhammad Abd-El-Barr
13:14 – 13:20	Prospective Evaluation of Artificial Cervical Disc Implantations up to 15-year results of 300 Patients and Complication Report		Sebastian Gitter
13:21 – 13:27	Accuracy, Radiation time, and Radiation Exposure using Computer-Assisted Instrument Navigation VS Conventional C-Arm Fluoroscopy for Spine Surgery Instrumentation		Muhammad Abd-El-Barr
13:28 - -13:34	Discussion		All Panel
13:35 - 13:41	Single Center Experience in Magnetically Controlled Growing Rods (MCGR) in treatment of early onset Scoliosis		Monerah Annaim
13:42 - 13:48	The effectiveness of TENS and Exercises on Chronic Low Back Pain		Hussam Alsaleh
13:49 - 13:55	Interlaminar fusion in lumbar Spinal Stenosis, comparison w/o additional Interbody fusion		Sebastian Gitter
13:55 – 14:00	Discussion		All Panel



# 2<sup>nd</sup> Saudi Spine Society Annual Conference

## Promoting Excellence in Multidisciplinary Spine Care

### SESSION 5A: SACROILIAC JOINT - HALL 1

18<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Abdullah Kaki   Osamah Al Ahdal   Khalid Almadni	Speaker
14:00 – 14:15	Sacroiliac joint Biomechanics, do we understand it well?		Waleed awwad
14:15 – 14:30	Diagnosis of SI Joint disease: Clinical Exam & Radiological Evaluation		Shadi Shihata
14:30 – 14:45	Non Surgical Management of SI Joint Pain: Options & Effectiveness		Ayman Abdelhalim
14:45 – 15:00	Success & Failure of the SI Joint Arthrodesis: lessons we learned so far		Jeffrey Wang
15:00 – 15:15	Discussion		All Panel

### SESSION 5B: GROWING SPINE - HALL 2

18<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Abdulmonem Al Siddiky   Samir Alsayegh   Wael Alshaya	Speaker
14:00 – 14:15	Long term Sequelae of Untreated Idiopathic Scoliosis		Muaz Ghadir
14:15 – 14:30	Pediatrics Scoliosis with Coexisting Spinal Cord Pathology		Husam Alhabib
14:30 – 14:45	Spinopelvic Fixation in Pediatric Spine: Options & Outcomes		Ahmed Turkistany
14:45 – 15:00	Spina Bifida, Problem List & Rehabilitation Approach		Hanan Demyati
15:00 – 15:15	Discussion		All Panel

15:15 – 16:00

Coffee break, exhibition, Prayers



### SESSION 6: SAUDI RHEUMATOLOGY ASSOCIATION SPONDYLOARTHRITIS - HALL 1

18<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Nabeel Alnaghmosh   Fahad Abduljabbar	Speaker
16:00 – 16:10	Concept of Inflammatory Back Pain and Early Referral		Zeyad Alzahrani
16:10 – 16:20	Diagnostic Approach and Management of Spondyloarthritis		Suzan Attar
16:20 – 16:30	Discussion		All Panel





# 2<sup>nd</sup> Saudi Spine Society Annual Conference

## Promoting Excellence in Multidisciplinary Spine Care

SESSION 7: AO SPINE SYMPOSIUM - HALL 1

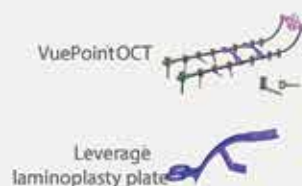
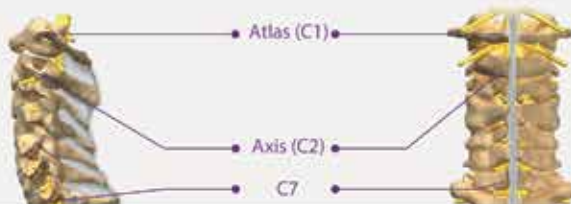
18<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Waleed Awwad   AOSPINE Saudi Arabia Chairman	Speaker
16:30 – 16:45	Ligamentum Flavum Preserving Flap Microdiscectomy		Shanmuganathan Rajasekaran
16:45 – 17:00	Avoidance of Complications in MIS Surgery		Mahdi Bassi
17:00 – 17:15	MIS Spinopelvic Fixation		Waleed Awwad
17:15 – 17:30	Computer Navigated Spine Surgery, Fact or Fiction		Shanmuganathan Rajasekaran
17:30 – 17:40	Discussion		All Panel

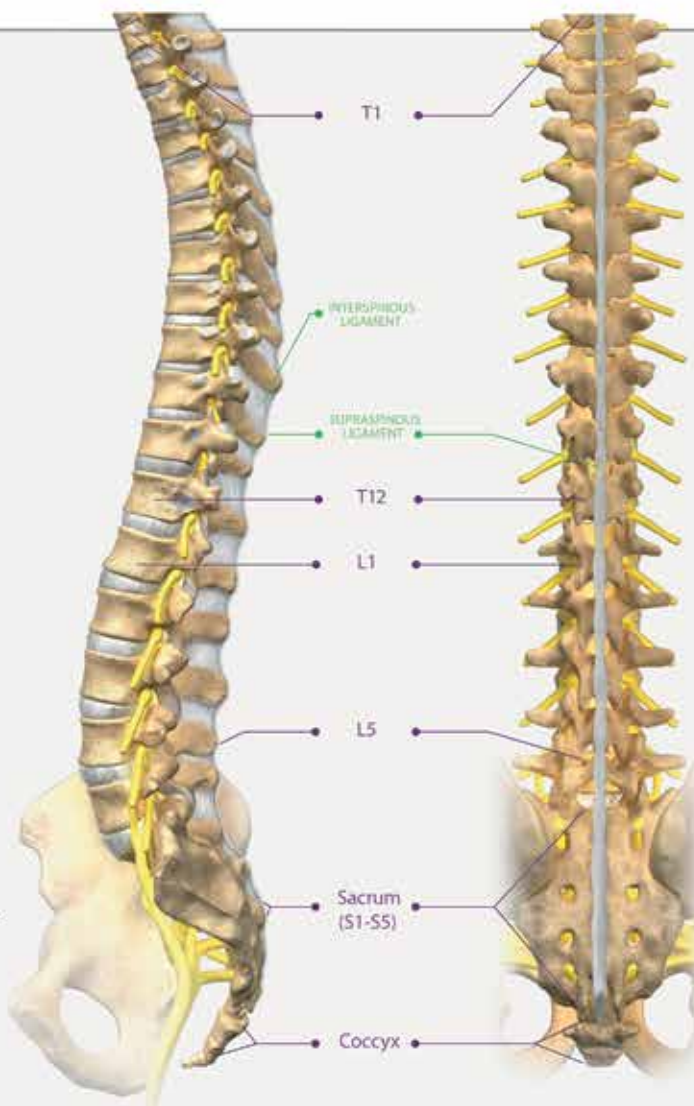
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## Promoting Excellence in Multidisciplinary Spine Care

### SESSION 8: HEALTH CARE PROVIDER WELL BEING FOR THE BENEFIT OF THE PATIENTS - HALL 1

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Maan Kattan   Khalid Batterjee	Speaker
08:00 – 08:10	Health care Provider Burnout		Othman Alkassabi
08:10 – 08:20	Reducing Radiation among Healthcare providers In Spine Practice		Mohammed Khashab
08:20 – 08:30	Top 5 Advices to young Healthcare Providers		Zayed Alzayed
08:30 – 08:40	Discussion		All Panel

### SESSION 9: INNOVATIONS IN SPINE CARE - HALL 1

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Ahmed Alzahrani   Saleh Baeesa	Speaker
08:40 – 08:55	Why and How to incorporate Intra - Operative Neurophysiological Monitoring in Spine Sugery.		Eric Truumees
08:55 – 09:10	Intraoperative Imaging in Spine Surgery – Fluroscopy, 3D Imaging & CT		Frank Kandziora
09:10 – 09:25	Video - and Navigation - assisted 360 reconstruction Techniques in Thoracolumbar fractures		Thomas Blattert
09:25 – 09:40	Intradiscal Biacuplasty for treatment of Discogenic low back pain		Robert Bolash
09:40 – 09:50	Taking your Innovation to the next level		Abdullah Murad
09:50 – 10:00	Discussion		All Panel

10:00 – 10:15

Coffee break + Exhibition  

### SESSION 10A: SPTA BIOMEDICAL VS BIOPSYCHOSOCIAL APPROACH FOR THE MANAGEMENT OF SPINAL PAIN - HALL 1

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Ali Albarrati	Speaker
10:15 – 10:25	The Current Practice in the Management of Back Pain: Call for Action		Ali Alshami
10:25 – 10:40	Looking beyond Spinal Structure: Understanding the Contributing Factors to Disability		Dalia Alemam
10:40 – 10:55	How to Integrate Psycho-Social aspects into the Management of Back Pain		Faris Alodaibi
10:55 - 11:15	Discussion		All Panel





# 2<sup>nd</sup> Saudi Spine Society Annual Conference

## Promoting Excellence in Multidisciplinary Spine Care

### SESSION 10B: EGYPTIAN SPINE ASSOCIATION MANAGEMENT OF AN ACUTE CERVICAL DISC HERNIATION WITH RADICULOPATHY IN A 45 YEARS OLD PATIENT (DEBATE SESSION)- HALL 2

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman :	Speaker
10:15 – 10:25	Cervical Disc Disease: Overview, Pathology, Natural History: EBM		Mohamed Abdelwanis
10:25 – 10:35	Cervical Disc Disease: Conservative Measures: Does it Work: EBM		Nabil Mansour
10:35 – 10:45	Anterior Simple Discectomy VS ACDF; Which is Better?		Ali Abou-Madawi
10:45 – 10:55	Endoscopic Posterior Cervical Foraminotomy: Does it Improve the Outcome		Omar Hammad
10:55 – 11:05	Arthroplasty in Cervical Disc Disease, is it a long Standing option ?		Mohamed Khattab
11:05 – 11:15	Discussion		All Panel

11:15 -12:00

2nd General Assembly / SSS members only - HALL 1

12:15 – 13:00

Lunch Break, Exhibition & Prayers



### SESSION 11A: ABSTRACT - HALL 1

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Faisal Konbaz   Amro Alhabib	Speaker
13:00 – 13:06	Posterolateral Versus Posterior Interbody Fusion in Lumbar Degenerative Spondylolisthesis		Nabeel Alnaghmoosh
13:07 – 13:13	Recent Techniques in Management of Lumbosacral Region Tumours: A Prospective Comparative Study		Ahmed Taha
13:14 – 13:20	Causes and Patterns of Spine Trauma in Adults in Saudi Arabia: Implications for Injury Prevention		Suhail Al Assiri
13:21 – 13:27	Spinal Schistosomiasis, Medical or Surgical Treatment?		Mohammed Elzain
13:28 – 13:34	Discussion		All Panel
13:35 – 13:41	A Retrospective Cohort study on Unstable Thoracolumbar Burst Fractures: To Fix with Single-Level or Two-Level Posterior Spinal Fixation?		Mohammad Alawad
13:42 – 13:48	Chronic Pain: An Output of the Brain, An Opinion on Tissue State of Health		Rachid El Khoury
13:49 – 13:55	Comparative Study of Surgical Approaches for Distractive Flexion Injuries of Sub-Axial Cervical Spine		Ahmed Taha
13:55 – 14:00	Discussion		All Panel





# 2<sup>nd</sup> Saudi Spine Society Annual Conference

## Promoting Excellence in Multidisciplinary Spine Care

### SESSION 11B: ABSTRACT - HALL 2

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Khalid Assiri   Ahmad Habtar	Speaker
13:00 – 13:06	Double level Hybrid Surgery of the Cervical Spine- Combination of Ventral Fusion and Artificial Disc Implantation on Top VS Double level Fusion by Peek Cages Stand alone		Sebastian Gitter
13:07 – 13:13	Minimal Invasive Transforaminal Lumbar Interbody Fusion in Isthmic Spondylolisthesis		Omar Kelany
13:14 – 13:20	Hole Assisted Trans Articular Medical Approach Via Laminofacet Articular Junction For Ainal Stenosis and Spondylolisthesis: Microsurgical and Morphological Study		Figen Aslan
13:21 – 13:27	Is Adolescent Idiopathic Scoliosis Associated with Premature Facet Degeneration?		Fahad Abduljabbar
13:28 – 13:34	Discussion		All panel
13:35 – 13:41	Quality of life in Post Lumbar Microdiscectomy Patients using eq-5d-5l scale		Ibrahim Alnaami
13:42 - 13:48	Stabilization using a Dynamic Plate ( Spanning Over 2 levels ) vs Two Levels Cages		Sebastian Gitter
13:49 - 13:55	Comparison of Percutaneous and Open Posterior Spinal Fixation in Thoracolumbar Fractures		Mohamed Alqazaz
13:56 – 14:00	Discussion		All Panel

### SESSION 12A: ELDERLY SPINE- HALL 1

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Salah Alakkad   Abdullah Arab	Speaker
14:00 – 14:10	Should we offer Surgery to Patients over 80?		Eric Truumees
14:10 – 14:25	Cervical Injuries in the Elderly – Computer Assisted MIS Treatment Strategies		Thomas Blattert
14:25 – 14:40	Surgical treatment of Cervical Myelopathy: Anterior vs Posterior? Which approach has less Morbidity in the Elderly Population?		Frank Kandziora
14:40 – 14:45	Discussion		All Panel

### SESSION 12B: SPINE PAIN MANAGEMENT - HALL 2

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Ali Al Shoaiby   Ayman Abdelhalim	Speaker
14:00 – 14:10	Updates on facet Procedures		Robert Bolash
14:10 – 14:20	Neuromodulation in Spine Care		Abdullah AlGhamdi
14:20 – 14:30	Cervical Spine Epidural Injections, Risks & Benefits		Scott Kreiner
14:30 – 14:40	Cleveland Clinic's Spine Pain Treatment Care Path		Robert Bolash
14:40 – 14:45	Discussion		All Panel





# 2<sup>nd</sup> Saudi Spine Society Annual Conference

## Promoting Excellence in Multidisciplinary Spine Care

### SESSION 13A: BLEEDING MANAGEMENT IN SPINE SURGERY - HALL 1

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Abdullah Othman   Habib Aletani	Speaker
14:45 – 14:55	Blood loss in Adult & Pediatrics Spine Surgery		Mohammed Alshumrani
14:55 – 15:05	The role of Pre-Operative Embolization in Spine Procedures		Almamoon Justaniah
15:05 – 15:15	Pre-Operative Management, How to Prepare the Patient and the Surgery		Hani Alsulaimani
15:15 – 15:25	Intra-Operative Measures to Reduce Blood Loss		Ibrahim AlAssiri
15:25 – 15:30	Discussion		All Panel

### SESSION 13B: UPDATES ON DDD - HALL 2

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Abdulrahman Alarjani   Wasif Alsubaie	Speaker
14:45 – 15:00	Provocative Discography: Is It Still Indicated		Osamah Al Ahdal
15:00 – 15:15	Rehabilitation for Chronic Low back Pain		Ali Alshami
15:25 – 15:30	Discussion		All Panel

15:30 – 16:00

Coffee break, Exhibition & Prayers



### SESSION 14: ADULT SPINE DEFORMITY - HALL 1

19<sup>th</sup> NOVEMBER 2018

Time	Topic	Chairman : Abdulwahid Barnawi   Majid Alosaimi	Speaker
16:00 – 16:10	Adult Spinal Deformity Classifications, Imaging, Impact on Alignment		Saleh Alsulaimani
16:10 – 16:25	Surgical Treatment Principles: Decompression, Short VS long fusion		Ayman tayeb
16:25 – 16:40	Sacrum Fractures Following Long Spine Fusions		Salah AlDeen Khalifah
16:40 – 16:50	The History & Different types of PSO		Anouar Bourghli
16:50 – 17:00	Discussion		All Panel

HALL 1

Announcement of Awards

Closing Remarks

Closing Ceremony



# **ABSTRACTS**

# Abstracts List

## Podium Presentations

- Abstract 1.1** Burnout and quality of life in spine surgeons: results of a worldwide survey
- Abstract 1.2** Back pain and scoliosis prevalence in adolescent in Riyadh, a cross sectional study
- Abstract 1.3** Prospective evaluation of artificial cervical disc implantations up to 15-year results of 300 patients and complication report.
- Abstract 1.4** Is adolescent idiopathic scoliosis associated with premature facet degeneration?
- Abstract 1.5** Accuracy, radiation time, and radiation exposure using computer-assisted instrument navigation vs. conventional c-arm fluoroscopy for spine surgery instrumentation.
- Abstract 1.6** Spinal schistosomiasis, medical or surgical treatment?
- Abstract 1.7** Double level hybrid surgery of the cervical spine- combination of ventral fusion and artificial disc implantation on top Vs. double level fusion by peek cages stand alone.
- Abstract 1.8** Prevalence of pelvic floor disorder and neuropathic pain among females seeking physical therapy for chronic low back pain.
- Abstract 1.9** Percutaneous transforaminal interbody fusion with expandable mesh bag system – preliminary results.
- Abstract 1.10** Comparison of percutaneous and open posterior spinal fixation in thoracolumbar fractures.
- Abstract 1.11** Predictors of neurological disability among adults following traumatic spinal injuries in a center in Saudi Arabia. a retrospective medical record review.
- Abstract 1.12** Stabilization using a dynamic plate (spanning over 2 levels) vs. two level cages.
- Abstract 1.13** Minimal invasive transformational lumbar inter body fusion in isthmic spondylolisthesis.
- Abstract 1.14** Effectiveness of spinal manipulative therapy for chronic low-back pain (systematic review).
- Abstract 1.15** Recent techniques in management of lumbosacral region tumors: a prospective comparative study.
- Abstract 1.16** Comparative study of surgical approaches for distractive flexion injuries of sub-axial cervical spine.
- Abstract 1.17** Minimal invasive interlaminar fusion in lumbar spinal stenosis, comparison w/o additional interbody fusion.
- Abstract 1.18** Hole assisted trans articular medial approach via lamino facet articular junction for foraminal stenosis and spondylolisthesis: microsurgical and morphological study, video presentation.
- Abstract 1.19** Relationship of gluteus maximums insufficiency in the patients with chronic mechanical low back pain among Saudi military personnel
- Abstract 1.20** Prevalence and determinants of low back pain among healthcare workers in Southwestern Saudi Arabia.
- Abstract 1.21** Posterolateral versus posterior interbody fusion in lumbar degenerative spondylolisthesis
- Abstract 1.22** Physical therapy intervention for the management of coccydynia: a systematic review.
- Abstract 1.23** Quality of life in post Lumbar microdiscectomy patients Using EQ-5D-5L scale.
- Abstract 1.24** Anterior cervical discectomy and fusion (ACDF) complications and 30 days mortality and morbidity.
- Abstract 1.25** Chronic pain: an output of the brain, an opinion on tissue state of health.
- Abstract 1.26** A retrospective cohort study on unstable thoracolumbar burst fractures: to fix with single-level or two-level posterior spinal fixation?



**Abstract 1.27** Single center experience in magnetically controlled growing rods (MCGR) in treatment of early onset scoliosis.

**Abstract 1.28** The effectiveness of transcutaneous electrical nerve stimulator (TENS) and exercises on chronic low back pain.

## **Poster Presentations**

**Poster 2.1** Incidence and risk factors of surgical site infection following spinal surgery: a retrospective cohort study.

**Poster 2.2** Management of cervical radiculopathy, anterior and posterior surgical approach-a comparative study.

**Poster 2.3** Effect of pre-discharge instructions on activity of daily living and functional ability for patients of post spinal cord injury.

**Poster 2.4** Invasive vertebral hemangioma, management.

**Poster 2.5** Outcome after gross-total resection of spinal neurinoma.

**Poster 2.6** Evidence-based clinical rational for cervical minimally invasive surgery

**Poster 2.7** Surgical treatment of solitary myeloma of the spine.

**Poster 2.8** Posterior displacement index of the vertebra rostral to thoracolumbar burst fracture relative to the caudal vertebra correlates with the degree of kyphosis.

**Poster 2.9** Comparison of musculoskeletal pain prevalence between medical and surgical specialty residents in a major hospital in Riyadh, Saudi Arabia.

**Poster 2.10** Practical approach for pott's disease of the spine.

**Poster 2.11** Intraspinal gunshot injury presented without neurological deficit: case report.

**Poster 2.12** Does full reduction of spondylolisthesis improve symptoms and quality of life of patients?

**Poster 2.13** Primary healthcare physicians' adherence to acute low back pain referral guidelines in Riyadh, Saudi Arabia.

**Poster 2.14** Review of 104 spinal deformity surgeries operated at KFSHD.

**Poster 2.15** Anterior approaching cases of lumbar and dorsal fractures using expandable corpectomy cage linked to anterolateral vertebral plate as one unite (new idea).

**Poster 2.16** Lumbar disc Herniation in pediatric.

**Poster 2.17** Comprehensive model for spina bifida and hydrocephalus multidisciplinary care.

**Poster 2.18** Knowledge and awareness about osteoporosis among Saudi adults in Riyadh, Saudi Arabia, 2016.

**Poster 2.19** A novel joint injection and peroneal, sural injection technique for lumbar pathology: how does its effect disc resolution and pain reduction rate?

**Poster 2.20** Evaluation of low level laser therapy (LLLT) in post lumbar laminectomy syndrome

**Poster 2.21** bilateral CT guided sacroplasty for treatment of painful metastasis in two patients, a therapeutic challenge.

**Poster 2.22** Prevalence of low back pain among dentistry students, in King Saud University.

**Poster 2.23** The awareness of scoliosis among Saudi population in Riyadh, Saudi Arabia.

**Poster 2.24** Multiple levels vertebroplasty in treatment of painful vertebral metastasis.

**Poster 2.25** Aneurismal bone cyst of spine: report of five cases and review of literature

**Poster 2.26** Intra discal ozone for backache.

**Poster 2.27** Effectiveness of SANGS mobilization in chronic mechanical low back pain.

**Poster 2.28** Prevalence and risk factors of low back pain among Taif surgeons.

**Poster 2.29** Challenges and early outcome of scoliosis surgery in Sudan as a low resourced country.

# **PODIUM ABSTRACTS**

### Abstract 1.1 Burnout and quality of life in spine surgeons: results of a worldwide survey

**Fahad Abduljabbar**<sup>1\*</sup>, Alisson R. Teles<sup>2\*</sup>, Jean A. Ouellet<sup>2\*</sup>, Catherine E. Ferland<sup>2\*</sup>, Chung Chek Wong<sup>3\*</sup>, Giuseppe Barbagallo<sup>4\*</sup>, Darrel Brodke<sup>5\*</sup>, Abdulaziz Al-Mutairi<sup>6\*</sup>, Asdrubal Falavigna<sup>7\*</sup>

Department of Orthopedics, King Abdulaziz University, Jeddah, Saudi Arabia

2. McGill Scoliosis & Spine Group, McGill University, Montreal, Canada

3. Sarawak General Hospital, Department of Orthopedic Surgery - Jalan Tu Ahmad Zaidi Adruce – Kuching, Malaysia

4. Department of Neurosurgery, Policlinico "G. Rodolico" University Hospital – Catania, Italy

5. Department of Orthopaedics, University of Utah - Salt Lake City, Utah, USA

6. Alrazi Hospital, Ministry of Health / Kuwait Institute for Medical Specialization - Adailiya, Kuwait.

7. Department of Neurosurgery, University of Caxias do Sul, Caxias do Sul, Rio Grande do Sul, Brazil.

**Introduction:** Burnout is a syndrome characterized by emotional exhaustion, depersonalization, and decreased sense of accomplishment that leads to decreased effectiveness at work. To date, there is a lack of information on the prevalence of burnout among spine surgeons worldwide and the risk factors associated with this condition. Our objectives were evaluating the prevalence of burnout and assessing the personal and professional characteristics associated with burnout among spine surgeons. **Methods:** An electronic survey with members of AOSpine was performed in May 2018. The survey evaluated demographic variables, practice characteristics, burnout, and quality of life. English, Spanish and Portuguese versions of the Maslach Burnout Questionnaire and EQ5D were used to evaluate burnout and quality of life, respectively. Univariate and multiple regressions were used to identify factors associated with higher burnout scores and quality of life.

**Results:** A total of 818 surgeons from 87 countries answered the survey. The majority of participants were from Latin America (LA = 61.6%) followed by Europe (E = 16.6%), Asia (A = 11.1%), North America (NA = 3.9%), Africa (3.4%), Middle East (ME = 2.7%) and Oceania (0.6%). Majority of respondents were male (93.4%), married (76.3%), had at least

1 child 74% orthopaedic surgeons (62.2%), with more than 10 years in practice (45.2%), working between 40 to 60 hours per week (54.4%) and treating both adult and paediatric spinal pathologies (53.6%).

The prevalence of burnout was 30.6%. High levels of emotional fatigue and depersonalization were observed in 18.1% and 23.2%, respectively; and low levels of personal fulfilment in 21%.

Independent risk factors for burnout were currently being fellow/resident (A-OR = 2.16, P = 0.003), work more than 60 hours per week (A-OR = 1.46, P = 0.032) and not practicing in Latin America (A-OR: NA = 2.79, E = 1.62, ME = 1.45, Asia = 1.78). Higher levels of emotional fatigue (R = -0.35, P < 0.0001), depersonalization (R = -0.21, P < 0.0001) and lower levels of personal fulfilment (R = 0.22, P < 0.0001) were associated with lower scores of quality of life in EQ5D.

**Conclusion:** Burnout is a common condition among spine surgeons worldwide. The overall prevalence is 30.6%, being lower in Latin America (26.2%) and higher in North America (48%). There is a significant association between burnout scores and decreased general quality of life. These results highlight the need for development of interventional programs to better identify, prevent and manage this condition among practicing spine surgeons.

### Abstract 1.2 Back pain and scoliosis prevalence in adolescent in Riyadh, a cross sectional study

**Suhail Saad Al Assiri**<sup>\*</sup>, **Sami Ibrahim Al Eissa**<sup>1\*</sup>, **Rayed Meshal Al Jehani**<sup>1\*</sup>, **Faisal Mohammedsleh Konbaz**<sup>\*</sup>, **Majed Salah Abaalkhail**<sup>1\*</sup>, **Ali A. Alhandi**<sup>1\*</sup>, **Khaled AlShehri**<sup>1\*</sup>, **Monerah Annaim**<sup>1\*</sup>

1. King Abdulaziz Medical City – National Guard Health Affairs – King Saud Bin Abdulaziz University For Health Sciences.

**Introduction:** In recent years, the research community took an increasing interest in adolescent health with multiple studies addressing back pain and scoliosis. Identifying and addressing the possible public health hazards at early age will surely help mitigate their impact in adulthood and help



guiding appropriate treatment at an early stage. Due to the limited data of back pain and scoliosis in the literature, the debate whether a comprehensive screening programs is needed, and a clear recommendation has not been established yet. Hence, this paper aims to study the prevalence of back pain and scoliosis among adolescents in Saudi Arabia.

**Methodology:** All male and female students aged from 12 to 18 years who fit the inclusion criteria were included in a school based cross-sectional study. A stratified, cluster sampling technique was conducted on randomly selected schools and classes. Approval from the institutional board review was obtained. Screening questions including history of back pain and family history of scoliosis were asked. In addition, Adam's forward bend test and a scoliometer were utilized. Descriptive and regression analyses were done. P value of significance was set at  $\leq 0.05$ .

**Result:** Out of 672 students examined, 592 (327 girls, 263 boys) met the inclusion criteria. Mean age was 15.13 years, Family history of scoliosis was found in 45 students (41 first degree, 4 second degree). Intermittent back pain was found in 260 students and continuous pain in 8 students. Adam forward bending test was positive in 204 students with a 2.3 odds ratio with female gender  $p < 0.001$ . Major curve was positive (more than  $5^\circ$  on the scoliometer) in 174 students or 30% of the sample with 4.1 odds ratio with female gender  $p < 0.001$ .

**Conclusion:** Identifying the local prevalence rates and possible early associated factors at adolescent age, with no doubt, have a major impact on public health; not to mention the lowered burden on the health system. We believe a nationwide study is worthwhile to identify the relationship between back pain and scoliosis.

cal plus function scores through 15 years following cervical artificial disc implantation.

**Methodology:** This prospective random. case-series consisted of 300 patients presenting with radicular pain and axial neck pain caused by herniated discs. Patients underwent implantation of an artificial cervical disc, different types. Clinical outcomes measures were collected pre-operatively, and between 6 moth and 15 years post op. Outcomes measures included the Visual Analogue Scale (VAS) for arm and neck pain, medication usage, the neck disability index, modified Oswestry index and the modified Mac Nab criteria's.

**Result:** Patient's age in years was distributed all patients reported neck and / or radicular arm pain VAS  $> 6$ . Oswestry scores were also statistically distributed No peri-operative complications were observed. All patients were observed and statistical checked and clinical, radiological and neurological examined in periods between 2 month up to 15 years. Drop out rate after 15 years: 2 %. Statistically significance ( $P < 0.0005$ ) regarding the NDI Improvements (15 points improvement from the baseline) and the VAS improvements. Complications post op: The study is reporting about cases of adjacent level pathologies and revision procedures.

**Conclusion:** The implantation procedure of artificial cervical disc's offers an exceptional treatment alternative since it provided. Results through 15 years demonstrated longevity of treatment success. A number of dislocations and bony re-stenosis of the neuroforamen caused by progradient ossification were observed. In summary, the rate of post op facet-joint pain syndrome is significant higher than in fusion cases. Rate of adjacent level syndrome with indication for resurgery (fusion): 7 %.

### Abstract 1.3 Prospective evaluation of artificial cervical disc implantations up to 15-year results of 300 patients and complication report.

**Sebastian Gitter 1\***

**Nova clinic Biberach – Biberach, Germany**

**Introduction:** The purpose of this study was to retrospectively evaluate pain resolution and clinical

### Abstract 1.4 Is adolescent idiopathic scoliosis associated with premature facet degeneration?

**Daniel G. Bisson<sup>1,2\*</sup>, Polly Lama<sup>1,2\*</sup>, Fahad Abduljabbar<sup>2,3\*</sup>, Derek H. Rosenzweig<sup>2\*</sup>, Lisbet Haglund<sup>1,2\*</sup>, Neil Saran<sup>1\*</sup>, Jean A. Ouellet<sup>1,2\*</sup>**

Orthopaedic Research Laboratory, Shriners Hospital for Children, Montreal, Quebec, Canada  
Department of Orthopedic Surgery, McGill University, Montreal, Quebec.

Department of Orthopedic Surgery, King Abdulaziz University, Jeddah, Saudi Arabia

**Introduction:** Adolescent idiopathic scoliosis (AIS) is a poorly understood deformity of the thoracolumbar spine which affects the intervertebral discs (IVDs) and the articular facet joints. The knowledge concerning facet joints in this context is very limited, although facet joint degeneration is a known contributor of back pain. In this study, a comprehensive investigation was performed to characterize the facet joint chondrocytes and extracellular matrix within the scoliotic spine.

**Methodology:** Surgically removed articular facet joint tissues were collected from patients undergoing spinal corrective surgery for AIS deformities, while non-scoliotic articular facet joint tissues were obtained from cadaveric organ donors. Alterations in cartilage tissue structure were evaluated histologically with safranin-O fast green and a modified OARSI grading scale. Pro-inflammatory cytokines, matrix-degrading proteases, and fragmented matrix molecules associated with cartilage degradation were analyzed by immune histo chemistry and western blotting.

**Result:** Safranin-O fast green staining revealed that young scoliotic facet joints show clear signs of degeneration with substantial proteoglycan loss, similar to osteoarthritis (OA). The proteoglycan levels were significantly lower than in healthy asymptomatic non-scoliotic

Control individuals. In comparison to controls, scoliotic articular facets showed increased cell density, increased expression of the proliferation marker Ki-67, and higher expression of MMP-3, MMP-13, and IL-1 $\beta$ . Expression and fragmentation of the small leucine-rich proteins (SLRPs) chondroadherin, decorin, biglycan, lumican, and fibromodulin were analyzed with western blot. Chondroadherin and decorin were fragmented in cartilage from patients with a curve greater than 70, whereas biglycan and fibro- modulin did not show curve-related fragmentation.

**Conclusion:** AIS facet joint cartilage shows hallmarks of OA including proteoglycan loss, overexpression of pro-inflammatory mediators, increased synthesis of matrix-degrading proteases and fragmentation of SLRPs. As with patients with age- related OA, the premature joint degeneration seen in scoliotic patients is likely to contribute to the pain

perceived in some individuals.

**Abstract 1.5:** Accuracy, radiation time, and radiation exposure using computer-assisted instrument navigation vs. conventional c-arm fluoroscopy for spine surgery instrumentation.

**Timothy Y. Wang, MD<sup>1\*</sup>; Vikram Mehta, MD, MPH<sup>1\*</sup>; Eric W. Sankey, MD<sup>1\*</sup>; Farah Hamouda, BS<sup>1\*</sup>; Juan Uribe, MD<sup>2\*</sup>; Muhammad Abd-El-Barr, MD, PhD<sup>1\*</sup>**

Department of Neurosurgery, Duke University Medical Center, Durham, NC USA

Department of Neurosurgery, Barrow Neurological Institute ,Phoenix ,AZ USA.

**Introduction:** Surgical instruments, especially during minimally invasive procedures, must be repositioned multiple times throughout an intervention and are often adjusted repeatedly until the physician is satisfied with placement. This increases radiation exposure to both surgeon and patient. Ultra-low radiation imaging coupled with image enhancement and optical instrument tracking (ULRI-IE/IT) allows a computer to show real-time movement of the instrument as it is adjusted, mimicking live fluoroscopy. This has the potential to drastically reduce intraoperative radiation reduction. The purpose of this study is to determine if ULRI-IE/IT can allow instruments to be localized during spine procedures with less x-rays, greater accuracy, and in less time compared to unassisted fluoroscopy.

**Methodology:** A cadaveric study was undertaken. Physicians from various specialties were asked to identify the ideal location for instrumentation for various spine, orthopedic, pain management, and physiatry procedures and then place an instrument to this location both with and without computer assistance, randomly assigned to reduce the impact of learning. Number of x-rays, radiation exposure and time to perform each procedure was recorded.

**Result:** Twenty-three trials of 9 procedures by 5 physicians were completed both with and without the assistance of ULRI-IE/IT, ranging from percutaneous pedicle screws to foramen ovale ablation. Total time to localize for all 23 cases was 31.2% longer without assistance. ULRI-IE/IT reduced the total

number of x-rays by 74.8% and radiation exposure by 91.8%. Statistically significant radiation reduction was experienced for every procedure. With ULRI-IE/IT, physicians were able to successfully place the instrument in the correct location on the first attempt in 82.6% of trials and by the second attempt in 100% of trials. With standard fluoroscopy, physicians were never able on the first attempt and required an average of 4.65 images to achieve accurate placement.

**Conclusion:** Ultra-low radiation imaging with image enhancement and instrument tracking is able to dramatically reduce the number of unnecessary images taken when performing a fluoroscopic procedure. Overall, this resulted in 91.8% radiation reduction and a significant time savings.

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#### **Abstract 1.6 Spinal schistosomiasis, medical or surgical treatment?**

**Abubakr Darrag Salim**<sup>1\*</sup>. *Mohammed Awad Elzain*<sup>2\*</sup>

National Center for Neurological Sciences, Khartoum, Sudan

King Abdullah Hospital, Department of Neurosurgery, Bisha, KSA

**Introduction:** Spinal schistosomiasis is an interesting form of schistosomiasis that tend to affect young individuals producing a characteristic clinical features that consist of low backache, lower extremities weakness, numbness, urinary incontinence and features of cauda equina lesion of recent onset.

**Methodology:** To study the characteristics of Spinal Schistosomiasis, clinical presentation, radiological, histopathological features and the methods used in treatment and their effectiveness. The study was conducted at Shaab and Ibn Khaldon hospitals in the department of neurosurgery in the period from January the first 1995 to December 2016. All patients with diagnosis of spinal space occupying lesions whom their histopathology came as spinal schistosomiasis were included in this study. The records of those patients were reviewed and data collected.

**Result:** Forty patients were found to satisfy the study criteria. The age range was found to be from 5- 42years of age the mean age was found to be 21.4 ± 1 years. M:F ratio was 3:1. Clinically almost all

of them had backache, lower extremities hypohesia, weakness and urine incontinence in a period ranging from one week to six months. 39/40 patients were diagnosed by MRI which showed cauda equine expansion with hyperintense patches in T2 and heterogeneous enhancement post-contrast, while the remaining patient was diagnosed by CT myelogram which showed D12 to L1 or L2 spinal cord intramedullary swelling. In nine patients the diagnosis of cauda equina intramedullary tumor was put at first and all were treated by D11 to L1 laminectomy and spinal cord biopsy which confirmed the diagnosis of schistosomiasis. All patients then received Praziquantel and corticosteroids and all of them showed improvement.

**Conclusion:** Spinal schistosomiasis tends to produce characteristic clinical, radiological and histopathological features. There is no general agreement between the neurosurgeons and the neurologists about the management of this condition. We recommend trial of drug treatment and reserving surgery only for the refractory cases.

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#### **Abstract 1.7 Double level hybrid surgery of the cervical spine- combination of ventral fusion and artificial disc implantation on top vs. double level fusion by peek cages stand alone.**

**Sebastian Gitter**<sup>1</sup>

*Nova Clinic Biberach – Biberach, Germany*

**Introduction:** The author conducted a retrospective study to compare the implantation of polyetheretherketone (PEEK) cages stand alone after anterior cervical discectomy for double level cervical degenerative disc disease to the hybrid surgical procedures by implantation of one level peek cage in combination with artificial disc implantation on top. The significant importance of pseudarthrosis and impact pathology in stand alone PEEK cage implantation procedures is well described in the literature.

**Methodology:** Comparison of two groups: 80 patients double level classical stand a one cage vs 80 patients lower level fusion and artificial disc on to level. Preoperative and postoperative radiological and clinical assessments were typically performed. Result: During the mean follow-up period of 36 months, fusion occurred in 73% of patients in the stand alone group. Subsidence developed in 37%



of the patients in the double level stand alone PEEK cage implantation cohort, clinically relevant in lower than 8%. Subsidence developed in 25% of the patients in the cage plus artificial disc group, clinically relevant in lower than 5%. Significant pain relief in the first 24 months, related to the myelon- and root decompression. In the further follow up we observed significant axial, facet related, pain in the double level fusion group in 45% vs. 20% facet related pain in the cage plus artificial disc group. In the follow up period we observed relevant intermittend adjacent level disc disease in 9% of the PEEK cage stand alone group and in 2.5% of the cage plus artificial disc group. The subsidence rate is associated further with cage height (>6mm). Rate of pseudarthroses in the cage stand alone group is 15% and in the cage plus artificial disc group is 2%. We did not observed any insufficiency or dislocation of the artificial disc during follow up, nor there was heterotopic ossification in the artificial disc level. The rate of adjacent level pathology is significantly lower in the group of fusion with PEEK cage in combination with artificial disc implantation on top.

**Conclusion:** In all parameters, there is a significant advantage of PEEK cage implantation in combination with artificial disc implantation on top compared to the group of double level fusion by Peek cages in stand alone technique. Fusion and / or subsidence affect the clinical outcomes. We recommend the use of artificial disc on top in combination with a lower level PEEK cage implantation is an effective option in cases of combined double level disc degeneration.

Saudi Arabia

Department of Urogynecology and Pelvic Reconstructive Surgery, Women's Specialized Hospital, King Fahad Medical City, Riyadh, Saudi Arabia

**Introduction:** Low Back Pain (LBP) is multifactorial. The majority of outpatient Physical Therapy (PT) referrals are for LBP and it is more prevalent among females. There is lack of studies that estimate the prevalence of pelvic floor disorder (PFD) and Neuropathic Pain (NP) among those females. To our knowledge, the association between PFD and NP has never been examined. The aim of this study is to estimate the prevalence of PFD and NP among females referred to PT due to chronic LBP and to examine the association between PFD and NP in this group.

**Methodology:** This cross-sectional study was conducted in four large hospitals in Riyadh, Saudi Arabia using structured assessment questionnaires. In addition to demographic and clinical characteristics, the prevalence of PFD was assessed using validated Pelvic Floor Distress Inventory (PFDI-20). Self-Completed Leeds assessment of Neuropathic Symptoms and Signs (S-LANSS) was used to differentiate between nociceptive and neuropathic pain. Women between the age of 30 and 60 years referred to PT for chronic LBP, who matched the inclusion criteria, were asked to participate and sign the consent form. The study received the required ethical approval from institutional review board (IRB) of King Saud University

**Result:** A total of 225 women aged  $46.7 \pm 7.7$  years were included. Approximately 79% of them were above the age of 40 years. The patients had BMI of  $31.6 \pm 4.7$  and the majority (69%) of them were not working (mainly housewives). Almost 85% of patients were currently married, and approximately 87% of married (73% of all) were sexually active. Almost all patients (97%) had children with approximately 69% were grand multiparous. Spontaneous vaginal delivery (SVD) was the most common type of delivery (69%) followed by both SVD and C- section (25%) then C- section only (7%). Approximately one-third (33%) of women were in the menopausal state and only 3% were on Hormonal replacement therapy. For the first objective we found that almost more than half of our cohort (52%) are suffering from NP, and approximately 43% are suffering form one or more of PFD. Specif-

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**Abstract 1.8 Prevalence of pelvic floor disorder and neuropathic pain among females seeking physical therapy for chronic low back pain**

**Ghadah Algudairi<sup>2\*</sup>**, Einas Al-Eisa<sup>2\*</sup>, Ahmed Al-Badr<sup>3\*</sup>

Physical Therapy Department, Security Forces Hospital, Riyadh, Saudi Arabia  
Rehabilitation Research Chair, College of Applied Medical Sciences, King Saud University, Riyadh,

ically, the prevalence of urinary distress, colorectal anal distress, pelvic organ prolapse distress and the overall pelvic floor distress were 46.6%, 41.5%, 40.9% and 43%, respectively.

**Conclusion:** PFD and NP are prevalent among females referred to PT due to chronic LBP. Nevertheless, assessment of both is not routinely done in PT practice. There seems to be an interplay between NP and PFD, which needs further evaluation.

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### **Abstract 1.9 Percutaneous transforaminal interbody fusion with expandable mesh bag system – preliminary results**

Muhammad M. Abd-El-Barr MD, PhD<sup>1\*</sup> Kevin T. Huang MD<sup>2\*</sup> John H. Chi MD, MPH<sup>2</sup>

Department of Neurosurgery, Duke University Medical Center, Durham, NC USA,

Department of Neurosurgery, Brigham and Women's Hospital, Harvard Medical School, Boston, MA USA.

**Introduction:** With the advent of minimally invasive surgery (MIS) techniques for lumbar spine surgery, there has been an increased interest in methods to accomplish interbody fusion with minimal muscle dissection, bony drilling and nerve retraction, yet provide biomechanical stability. In this study, we review our preliminary experience using an expandable mesh bag system that is used as an interbody spacer that can be placed percutaneously in patients undergoing transforaminal interbody fusion (TLIF) procedures.

**Methodology:** A retrospective review of our first 14 cases of percutaneous TLIF were reviewed. Demographic data were reviewed. Intraoperative records were reviewed for complications and blood loss. Clinical records were reviewed to assess how patients were doing after surgery.

**Result:** The average age of the patients at surgery was 53 years with a standard deviation of 11 years. Six out of fourteen (43%) of patients were female. Seven out of 14 patients (50%) of patients underwent L4-5 TLIF, 5 (36%) underwent L5-S1 TLIF, one underwent L3-4 TLIF and another one underwent

L4-S1 TLIF. No intraoperative complications were noted. Average blood loss was approximately 25 ml. The average clinical and imaging follow up time was 1 year. Nine of 14 (65%) of patients had an excellent result after surgery. Only 2 patients (14%) did not have a positive result after surgery. One patient developed a herniated disc at an adjacent level that was treated conservatively. One patient showed evidence of subsidence of cage on postoperative imaging.

**Conclusion:** Percutaneous placement of an expandable mesh bag system for interbody fusion appears to be a safe and effective method. The decreased blood loss and morbidity due to minimizing muscle dissection, bony drilling and nerve root manipulation are positive characteristics of this system.

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### **Abstract 1.10 Comparison of percutaneous and open posterior spinal fixation in thoracolumbar fractures**

Mohamed Alqazaz <sup>1\*</sup> Ahmed alsawaf <sup>1\*</sup>

1 Suez Canal University – Egypt

**Introduction:** Unstable thoracolumbar fractures are usually managed by posterior instrumentation. The standard open pedicle screw fixation or the newly introduced percutaneous technique can be used. The purpose of this study was to provide safety and feasibility of both techniques and getting a more obvious plan for choosing either of them in such cases.

**Methodology:** This is a prospective study of a total of hundred and sixty-six patients with unstable thoracolumbar fractures with a mean follow-up of 14 months (range 10-21), they were classified randomly into two groups: Group I: Patients who underwent percutaneous spinal fixation and minimally invasive decompression if needed (72 patients). Group II: Patients who underwent standard open pedicle screw fixation with open decompression (94 patients). All patients had complete clinical assessments using Frankle grading scale and the visual analogue scale (VAS) for assessment of fracture site pain. We had also neuro-radiographic assessment (Antero-posterior X-ray, thin cuts CT

scan and MRI imaging) at the first presentation and at 3, 6 and 12 months later.

**Result:** Immediately after surgery, percutaneous approach had significantly better results compared to open procedures in respect to operative time, hospital stay, and postoperative pain. At the final follow-up, there were significant clinical and radiological improvement according to Frankle grading scale in both groups. The Cobb angle and degree of canal encroachment also assessed respectively. **Conclusion:** Percutaneous technique in stabilizing the thoracolumbar fractures could be done regularly in all cases with percutaneous minimally invasive decompression if needed. Open spinal fixation can be reserved for significant canal compromise especially if multilevel decompression is required.

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#### **Abstract 1.11 Predictors of neurological disability among adults following traumatic spinal injuries in a center in Saudi Arabia. A retrospective medical record review**

*Suhail Saad Al Assiri<sup>1\*</sup>, Sami Ibrahim Al Eissa<sup>1\*</sup>, Faisal Mohammedsaleh Konbaz<sup>1\*</sup>, Mohammed Jassim AlSalman<sup>1\*</sup>, Rayed Meshal Al Jehani<sup>1\*</sup>, Majed Salah Abaalkhail<sup>1\*</sup>, Suliman Alghnam<sup>2\*</sup>*

Orthopedics surgery department, King Abdulziz Medical City – National Guard Health Affairs – King Saud Bin Abdulaziz University For Health Sciences – Riyadh

King Abdullah International Medical Research Center

**Introduction:** Traumatic spinal injury (TSI) is a serious condition that affects patients and their families in many aspects. Globally, TSI has an incidence of 8 to 246 per million per year. The most common cause of spinal injury is trauma. Understanding the causes and patterns of traumatic spinal injury is a critical step in developing prevention programs. We aim to identify the mechanisms and patterns of spinal injuries at a major trauma center in Saudi Arabia.

**Methodology:** We conducted a chart review of patients with traumatic spinal injuries identified from the hospital trauma registry. The analysis included 1,128 cases of spinal trauma. Inclusion criteria included any traumatic spinal injuries among

patients 18 years of age or older from January 2001 to January 2016. We excluded pathologic fractures and minor injuries. One musculoskeletal radiologist reviewed all of the radiological images that were identified. Univariate and multivariable logistic regression models were conducted to identify predictors of neurological disability.

**Result: Results.** Of 1,128 cases, 971 patients were included, (86.1%) were male and the mean age was 34.63 years. Motor vehicle accidents (MVA) were the most common injury mechanisms. Seat-belt status was documented only in 15.1% of cases, of which 0.3% used seatbelts. Cervical spine was the most commonly affected region (41.4%) with a mortality rate of 7.6%. The most common type of fracture sustained in the cervical spine involved the vertebral body (28.6%). Moreover, a closed head injury was present in 42.4% of cervical trauma patients. Neurological deficits were found in 6.7% of patients, and 8.7% of those with cervical injuries died in the hospital.

**Conclusion:** This study found that MVA was the most common cause of spinal injuries. This finding highlights the need for strict traffic laws and seatbelt use. Nevertheless, awareness about safe driving and possible injuries associated with crashes should be addressed in the community and law enforcement, in addition to appropriate care during the transfer of injured patients to the hospital.

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#### **Abstract 1.12 Stabilization using a dynamic plate (spanning over 2 levels) vs. two level cages**

*Sebastian Gitter<sup>1\*</sup>*

Nova clinic Biberach – Biberach, Germany

**Introduction:** Objective The author conducted a retrospective study to compare the implantation of polyetheretherketone (PEEK) cages after anterior cervical discectomy for double level cervical degenerative disc disease to the additional dynamic ventral screw and plate fixation in 2 different systems ( 2 different polyaxial screw systems) . The significant importance of pseudarthrosis and impact in standalone PEEK cage is well described.

**Methodology:** A group including a total of 80 patients with double-level degenerative disc disease was treated with anterior cervical discectomy and



implantation of PEEK stand-alone cages. We compare this group to another group of 80 patients: the procedure of peek cage implantation was added by ventral dynamic plate and polyaxial screw fixation. Preoperative and postoperative radiological and clinical assessments were performed.

**Result:** Follow-up period of 36 months: fusion occurred in 73% of patients in the stand alone group and in 96 % of all patients in the plate added group. Subsidence : 37% of the patients stand alone PEEK cage implantation cohort. No subsidence in the group of additional plate observed. In the early follow up ( up to 24 month ) pain decreased in all patients, and the patients' satisfaction rate:79% in the stand alone group vs. 92 % in the plate group. Neither fusion or subsidence was related to the clinical outcome in the early time of 12 month. In the further follow up we observed significant axial pain in the subsidence group (56%) vs. facet related pain (treatment) in the additional plate group (32%). We observe relevant, adjacent level disc disease in 9% of the PEEK cage stand alone group and in 10.5% of the additional plate cohort. The history of development of NDI is related to the rate of axial and facet pain syndromes. The subsidence rate is associated further with cage height (>6mm). Rate of pseudarthroses in the cage stand alone group: 15%, no pseudarthrosis in the plate group.

**Conclusion:** The clinical and radiological demonstrate significant difference in outcome between the cage stand alone vs the additional plate- groups. There isn't in all parameters a significant advantage in PEEK cage implantation in double level procedures in combination with additional plate and screw fixation. Fusion and / or subsidence affect the clinical outcomes. Using of additional platement is an effective option (recommended) especially in cases of delordotic and kyphotic cases.

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### **Abstract 1.13 Minimal invasive transforaminal lumbar interbody fusion in isthmic spondylolisthesis**

*Omar Kelany <sup>1\*</sup>, Elsayed Selem <sup>1\*</sup>*

Orthopedics Department, Zagazig University Hospitals, Egypt

**Introduction:** Lumbar spinal fusion has been

assumed to be the treatment of patients with failed conservative management in cases of isthmic spondylolisthesis. Instrumented fusion correct the spinopelvic parameters deformity in these cases due to the ability of pedicle screws to reduce and maintain the reduction till the fusion occur. Supported by some growing evidence, the main advantages of percutaneous pedicle screws are the avoidance of unnecessary muscle disruption and soft tissue dissection with decreased blood loss and faster recovery with less hospital stay. Controversy remains about the ability of the percutaneous instrumentation to reduce and maintain the slippage and the fusion rate of these segments.

**Methodology:** Twenty-four patients with low grade isthmic spondylolisthesis with axial low back pain and/or leg pain were treated with minimal invasive transforaminal lumbar body fusion augmented with percutaneous pedicle screw fixation. The operative data (blood loss, radiological exposure, operative time) were evaluated and the radiological assessment for reduction and the changes in spinopelvic parameters were studied on standing long films X-ray. The patients' functional outcomes were evaluated using Oswestry Disability Index (ODI). Visual analogue scale (VAS) was used to assess back and leg pain. Treatment related complications were reported.

**Result:** The blood loss and operative time were reduced by the increase in learning curve. There was a significant correction in the slip degree and the slip angle in comparison to the preoperative data. Post-operative correction of the spinopelvic parameters till nearly normal values was also obvious which was maintained in the follow up. No major wound related complication was reported. One case showed backward displacement of the cage with no neurological deterioration. Local bone graft from the removed facet joint and parts of the lamina was used with PEEK cages to obtain interbody fusion and the fusion rate was about 95.83% evaluated in the final follow up radiographs. ODI and VAS of back and leg pain were significantly reduced in postoperative data when compared the preoperative ones

**Conclusion:** Minimal invasive TLIF (Transforaminal Lumbar Interbody Fusion) with local bone graft has been shown to be a good modality in reducing isthmic spondylolisthesis and correct the spinopelvic parameters deformity. Cost effectiveness of this technique must be evaluated thoroughly with the final and late outcome of these fracture manage-

ment. More randomized controlled and comparative studies with open TLIF are needed to support these findings.

on treatment costs, the preferences of the patient and practitioners, and the relative safety of SMT.

### **Abstract 1.14 Effectiveness of spinal manipulative therapy for chronic low-back pain (systematic review)**

*Kholoud Alhomoud<sup>1</sup>*

1. Physical Therapy Department, King Saud University – Riyadh

**Introduction:** Many treatments exist for low-back pain (LBP). These include spinal manipulative therapy (SMT), which is a universal and widely practiced intervention. The main Objective of our study is to evaluate SMT effectiveness upon an individual's pain, and the functional status on long-term  
**Methodology:** Search of multiple databases from June 2009 up to June 2017 for Randomized Controlled Trials (RCTs) studies. Two reviewers employed the Cochrane Collaboration's tool for evaluation of bias probability in independent rating of the selected studies

**Result:** Three RCTs were included after applying the inclusion/exclusion criteria to the trials from the searched databases (total participants = 698). Two of the included trials had a low risk of bias and one had a high risk of bias. There is a small significant effect of SMT on CLBP but not clinically relevant. SMT causes a short-term effect on pain relief and functional status improvement compared to other interventions. Furthermore, data suggest that there were fewer recurrences of LBP & significantly less use of pain-related drugs Among the SMT groups. However, there were no significant long-term differences between SMT treatment and other common interventions.

**Conclusion:** The trials included in this review did not demonstrate clinically significant on long-term pain and functional improvements in patients with CLBP after application of SMT. To maintain the improvements that were observed in the short term in many RCTs, Further research advocated 'maintenance SMT', whereby SMT is applied for more than six weeks. However, SMT requires availability of proficiently trained practitioners in the ambulatory setting. Therefore, if a practitioner wanted to use SMT for a patient with CLBP, this should be based

### **Abstract 1.15 Recent techniques in management of lumbosacral region tumors: a prospective comparative study**

*Ahmed Taha<sup>1\*</sup>, Mostafa Abdelsamee<sup>1\*</sup>*

1. Neurosurgery Department Alazhar University Hospitals, Egypt.

**Introduction:** The lumbosacral plexus consists of the ventral rami from the L2 to S3 nerve roots, with some additions from the L1 and S4 nerve roots as well (1). It contains around 200000 axons and gives rise to six sensory nerves to the thigh and leg and six major sensorimotor nerves innervating about 43 muscles (2). The lumbosacral plexus actually consists of two separate parts, the lumbar and the sacral plexus lying above and below the pelvic rim, respectively, which are connected by the so-called lumbosacral trunk. The lumbar part of the plexus lies embedded between and in the paraspinal quadratus lumborum and psoas muscles, making it vulnerable to local trauma or compression (3,4). On the other hand, the sacral plexus lies in the pelvis making it vulnerable to pelvic pathology. For diagnostic purposes it is important to make a clinical distinction between pathology in either the lumbar or sacral part of the plexus, or both, as the etiology and diagnostic approach (e.g., choice of muscles for needle EMG or MRI technique) varies accordingly (5). Generally speaking the cause of a lumbar or sacral plexopathy is usually obvious or has only a limited differential diagnosis once the clinical diagnosis has been made. The lumbosacral plexus is most frequently affected by diabetic amyotrophy (a.k.a. Bruns-Garland syndrome or diabetic radiculoplexoneuropathy), an acute onset and very painful disorder occurring in about 0.8% of all patients with diabetes mellitus (6). Other less frequent causes are disruptive trauma of the pelvic ring or lumbar region, iatrogenic damage with surgery or radiation, and entrapment neuropathy of the lumbosacral trunk during the last trimester of pregnancy (7). Compression by a tumor, hematoma

in coagulopathy, aneurysm or abscess, and inflammatory, infectious or hereditary neuropathies are all rarer causes of a lumbosacral plexopathy. Lumbar degenerative spinal pathology and stenosis can also lead to compression of multiple nerve roots, which can cause pain, sensory symptoms, and paresis in a plexus-like distribution (8,9). Usually, the additional symptoms of lower back pain and provocation of symptoms by certain activities (e.g., walking) provide the clue to this diagnosis. Another mimic of a lumbosacral plexopathy can be lower-limb motor neuron disease, either idiopathic as in amyotrophic lateral sclerosis (ALS) or spinal muscular atrophy (SMA), or infection in endemic areas as in a poliomyelitis anterior acuta (10). In young patients a previously undiscovered tethered spinal cord can also present with patchy paresis and sensory symptoms in the legs (11,12). The aim of this study is to evaluate outcome after surgical removal with duration of symptoms and nature of the lumbo-sacral spinal tumors.

**Methodology:** During the period between 2015 and 2017, thirty cases were studied and surgically managed in Al-Azhar University Hospital, Damietta. Cases were selected for surgery if they were diagnosed as having a symptomizing lumbosacral lesion. All patients were subjected to a full history taking, full clinical examination, and routine laboratory investigations. Magnetic resonance imaging (MRI) of the spinal cord was done in all patients, while computed tomography (CT) was done in three cases, and spinal angiography was done in three cases and MRI brain and CT abdomen done when are needed. All of the thirty surgical cases were operated upon under general endotracheal intubation anesthesia. A posterior surgical approach was done in all cases. The operating surgical microscope was used in all cases. Patient's baseline characteristics are reported in the following table 1. Patients Characteristics Mean  $\pm$  SD, N(%) Age  $38.96 \pm 15.42$  Gender Male 15 (50%) Female 15 (50%) Ependymoma 8 (27%) Astrocytoma 6 (20%) Meningioma 5 (17%) Nerve sheath tumor 5 (17%) Hemangioblastomas 3 (10%) Epidermoid 1 (3%) Epidermoid of filum terminale 2 (6%) Table 1: Shows the baseline patients' characteristics. 2.2. Surgical procedures The operating surgical microscope was used in all cases. Surgical intervention was indicated by a combination of presenting symptoms (radiculopathy and/or myelopathy)

and radiographic findings of magnetic resonance imaging (MRI), and computed tomographic (CT). The neuroimaging procedure of choice was contrast-enhanced MRI. All patients were operated upon under general endotracheal anesthesia. Pre-anesthetic intravenous medications were given on induction of anesthesia in the form of a 1 gram of 3rd generation cephalosporin, and 8 mg decadron. As mentioned before, 3 cases had intra-operative somatosensory evoked potential monitoring; the electrodes were positioned prior to placing the patient in the prone position fig 1. All patients were operated upon in the prone position, using a spinal bridge, with flexion of the hips and knees. To prevent epidural venous congestion, complete freeing of the abdomen was done. The skin was prepared using the usual protocol for surgical antisepsis (10%, povidone iodine for 3 minutes). A midline skin incision was performed starting 2 levels above and below the desired site for laminectomy guided by fluoroscopy. This was followed by sub-periosteal muscle separation bilaterally. A laminectomy was performed for all of the cases (laminoplasty was not done as there was no suitable tools), extending one level above and below the desired site for surgical exposure. A midline I-shaped dural incision was then done. Stay stitches of the dura to the adjacent muscles were done to keep the dura open. The operating microscope was brought in at this stage for all of the cases fig: 2. Using microsurgical technique, the blood vessels on the dorsal aspect of the spinal cord were mobilized from the midline using sharp arachnoid dissection, if they happen to cross the midline at the desired myelotomy site. A myelotomy was then performed in intramedullary lesions only. In cases where evoked potentials were available, the site of myelotomy was guided by the readings of the evoked potential. The tumor was then identified and its consistency, color, and vascularity were assessed. Internal debulking was done, taking care not to thin out the tumor too much in order not to lose tumor grip During dissection. The tumor was then dissected from the surrounding normal cord tissue using a combination of aspiration and a blunt dissection. The upper and lower pole of the tumor was then followed till a total or subtotal tumor resection was achieved. 2.3. Outcomes Evaluation The study outcomes classified into 5 categories: 1) Excellent: those patients with a total surgical removal of the



lesion, with no postoperative new neurological deficit; 2) good: those patients with a subtotal surgical removal of the lesion, and no postoperative new neurological deficit; 3) fair: those patients with a total surgical removal of the lesion, but with a postoperative neurological deficit; 4) poor: those patients with a subtotal surgical removal of the lesion, and a postoperative neurological deficit; 5) death. 2.4. Statistical Analysis Categorical data were expressed as frequencies and percentages and compared using the Chi-Square test, while continuous data were expressed as means  $\pm$  standard deviations of the mean and compared using the student's T test of two independent samples. We performed multivariate logistic regression to predict the independent factors for motility. All analyses were conducted using the SPSS (version 22 for windows) and the significance of performed tests was assigned at  $p$  value  $< 0.05$ .

**Result:** Thirty patients were included in the current study; the commonest lesion in this study was ependymoma eight patients (27%), astrocytoma six patients (20%), and meningioma five patients (17%). Nerve sheath tumor comprised five cases (17%) with the hemangioblastomas three cases (10%), epidermoid one case (3%), and ependymoma of the filum terminale two cases (6%). The mean age of the included patients was  $38.96 \pm 15.42$ . The mean duration of lesions was  $13.66 \pm 10.93$ . Rative Fig: 1 Preoperative MRI and CT for destructive lesion for L5 with significant cord compression. Postoperative x ray LSS shows posterior PLIF with transpedicular fixation after resection of the tumor involving L5. Fig: 2 Preoperative MRI showed decrease height of the L2 vertebral body on the right side with large bony lesion displaying abnormal signal intensity. Figure 3: Shows the duration of each lesion type 3.2. Efficacy outcomes Of all included patients, 14 cases (46.6%) shows excellent status, 11 cases (36.6%) good status, two cases (6.6%) fair status, three cases (10%) poor status, and we have no death cases. 3.3. Relationship of imaging characteristics to pathology We observed that it was extremely difficult to differentiate ependymoma and astrocytoma on T1 WI and T2WI basis. Post-contrast imaging proved that ependymomas tended to be more homogenous and intensely enhancing than astrocytomas, in addition, it helped in differentiating between syringomyelia and tumor-related cyst. 3.4. Site in

Relation to Pathology Regarding the site relation to pathology, our results demonstrated that 14 cases (47%) in the lumbo-sacral cord, 10 cases (33%) of tumors were located in the upper lumbar cord, three cases (10%) of tumors were located in the lower lumbar cord, and the remaining three cases (10%) in the Sacro and sacro-coccygeal region.

3.5. Treatment Modalities in Relation to Pathology Management lines of cases encountered in this study included medical treatment preoperatively, surgical decompression, radiotherapy, chemotherapy. But the choice of particular management plan was tailored for each case. Surgery was the primary treatment modality of choice in all cases. Cases were considered to be indicated for surgery if they had a symptomizing intra-dural spinal cord mass lesion. 3.6. Safety Outcomes Complications were encountered in eight

cases (23%) of patients. The commonest problem was a postoperative CSF leak. This complication is avoidable with a meticulous dura suture and tight soft-tissue closure, especially of the muscular layer. In recurrent cases, soft-tissue scarring puts the patient at an increased risk for leak. In such instances we recommend insertion of a lumbar drain at surgery and to keep it for about one week as a preventive measure, especially if a duroplasty has been inserted. Depending on the intraoperative situation, it may even be advisable in selected cases to insert a layer of fascia lata to reinforce the dura suture. There were three cases of CSF leak which treated conservatively and they improved. Other complications include wound infection two cases post operation. 3.7. Outcomes in Relation to the Pathology Of the surgical cases, 19 cases (63%) were totally resected, while 11 cases (37%) were gross totally resected. The largest number of total resections in our study were meningiomas (5 cases out of the 5 cases, 100%) and ependymomas (7 cases out of the 8 cases, 85%), and nerve sheath tumor (4 cases out of 5 cases, 80%) while the largest number of cases that were gross totally resected was astrocytomas (6 cases out of the 6 cases, 100%). This indicates that spinal cord ependymomas, meningiomas and nerve sheath tumor are amenable to total resection, while achieving total resection in astrocytomas is not possible.

Conclusion: According our finding, we conclude that excellent outcome was associated with ependymoma followed by meningioma, nerve sheath tumors and extramedullary ependymoma

of filum terminale. Accurate and rapid diagnosis prior to surgery is also associated with good outcome. The presence of new sophisticated utilize namely, MRI, operating microscope, and intraoperative somato-sensory evoked potential, all have added to armaments of the surgeon to provide a better results. This is evident when the recent results compared to the past.

### **Abstract 1.16 Comparative study of surgical approaches for distractive flexion injuries of sub-axial cervical spine.**

*Ahmed Taha<sup>1\*</sup>, Hatem Alsamouly<sup>1\*</sup>*

Neurosurgery Department Alazhar University Hospitals Egypt

**Introduction:** Distractive flexion injuries (DFI) of subaxial cervical spine are 10 % of all injuries to lower cervical spine. The main cause is road traffic injuries. This injury involves posterior soft tissue and not bone, so the healing with conservative treatment is poor. This injury is due to hyperflexion of cervical spine leading to disruption of interspinous and supraspinous ligaments, ligamentum flavum, facet capsule, the anterior longitudinal ligament (ALL), posterior longitudinal ligament (PLL), and disc. Although the disruption of the posterior ligaments is severe, all three columns are usually affected. DFI of subaxial cervical spine are graded along a spectrum that includes subluxation, perched facts, unilateral dislocation, bilateral facet dislocations and fracture - dislocation. MRI allows visualization of disruptions of posterior and anterior longitudinal ligaments and facet capsules. The ability of MRI to detect a canal occupying herniated disc before or after closed skeletal cervical traction results in the potential for variability in surgical approach selection. The reduction and restoration of cervical alignment is necessary. The surgical approach is variable depending on severity of DFI injuries, spinal cord compression, presence of a traumatic intervertebral disc herniation, neurologic status, and the technical familiarity of the individual surgeon.

**Methodology:** A retrospective comparative study of 60 consecutive patients with DFI of subaxial cervical spine, was performed over the period 2014 to 2016. All patients underwent initial routine resusci-

tative measures and full general and neurological examinations. Assessing the neurologic function according to modified Frankel' grading: Grade A: Complete quadriplegia, Grade B: Incomplete quadriplegia with useless motor function, Grade C: Incomplete quadriplegia with useful motor function, Grade D: Root sign or symptom and Grade E: Intact motor and sensory function. All patients received cervical plain antero-posterior, lateral and oblique X-ray, CT with 3D and MRI of cervical spine. Severity of DFI injury assessment was according to Allen and Ferguson's classification. It includes: DFI stage 1: flexion sprain and facet joint subluxation with divergence of the spinous process. DFI stage 2: unilateral facet joint dislocation. DFI stage 3: bilateral facet joint dislocation with less than 50% vertebral body displacement anteriorly. DFI stage 4: floating vertebrae, translation is more than 50% anteriorly. Distractive flexion injuries associated with other

cervical spine injuries or more than one level were excluded from the study. Closed skull traction was applied after MRI cervical spine to all patients. Surgery was started within 8-72 hours from the accident in all patients. Surgical procedures: Anterior approach; supine position, fiberoptic intubation, anterior cervical approach includes discectomy, unlocking facet joint through controlled distraction and fusion using cage with plate and screws. Posterior approach: fiberoptic intubation, prone position, posterior cervical approach includes unlocking facets through partial superior facetectomy of the involved fact and manipulation, fusion with bone graft and lateral mass fixation using screws and rods. All patients wore postoperatively hard cervical collar for 6 weeks. Compared and followed up of all patients clinically with periodic assessment of neurological recovery and plain radiographs at 3 months, 9 months and at 12 months. The fusion rate, extend of bone fusion and alignment of cervical spine, changes in the vertebral height and Cobb's angle all were assisted and compared in both approaches. Assessment and managed the operative complications in both approaches. Statistical analysis: Chi-squared and student testes were applied to compare the data between different groups.

**Result:** A retrospective comparative study of 60 consecutive patients with DFI of subaxial cervical spine was performed over the period 2014 to 2016. All patients underwent initial routine resuscitative measures, full general and neurological

examinations. Assessing the neurologic function according to modified Frankel's grading: Grade A: Complete quadriplegia, Grade B: Incomplete quadriplegia with useless motor function, Grade C: Incomplete quadriplegia with useful motor function, Grade D: Root sign or symptom and Grade E: Intact motor and sensory function (van Middendorp JJ, et al 2011). All patients received cervical plain antero-posterior, lateral and oblique X-ray, CT with 3D and MRI of cervical spine. Severity of DFI injury assessment was according to Allen and Ferguson's classification. It includes: DFI stage 1: flexion sprain and facet joint subluxation with divergence of the spinous process. DFI stage 2: unilateral facet joint dislocation. DFI stage 3: bilateral facet joint dislocation with less than 50% vertebral body displacement anteriorly. DFI stage 4: floating vertebrae, translation is more than 50% anteriorly. (Allen BL, Ferguson RL, Lehmann TR et al 1982) Distractive flexion injuries associated with other cervical spine injuries or more than one level were excluded from the study. Closed skull traction was applied after MRI cervical spine to all patients. Surgery was started within 8-72 hours from the accident in all patients. Surgical procedures: Anterior approach; supine position, fiberoptic intubation, anterior cervical approach includes discectomy, unlocking facet joint through controlled distraction and fusion using cage with plate and screws. Posterior approach: fiberoptic intubation, prone position, posterior cervical approach includes unlocking facets through partial superior facetectomy of the involved facet and manipulation, fusion with bone graft and lateral mass fixation using screws and rods. All patients wore postoperatively hard cervical collar for 6 weeks. Compared and followed up of all patients clinically with periodic assessment of Neurological recovery and plain radiographs at 3 months, 9 months and at 12 months. The fusion rate, extent of bone fusion and alignment of cervical spine, changes in the vertebral height and Cobb's angle all were assessed and compared in both approaches. Assessment and managed the operative complications in both approaches. Statistical analysis: Chi-squared and student t-test were applied to compare the data between different groups. Results Sixty consecutive patients with DFI of sub-axial cervical spine were admitted and managed at Al-Azhar university hospitals throughout the years 2014 to 2016. Males were 42 (70%) and females were 18 (30%) with the age ranged from 18 to 52 years ( $38.23 \pm 14.38$

years). The interval between injury and surgery was 10 - 72 hours (46 hours). The mechanism of injury was motor car accident in 51 patients (85%) and falling from height in 9 patients (15%). Most common level involved was C5-6 and according to Allen and Ferguson's classification; DFI stage 3, (24 patients (40%)) was most common stage involved. Table 1) Table 1: Levels and stage of DFI in the cervical spine among studied patients.

Level	Stage	Number	%
C3-4	Stage 1	6	10.00%
C4-5	Stage 2	21	35.00%
C5-6	Stage 3	25	41.66%
C6-7	Stage 4	8	13.33%
Total		60	100%

According to modified Frankel's grading; grade A, 20 patients (40%) was most common grade presented among studied patients. (Table 2) Table 2: Grade of neurological function among studied patients.

Grade	Number	%
Grade A	24	40.00%
Grade B	12	20.00%
Grade C	9	15.00%
Grade D	10	16.66%
Grade E	5	8.33%
Total	60	100%

Patients operated through anterior approach were 36 patients (60%) including stage 1, (3 cases) stage 2, (3 cases) stage 3, (24 cases) and 4 (6 cases). Patients operated through the posterior approach were 24 patients (40%) including stage 1, (15 cases) and 2, (9 cases). (Table 3) Table 3: DFI Stage and the approach used among studied patients.

Stage of DFI	Anterior approach	Posterior approach	Number	%
DFI stage 1	3	15	18	30.00%
DFI stage 2	3	9	12	20.00%
DFI stage 3	24	0	24	40.00%
DFI stage 4	6	0	6	10.00%
Total	36	24	60	100%

The association of cervical disc herniation with DFI was 32 cases as follow: (DFI stage 1) 3 cases, (stage 2) 3 cases, (stage 3) 20 cases and (stage 4) 6 cases. Skull traction was applied in 44 patients (73.3 %). The complications of anterior approach were, transient laryngeal nerve palsy 2 cases (5.56%), transient dysphasia 2 cases (5.56%), carotid artery injury one case (2.78%), Dural tear one case (2.78%), and cord contusion one case (2.78%). The complications of posterior approach were, screw loosening 5 case (20.83%), vertebral artery injury one case (4.17%). Table (4) Table 4: Showed complications of both approaches.

Approach	Complications	Number	%	P value
Anterior	Transient Laryngeal nerve palsy	2	5.56	0.00
Anterior	Transient dysphasia	2	5.56	0.01
Anterior	Carotid artery injury	1	2.78	0.01
Anterior	Dural tear	1	2.78	0.01
Anterior	Cord contusion	1	2.78	0.01
Posterior	Screw loosening	5	20.83	0.00
Posterior	Vertebral artery injury	1	4.17	0.00

P value statistically significant < 0.5 The



neurological recovery was observed during the follow up period in anterior approach was 13 (36%) patients and in posterior approach was 14 (58.3%) patients. Table (4). Table 5: Showed neurological recovery from both approaches. Anterior Preoperative Posterior Preoperative Number % Number % Grade A 18 38.89 6 75.00 Grade B 6 16.67 5 12.50 Grade C 6 13.89 4 8.33 Grade D 4 16.67 6 4.14 Grade E 2 13.89 3 0.00 Total 36 100% 24 100 Anterior Postoperative Posterior Postoperative Number % Number % Grade A 13 33.33 5 50.00 Grade B 9 11.11 6 8.33 Grade C 5 11.11 1 16.67 Grade D 4 11.11 9 8.33 Grade E 5 during 33.33 3 16.67 Total 36 100% 24 100.00 Changes in the vertebral height Statistically significant The restore of cervical alignment (Cobb's angle) was achieved in 29 patients (80.56%) operated through anterior approach and in 12 patients (50%) through posterior approach. Mean time of bone fusion was 5.454 months in anterior approach while it was 9.876 months in posterior approach. Bone fusion rate (fusion time) Table (6): Showed time of bone fusion. fusion time (months) Anterior Approach Posterior Approach Mean SD Mean SD P value 5.454 1.98 9.876 2.671 < 0.01 P value statistically significant < 0.05 Anterior approach Posterior approach No. % No. % P value Restore of cervical alignment 29 80.56 12 50.00 < 0.01 Table (7): Showed restore of cervical alignment and degree of bone fusion. Anterior approach Posterior approach No. % No. % P value Restore of cervical alignment 29 80.56 12 50.00 < 0.01 Degree of bone fusion Good Poor 30 6 83.33 16.67 8 16 33.33 66.67 < 0.01 < 0.01 P value statistically significant < 0.05 was good in 30 patients (83%33) after anterior approach and in 8 patients (33.33%) after posterior approach, while poor fusion was observed in 6 patients (16.67%) after anterior approach and 16 patients (66.67%) after posterior approach.

**Conclusion:** The surgical treatment of DF injuries of subaxial cervical spine remain controversial. Rapid realignment and decompressions of the sub axial cervical spine by skull traction are giving the patients best chance for neurological recovery and reduce secondary spinal cord injury. The optimal approach for distractive flexion injury to the cervical spine is the least invasive approach that provides the greatest benefit to risk ratio in terms of potential injuries to contiguous neurovascular structures and provides adequate stabilization. Anterior cervical approach is better in locked cervical

facets where there are associated ruptured inter vertebral disc. Posterior cervical approach is better in locked cervical facet especially unilateral, or posterior compressing lesions. Fusion is faster in anterior than posterior approach. Anterior approach is more familiar and less predictable complications. As the management of DFI locked cervical facets is still controversial, this study was conducted to compare the favorable and the unfavorable outcomes of the anterior and posterior approaches used for management of cervical trauma, in order to identify the indications and contraindications of each technique. The results of this study demonstrated that the anterior approach was better than posterior in the sense of rapid adequate post-surgical healing, ability to remove offending anterior disc compression, in addition to being familiar to the neurosurgeon. On the other hand, posterior approach was better in managing unilateral locked facet, and compressing posterior lesion. However, being not familiar to all neurosurgeons, injury to vertebral artery is a possible complication

### Abstract 1.17 Minimal invasive interlaminar fusion in lumbar spinal stenosis, comparison w/o additional interbody fusion.

Sebastian Gitter <sup>1\*</sup>

Nova clinic Biberach – Biberach, Germany

**Introduction:** The purpose of this study was to retrospectively evaluate pain resolution and function scores through 3 years following lumbar decompression and inter laminar spacer implantation. With regard to the preservation of the special conditions of the moveability of lumbar spine segments the surgical therapy including movement preservation procedures was discussed frequently.

**Methodology:** This retrospective case-series included 150 patients presented with chronic lumbar back pain caused by lumbar spinal stenosis. The follow up time was 5 to 7 years. 90 Patients underwent decompression combination with implantation of an inter laminar Peek Cage in combination of processes spinosus fixation by screw and clamp (ILIF) . Group "DA". In 60 cases, in addition to the

aforementioned procedure was the implantation of one TLIF Cages in the inter vertebral space performed. Group "DAC". Clinical outcomes measures were collected pre-operatively, and continuing stepwise up to 7 years. Outcomes measures included standardized common measurement scoring systems (VAS, Oswestry, SF 36)

**Result:** Drop out rate: 2%. Patient's age in years was distributed. Significant improvement of the walking distance. No further improvement after 3 month .Significant reduction of medication in the follow up in all cases. In the oswestry disability scores significant improvement relations. Complications: No intra operative complications are reported. Post OP complication are in report: 2 spinosus fracture, 6 seromas , Operative revision in 3 cases. No infection.

**Conclusion:** Our statement: The inter laminar Spacer implantation and the additional inter laminar fusion has a significant positive effect on the development of complaint and stability.

**Result:** Postoperative Oswestry pain score ( $3.4 \pm 1.7$ ) was significantly lower when compared with the preoperative pain scores ( $38.8 \pm 5.01$ ) in patients with foraminal stenosis ( $p < 0.001$ ). Pre-operative and postoperative pain scores of the patients with spondylolisthesis were  $41.7 \pm 5.5$  and  $3.7 \pm 1.2$ , respectively ( $p < 0.001$ ).

**Conclusion:** This technique may be considered as a safe, simple and effective procedure for the patients with foraminal stenosis and stable spondylolisthesis. This technique facilitates reaching the medial aspect area of the foramen easily, to protect the facet integrity and instability by opening a small hole in the bone (as large as a thumb nail width), to clean the root around 360 degree to do sufficient exploration of the foramen and root, to decompressed the effected root and foramen completely. This technique can be used for multilevel degenerative level without using any instrumentation system and fusion, especially in spondylolisthesis groups mainly to help the patients returning to daily activity and work in a short period of time. It can be accepted as an effective to the alternative to the other approach. Anatomical structures are also protected via this method.

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#### **Abstract 1.18 Hole assisted trans articular medial approach via laminofacet articular junction for foraminal stenosis and spondylolisthesis: microsurgical and morphological study**

*Figen Aslan*<sup>1\*</sup>

University of Akdeniz, Turkey

**Introduction:** In this study, we aimed to evaluate clinical contributions of hole assisted microsurgery to the cases with foraminal stenosis and spondylolisthesis and its protection effect of lumbar vertebral morphology. We want to discuss and answer the some of the unrecognized point question and effectiveness of the operation technique with late result.

**Methodology:** 171 patients with radiculopathy who did not respond to conventional treatment underwent surgery, retrospective evaluation of patients who were seen in neurosurgery and orthopedic clinics between March 2003 and March 2016. This technique was used for foraminal stenosis and spondylolisthesis patients.

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#### **Abstract 1.19 Relationship of gluteus maximus insufficiency in the patients with chronic mechanical low back pain among saudi military personnel.**

*Mohammad Sidiq*<sup>1,\*</sup> *Wadha Al Anazi*<sup>1</sup>, *Mohammad Qasim*<sup>1\*</sup>

Northern Area Armed Forces hospital King Khalid Military city Hafer Al Baten KSA

**Introduction:** Chronic mechanical low back pain or lumbago is a common disorder involving the muscles and bones of the back. It affects about 40% of people at some point in their lives. Low back pain (often abbreviated as LBP) may be classified by duration as acute (pain lasting less than 6 weeks), sub-chronic (6 to 12 weeks), or chronic (more than 12 weeks). So a Research was done at Northern Area Armed Forces hospital KKMC Hafer al Baten.

**Methodology:** Experimental study pre and post test randomly assigned with sample of convenience based on inclusion criteria of 160 patients

were selected for the study. Patients were assigned into 2 groups, Group 1 (control) and Group 2 (experimental). Consent was explained and signed by all the patients before start of any intervention. Control Group was given conventional physical therapy intervention and data was collected twice weekly and for 6 weeks. Experimental Group: Pre assessment was done specific intervention was given for the isolated gluteus maximus muscle twice weekly for 6 weeks and post data collected.

**Result:** When we compared the groups, we found significant values for the experimental group while when we compared between the groups we found that the post pain and post range of motion of hip are significant.

**Conclusion:** After obtaining the results we found that the specific stretching and strengthening of gluteus maximus has the potential of reducing the intensity of mechanical low back pain. Thus the experimental hypothesis is proven right.

#### Abstract 1.20 Prevalence and determinants of low back pain among healthcare workers in Southwestern Saudi Arabia

*Ibrahim Alnaami*<sup>1\*</sup>, *Nabil J. Awadalla*<sup>2,3\*</sup>, *Mona Alkhairy*<sup>4\*</sup>, *Suleiman Alburaidy*<sup>4\*</sup>, *Abdulaziz Alqarni*<sup>4\*</sup>, *Almohannad Alqarni*<sup>4\*</sup>, *Rawan Alshehri*<sup>4\*</sup>, *Bodoor Amrah*<sup>4\*</sup>, *Mishal Alasmari*<sup>4\*</sup>, *Ahmed A. Mahfouz*<sup>2,5\*</sup>

1. Departments of Surgery and Family and community Medicine, College of Medicine, King Khalid University, Abha, Saudi Arabia;

2. Community Medicine Department, College of Medicine, Mansoura University, Mansoura, Egypt;

3. Medical Intern, College of Medicine, King Khalid University, Abha, Saudi Arabia;

4. Department of Epidemiology, High Institute of Public Health, Alexandria University, Alexandria, Egypt

**Objectives:** The purpose was to explore the prevalence and determinants of low back pain (LBP) among healthcare workers (HCWs) at different levels of health care in southwestern Saudi Arabia.

**Methods:** A cross sectional study using self-administered questionnaire was

conducted among HCWs providing primary, secondary and tertiary healthcare services in Aseer region, Southwestern Saudi Arabia. The questionnaire collected data regarding having LBP in the past 12 months, socio-demographic, work conditions, history of chronic diseases, regular physical exercises and overexertion back trauma. Uni and multivariable logistic regression analyses were done.

**Results:** Out of 740 participants, the overall prevalence of LBP in the past 12 months amounted to 73.9%. Prevalence of LBP with neurological symptoms reached 50.0%. Prevalence of LBP necessitating medications and / or physiotherapy was 40.5% while, the prevalence of LBP requiring medical consultation was 20%.

Using multivariable logistic regression, the following risk factors were identified;

working in secondary and tertiary hospitals (aOR=1.32, 95% CI: 1.01-1.76), increased BMI (aOR=1.10, 95% CI: 1.01-3.65), and positive history of

overexertion back trauma (aOR= 11.52, 95% CI: 4.14-32.08). On the other hand,

practicing regular physical exercises was significant protective factor (aOR=0.61, 95% CI: 0.42-0.89).

**Conclusions:** LBP is a common problem among HCWs. Many preventable risk factors are identified including exertional back trauma, increased BMI and lack of regular physical exercises. Occupational health and safety programs to build ergonomically safe working conditions and encouraging regular physical exercise are needed.

#### Abstract 1.21 Posterolateral versus posterior interbody fusion in lumbar degenerative spondylolisthesis

*Nabeel Radhi Alnaghmoosh*<sup>1\*</sup>, *Chris Bailey*<sup>2\*</sup>  
Dammam Medial Complex

**Introduction:** Study Design: An ambispective study of two different fusion techniques for the treatment of lumbar degenerative spondylolisthesis. Objective: To determine whether posterior



lumbar interbody fusion (IF) is associated with improved patient-rated satisfaction and functional outcome when compared to posterolateral fusion (PLF). Summary of Background Data: IF and PLF are widely used surgical approaches in the treatment of spondylolisthesis. Numerous studies have compared IF and PLF techniques, but inconsistent results, heterogeneous cohorts, and conflicting scientific evidence have made it difficult to reach a consensus on the optimal fusion technique.

**Methodology:** A consecutive cohort of 87 patients who had single-level degenerative spondylolisthesis and either PLF or IF were identified from a prospectively maintained database. Short Form-36 physical and mental component score, Oswestry Disability Index, back and leg pain, and complication rate were assessed to 24 months postoperatively. Patient characteristics, clinical outcome and complications were compared between the 2 groups.

**Result:** Of the 87 patients identified, 29 patients (33%) had PLF and 94 patients (67%) had IF. Patient follow-up was  $\geq 85\%$ . Foraminal stenosis (PLF, 13.8% vs. IF, 34.5%,  $p = 0.046$ ) was more common among the participants in the IF group. Intraoperative and postoperative complications were not different between groups ( $p > 0.05$ ). The reoperation rate was 3.4% in the PLF group and 10.3% in the IF group ( $p = 0.416$ ). Patients in the PLF group experienced similar gains in improvement in all outcome measures as those in the IF group ( $p > 0.05$ ). Four patients in the IF group and three in the PLF group were lacking evidence of radiographic fusion. These patients did have increased moderate back pain compared to patients demonstrating radiographic fusion but did not differ in any other post-operative outcomes measures

**Conclusion:** Type of fusion, IF or PLF, does not affect patient outcome or postoperative complication rates

#### Abstract 1.22 Physical therapy intervention for the management of coccydynia: a systematic review

Yousef Alyousef<sup>1\*</sup>, Hana Alsobayel<sup>2\*</sup>

1 Physio Trio Clinic, Saudi Arabia

2 Physical therapy department, King Saud University, Saudi Arabia

**Introduction:** The objective of this systematic review is to explore the effectiveness of physical

therapy approaches in the management of pain among people with coccydynia.

**Methodology:** The search protocol was conducted on electronic databases (CINAHL Complete; Cochrane Central Register of Controlled Trials; Cochrane Clinical Answers; Cochrane Database of Systematic Reviews; Cochrane Methodology Register; MEDLINE Complete; SPORT Discus with Full Text) from January 2013 through August 2018. The quality of the papers was assessed using the GRADE assessment tool. Due to the heterogeneity of the studies and the limited number, a meta-analysis was not possible.

**Result:** The electronic database search resulted in a total of seventy-six studies. Ten studies only satisfied the inclusion and exclusion criteria (1 RCTs, 6 observational studies, 3 case reports). The level of evidence ranged from moderate to low quality. The main physical therapy approaches applied in these studies were: Manipulation, Pelvic floor physical therapy, and Shock wave therapy. However, shock wave therapy showed statistically significant difference compared to other treatment modalities such as physical modalities.

**Conclusion:** This systematic review revealed the scarcity of studies examining the effectiveness of physical therapy approaches in the management of coccydynia dysfunctions. Shock wave therapy is suggested to have positive impact on pain caused by coccydynia, however, the results of the reviewed studies are inconclusive.

#### Abstract 1.23 Quality of life in post Lumbar microdiscectomy patients Using EQ-5D-5L scale

Ibrahim Alnaami<sup>\*1</sup>, Saad Shakir<sup>2\*</sup>, Khalid Almalwi<sup>2\*</sup>, Abdullah Alquzi<sup>2\*</sup>, Muhannad Asiri<sup>2\*</sup>, Mohammed Asiri<sup>2\*</sup>, Nasser Alqahtani<sup>3\*</sup>, Shehata F. Shehata<sup>4\*</sup>

Neurosurgery, Department of Surgery, King Khalid University, Abha Maternity and Children's

Medical intern, King Khalid University, Abha, Saudi Arabia

Neurosurgery department, Asir Central Hospital, Abha, Saudi Arabia

Family and community medicine department, King Khalid University

**Objectives:** The current study aimed to assess the

impact of microdiscectomy surgery on quality of life in postoperative patients across many facets of life to identify the most commonly affected ones. Our research question was, "does majority of post lumbar microdiscectomy patients have good quality of life post-surgery?"

**Methods:** In a Single tertiary care center in southern region, Saudi Arabia, ninety-seven patients who underwent discectomy at Aseer Central Hospital (ACH) in southwestern Saudi Arabia from 2015–2017 were included in this study. ACH is the only tertiary care center in Asir province.

Patients with spinal fractures or incomplete files were excluded. Patients' files were reviewed for data extraction. A phone call was made to all patients and they were asked to answer the five questions of the five domains of the EQ-5D-5L Quality of Life questionnaire.

After considering other variables and adjusting for potential confounders, we assessed the amount of patients' satisfaction in the 5 domains of EQ-5D-5L.

**Results:** The study included 97 patients whose ages ranged from 28–56 years with a mean age of  $42.6 \pm 10.8$  years. Nearly 61% of the patients were males. In all, 56.7% of patients reported a high quality of life, while 4.1% of them had a poor quality of life. About 82% of the included patients had no or minimal self-care problems, while 65.9% of the patients had no or minimal pain.

**Conclusion:** The researchers concluded that about half of the patients who underwent lumbar microdiscectomy had a high quality of life. The greatest improvements following microdiscectomy were recorded for self-care, mobility, and psychological status, while the lowest improvements were noted for pain and discomfort.

#### Abstract 1.24 Anterior cervical discectomy and fusion (ACDF) complications and 30 days mortality and morbidity.

*Sarah Aldeghaither*<sup>1,\*</sup>, *Faisal Konbaz*<sup>1\*</sup>, *Sami Al Eissa*<sup>1\*</sup>, *Monerah Annaim*<sup>1\*</sup>, *Rayed AlJuhani*<sup>1</sup>, *Ali Alhandi*  
Orthopedics surgery department, King Abdulaziz Medical city, National Guard Health Affairs, King Saud Bin Abdulaziz University For Health Sciences – Riyadh

**Introduction:** Anterior cervical discectomy and fusion (ACDF) is a commonly used procedure, however, few studies reported post-operative complications. This study looks into the prevalence of possible complications and the mortality rate in the first 30 days postoperatively.

**Methodology:** A retrospective review of patients who underwent ACDF for a degenerative disc disease from 2007–2017, in a single center in Riyadh, SA. Patient demographic data, co-morbidities, operative notes, immediate and delayed complications were all collected, with a minimum of 30 days follow-up.

**Result:** Out of 434 medical charts reviewed 163 met the inclusion criteria. Mean population age was  $52 \pm 11$ . Elective cases comprised 90% of sample and most patients had one or two levels operated on, 95% had ACDF and only 5% had corpectomy. Drain was left in 69% of patients and planned intensive care admission was done for 3%. Instrumentation and graft used, with 92% needing a cage plus plate, Intra-operative complications were minimal. Mean hospital stay was  $12.5 \pm 18$  days. Majority of population had no complications in 30 days period (98.2%). Only 2.4% underwent revision surgery.

**Conclusion:** While ACDF is considered a safe procedure, postoperative complications may have long-term implications. This study shows minimal complications in the immediate postoperative period, but due to the limited sample size, a study with larger population is needed to further confirm the results.

#### Abstract 1.25 Chronic pain: an output of the brain, an opinion on tissue state of health

*Rachid El Khoury*<sup>1\*</sup>

Sultan Bin Abdulaziz Humanitarian City, Riyadh, KSA

Chronic pain is perhaps the most burdensome health issue facing the planet. Our understanding of the pathophysiology of chronic pain has increased substantially over the past 20 years, including but not limited to changes in the brain. However, we still do not know why chronic pain develops in some people and not in others. Pa-

tients with chronic pain are still managed with, in mind, the conceptualization of René Descartes on the existence of pain centers in the brain activated through an electrical system following a nociceptive response.

Most of the recent developments in pain science, that have direct relevance to clinical management, relate to our understanding to the role of the brain, the role of the immune system, or the role of cognitive and behavioral factors. Although the Biopsychosocial model of pain management was presented decades ago, the Bioreductionist model remains, unfortunately, at the heart of many practices across professional and geographic boundaries.

A large body of evidence is showing that nociception is neither sufficient nor necessary for pain. Pain is a conscious experience that can certainly be, and often is, associated with nociception, however, always modulated by countless neurobiological, environmental, and cognitive factors. This presentation will highlight the current misconceptions of chronic pain concepts, and their misperceptions by clinicians. It will also attempt to bridge the considerable gap between development in pain science and clinical practice

Nociception; Biopsychosocial model; chronic pain

### **Abstract 1.26 A retrospective cohort study on unstable thoracolumbar burst fractures: to fix with single-level or two-level posterior spinal fixation?**

Mohammad Alawad<sup>1</sup>, Nasser Alanazi<sup>1</sup>, Saad Surur  
Department of Orthopedics, King Saud Medical City, Riyadh, Saudi Arabia.

**Introduction:** Thoracolumbar (TL) is defined as the vertebrae between T11 and L2. Types of fractures are classified by more than one method, AO system is a more inclusive way to classify these fractures. Among these fractures, burst type, a sub-type from compression fractures, is the most common. Saving more motion segments is a pillar in the management of spinal fractures. However, long fixation still exists with no evidence of superiority over short fixation, which saves more motion segments and causes less economic burden to both individual and healthcare system.

**Methodology:** This is a retrospective cohort study

on patients with single level unstable burst TL fracture who underwent posterior spinal fixation (PSF) within the period from August 2012 to July 2015 at King Saud Medical City (KSMC). We retrieved medical record numbers from OR's records for all operated patients for TL fractures and then unstable burst types were identified. Primary exposure variable: single level PSF. The comparator group: two-level fixation above and/or below the injured vertebra. Mean difference of kyphotic angle, which was measured by 2 independent reviewers at pre-operative, immediate post-operative and at one-year follow up.

**Result:** Total of 374 adult patients with TL fractures identified. Of those, 103 (27.5%) had unstable burst TL fractures. 4 were excluded for having an adjacent vertebral fracture. Thirty-nine completed their one-year follow up and, therefore, included in the study. Male to female ratio was 3:1. Mean age in years was 35. L1 fractures were the most common among other vertebrae accounting for 20 (51.28%) cases, followed by T12 fractures 9 (23.08%). Mean difference in kyphotic angle was 7.5 degrees with one-level fixation and 3.11 degrees among the other group (p-value= 0.005).

**Conclusion:** Two-level PSF was superior to one-level PSF in terms of maintaining the kyphotic angle at one year. More studies focusing on other parameters can play a major role in further deciding the superiority of one technique over the other.

### **Abstract 1.27 Single center experience in magnetically controlled growing rods (MCGR) in treatment of early onset scoliosis.**

Samir Al Sayegh<sup>1\*</sup>, Sami Al Eissa<sup>1\*</sup>, Monerah Annaim<sup>1\*</sup>, Abdulellah Al Sheddi<sup>1\*</sup>, Walaa Barnawi<sup>1\*</sup>, Ali Alhandi

Orthopedics surgery department, King Abdulaziz Medical City, National Guard Health Affairs, King Saud Bin Abdulaziz University For Health Sciences – Riyadh

**Introduction:** Magnetically Controlled Growing Rods (MCGR) provide a non-invasive option of distraction in early onset scoliosis (EOS). Since there are few studies that reported the clinical outcome in MCGR. This study reports a single center experience with the MCGR system.

**Methodology:** A retrospective review of patients



who underwent MCGR placement in a single center in Riyadh, SA; with minimum of 2 years follow-up. Patient demographic data, etiology, and pre/postoperative sagittal and coronal plane were obtained. Patients follow up data such as number of distractions; hardware length reached, post-operative complications, and need of revision surgeries were collected. All images used for assessment were standing x-rays and were reviewed by the most senior author.

**Result:** 10 patients were analyzed, all had dual growing rods. Mean age at the surgery was  $5.1 \pm 2.07$  years. The average coronal and sagittal planes pre-operatively were  $22.9 \pm 17.56^\circ$  (upper thoracic coronal),  $71.9 \pm 16.9^\circ$  (thoracic coronal),  $47.87 \pm 26.5^\circ$  (lumbar coronal),  $20.9 \pm 26.64$  (55/-15) $^\circ$  thoracic sagittal,  $41.3 \pm 28.09$  (35/1) $^\circ$  lumbar sagittal. Mean follow-up  $3.8 \pm 1.75$  years. Average lengthening  $2.43 \pm 0.96$  RT mm,  $2.36 \pm 0.84$  mm LT. Average of progression and improvement in all planes were monitored in the follow-ups,  $15.1 \pm 16.32^\circ$  (upper thoracic coronal),  $41.0 \pm 14.02^\circ$  (thoracic coronal),  $24.7 \pm 18.54^\circ$  (lumbar coronal),  $18 \pm 11.54$  (73/-4) $^\circ$  thoracic sagittal,  $30.8 \pm 21.25$  (63/-6) $^\circ$  lumbar sagittal. The mean percentage of improvement was 47% in the mean curve.

**Conclusion:** The Challenge in treating EOS lay behind the nature of disease and the technical difficulties, where the treatment should target the deformity itself, be able to maintain a balanced spine and allow growth at the same time. In this study, MCGR showed promising results where it enabled growth and showed acceptable improvement in coronal plane with considerably less operations and complications. However, all patients had an alteration in the sagittal plane where patients shifted into more straitened spine. A multicenter study with larger sample-size addressing the rod malfunctioning, sagittal balance and the spinal growth is needed to have a better assessment of MCGR as a gold standard treatment.

**Introduction:** Low Back Pain is a universal human experience almost everyone has it at some point. The lower back, which starts below the ribcage, is called the lumbar region. Pain here can be intense and is one of the top causes of missed work. the aim of the study was to assess and comparative effectiveness of TENS and Exercises in treating chronic low back pain with respect to pain intensity, Also to determine the best intervention protocol. However, Exercises have not been compared with each other to determine which among these exercises is more effective to reduce nonspecific chronic low back pain also in the TENS have not been compared between all frequencies.

**Methodology:** 15 studies were collected from PubMed & Pedro 9 of them searching TENS while other 6 searching Exercises.

**Result:** At the end of my review of 16 studies, I found that 3 of them support TENS for treating the chronic low back pain while other 1 claim there are no benefits of using TENS for chronic low back pain. And for exercises, I found 3 studies on the effect of exercise on lower back pain. also, I found one study on the different position in the performance of exercises for people who complain of chronic low back pain. Finally, all studies for exercises support for treating the chronic low back. But, the most effective form of exercises as a method of rehabilitation for chronic low back pain is unknown and no positions were superior to the other.

**Conclusion:** Transcutaneous electrical nerve stimulation is an effective option for treating chronic low back pain. These results motivate the use of TENS, But for short-term and also being a safe and can be used by the patient at home after taking the right way to use and instructions by the specialist. Low back pain is often caused by structural imbalances in the body. Poor core strength, pelvic instability, muscle imbalances, poor posture and lack of body awareness are all factors which overload joints, discs, and muscles of the lower back. Exercises help in improving these imbalances by improving overall posture and quality of movement. So the TENS and Exercises are the best options to treat lower back pain and also reduces the cost and annual value of medication.

#### **Abstract 1.28 The effectiveness of transcutaneous electrical nerve stimulation (tens) and exercises on chronic low back pain**

Hussam Alsaleh <sup>1\*</sup>

Physical Therapy Department, Prince Sultan Military Medical City – Saudi Arabia

# **DIGITAL POSTER ABSTRACTS**

**Abstract 2.1 Incidence and risk factors of surgical site infection following spinal surgery: a retrospective cohort study**

*Saleh Algamdi<sup>1</sup>, Saleh S.Baesa<sup>1\*</sup>, Abdelmoniem Mukhtar<sup>2</sup>, RakanBokari<sup>1</sup>, Maha Alawi<sup>3</sup>*

1 Neurosurgery Section, Department of Surgery, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia

2 Department of Family and Community Medicine, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia.

3. Department of Medical Microbiology and Parasitology, Infection Control and Environmental Health Unit, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia

**Introduction:** Surgical site infection (SSI) after spinal surgery is a common complication, resulting in increased rate of morbidity, mortality, and healthcare costs. It was estimated that SSI following spinal surgery has increased healthcare costs up to 4 folds. The reported incidence of SSI following spinal surgery remains highly variable; 0.5%-18%. To the best of our knowledge, there are no studies on SSI after spinal operations conducted in Saudi Arabia. The aim of this study was to estimate the incidence of SSI after spinal surgery at King Abdul Aziz University Hospital (KAUH) and to identify risk factors associated with it.

**Methodology:** We conducted a retrospective cohort study using medical records of all patients who underwent spinal surgery at KAUH between Jan 2014 to Dec 2016. We extracted data on socio-demographic characteristics, anthropometric measurements, preoperative laboratory investigations, preoperative infection preventive measures, comorbidities, intraoperative measures and post-operative care. We used chi-squared test and student t-test to examine the difference between patients with and without SSI in categorical and continuous variables, respectively. We built logistic regression models to estimate the factors associated with SSI. A p-value less than 0.05 was considered significant.

**Result:** 201 patients were included; their mean age was 55.71 years (SD= 15.05); out of which, 48.8% (n= 98) were females. Only 4% (n= 8) of these patients developed SSI post-operatively. Postoperative SSI was significantly associated with length of hospital stay before surgery (OR= 1.17; 95%-CI= 1.05-1.31; p= 0.004), hypertension (OR= 5.62;

95%-CI= 1.29-24.47; p= 0.021), ASA score (OR= 26; 95%-CI= 1.16-583.46; p= 0.040.), duration of the procedure (OR= 1.01; 95%-CI=1.002-1.017; p= 0.010), blood transfusion (OR= 23.32; 95%-CI= 4.43 - 122.73; p< 0.001), length of hospital stay after surgery (OR= 1.05; 95%-CI=1.02-1.09; p= 0.006), and the following

preoperative laboratory parameters: hemoglobin (OR= 0.68; 95%-CI= 0.47-0.98; p= 0.039), hematocrit (OR= 0.85; 95%-CI= 0.75- 0.97; p= 0.017), partial thromboplastin time (OR= 1.074; 95%-CI= 1.037-1.111; p< 0.001), creatinine level (OR= 1.04; 95%-CI= 1.02-1.06; p< 0.001), urea (OR= 1.24; 95%-CI= 1.02-1.50; p= 0.030) and electrolytes (OR= 0.89; 95%-CI= 0.81-0.98; p= 0.022).

**Conclusion:** Postoperative SSI in KAUH was rare; however, patients with high ASA score, hypertension, blood transfusion, lengthy pre and postoperative hospitalization, prolonged procedure, high blood urea, high creatinine level and elevated partial thromboplastin time were at higher risk for developing SSI postoperatively and needed more preventive measures

**Abstract 2.2 Management of cervical radiculopathy, anterior and posterior surgical approach-a comparative study**

*Tarek Aly<sup>1</sup>*

Tanta University Faculty of Medicine Hospitals, Egypt

**Introduction:** Cervical radiculopathy is a condition caused by the compression of a nerve root in the cervical spine. Among the various pathologies which affect the nerve root, degenerative processes in the spine are the most common. Treatment of cervical radiculopathy ranges from conservative treatment which included collar, NSAIDS, bed rest, and cervical epidural injection to surgical treatment. In the first half of the last century, only posterior surgery was performed for cervical spinal pathologies. In 1950s, anterior surgery was developed for the cervical spine. It gradually replaced the posterior foraminotomy for cervical radiculopathy. However, anterior fusion sometimes may lead to many complications

**Methodology:** Thirty-eight patients with cervical radiculopathy complained of neck pain beside



symptoms in upper limb and fingers. Twenty-five patients performed anterior decompression and fusion of the affected level and thirteen patients underwent nerve root decompression through posterior open foraminotomy. Patients assessment was depending on cervical radiculopathy severity score of twenty points. The system in which the normal score is 20, consists of four categories: (1) Subjective symptoms; (2) Ability to work; (3) Finger functions; and (4) Objective signs. This system scores the severity before and after treatment. Score 8 or less is an indication for surgery. All patients completed the follow up period of 3 years.

**Result:** There was no significant difference between groups for sex ratio, age, or symptom duration. The score increased in all patients indicating that the decompression of the involved root was effective. The increase of the score after surgery in each nerve root decompressed level was statistically insignificant ( $P > 0.05$ ).

**Conclusion:** Cervical radiculopathy can be a debilitating disease that can cause patients significant impairment. Rapid diagnosis and treatment of this condition is required to facilitate the return of the patient to their normal state of health. Anterior and posterior surgical approaches are equally effective in management of this condition

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### Abstract 2.3 Effect of pre-discharge instructions on activity of daily living and functional ability for patients of post spinal cord injury

Amal Fehr<sup>1\*</sup>, Soheir Mohamed Weheida, Entisar Gaad-Elmoula Sabaan

Faculty of medicine Helwan University, Egypt

2 . Faculty of nursing Alexandria University, Egypt

3 Faculty of nursing Aswan University, Egypt

**Introduction:** Spinal cord injury disrupts spinal cord function and patients may require long-term physical and occupational therapy as it interferes with activities of daily living and function ability. The aim of this study was to show effects of pre discharge instructions on activity of daily living and functional ability for patients post SCI.

**Methodology:** The study was conducted in Physical medicine department at Aswan University hospital, Egypt. Sample: A convenience sample of 60 adult patients were collected from January 2015 to

January 2016. Inclusion criteria were recent admission because of spinal cord injury with no previous spinal surgery, no other medical or muscle-skeleton problems that may interfere with educational instructions outcome, and had no hindering factors to communicate verbally. Four tools were used: 1. Structured interview questions and Medical Data Sheet; 2. Knowledge Questionnaire; 3. Lifestyle Assessment; 4. Compliance Discharge Instructions; and activity of daily living Questionnaire.

**Result:** Findings revealed that only 8.3% of pre instruction patients were oriented about range of motion exercises, and 6.6% about healthy lifestyle as compared with the satisfactory post instructions knowledge at time of discharge (96.6%, 95.0% respectively). Also, there was statistical significant difference between pre & post instructions knowledge regarding activity of daily living and overall discharge compliance, at  $P$  values = .000\*).

**Conclusion:** In the light of the study findings, it is concluded that statistically significant difference was existed between pre- and post- instructions knowledge regarding range of motion exercises, lifestyle, activity of daily living and overall discharge compliance

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### Abstract 2.4 Invasive vertebral hemangioma management

Ahmed Sultan<sup>1\*</sup>, Tamer Metwally<sup>1\*</sup>, Ahmed Yehia<sup>1\*</sup>, Tamer Ibrahim<sup>1\*</sup>

Department Of Neurosurgery, Alexandria University, Egypt

**Introduction:** Hemangioma is a common benign lesion of the vertebral column with a rare incidence of spinal compression due aggressive nature of some of them. Massive intraoperative hemorrhage is encountered during surgery. We describe management of some cases of the aggressive lesions

**Methodology:** Retrospective analysis of cases of aggressive vertebral hemangioma revealed 8 cases treated in our institution in the last ten years.

**Result:** Eight patients presented with progressive neurological deficits (8), back pain (7) and neck pain (1) was diagnosed with invasive vertebral hemangioma with neural structure compression. One patient with cervical C4 lesion undergone transarterial embolization followed by corpectomy and fixation. The other patients undergone vertebroplasty using bone cement and decompression

with or without fixation. All patient are doing well after intervention. The neurological deficits improved during 6 months. One of the patient was completely paraplegic but with intact deep sensation, this patient improved dramatically and can walk unsupported.

**Conclusion:** Vertebral hemangioma can present in an invasive manner that necessitate intervention. Preoperative embolization or vertebroplasty are helpful methods to decrease intraoperative hemorrhage

the posterior median myelotomy which improved within 10 days. All postoperative MRIs documented total tumour resection.

**Conclusion:** Main difficulty in the management of intramedullary neurinomas is the determining of point in time of surgery. In very experienced hands, gross total resection of these tumors is the best treatment option in long-time outcome of the patients. The final neurological outcome extremely depends on the preoperative neurological condition.

### Abstract 2.5 Outcome after gross-total resection of spinal neurinomas.

Nagi Massoud <sup>1\*</sup>

1 Sulaiman Al Habib hospital, Al Qasim, Saudi Arabia

**Introduction:** Neurinoma is a rare CNS tumor, only 32% are located in the spinal canal, 21% of them intramedullary. In the last decade, we prefer gross/total resection in the treatment of intramedullary neurinomas. We want to analyze the outcome of our patients in relation to the radiological and neurological features.

**Methodology:** We conducted a retrospective study between 2017 and 2018 on 5 patients. 3 patients with intramedullary neurinomas and 2 extramedullary (3 females, 2 male) treated with gross-total resection (GTR) achieved via laminectomy and laminoplasty by senior surgeon at a single center. In one patient associated with syringomyelia. The mean age of the patients was 53 years. The pre- and postoperative neurological status was measured by the Frankel Score. CT scan and plane X-ray were performed on the first postoperative day to control the laminoplasty. Postoperative MRI was performed also to document the extend of resection.

**Result:** Location of the tumor was cervical in 2 patients, cervico-thoracic in 1 patient and lumbar spine in 2 patients. The extent of the tumours varied between 2 and 4 levels. Histological examination revealed neurinoma grade I (WHO) in all patients. The postoperative examination showed improvement of Frankel score in comparison to the preoperative status in 3 patients, 2 patients suffered from slight neurological deterioration due to

### Abstract 2.6 Evidence-based clinical rational for cervical minimally invasive surgery

Yazid Maghrabi <sup>1\*</sup>, Saleh Baeesa <sup>1\*</sup>

Neurosurgery Section, Department of Surgery, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia

**Introduction:** In the last two decades, minimally invasive spine (MIS) procedures have been advocated to overcome complications associated with the standard open procedures, and for aiming for faster recovery. The main aim of the review is to provide an evidence-based review of the alternative MIS surgical options for the treatment of degenerative cervical spine disease.

**Methodology:** This systematic review was performed to retrieve studies related to endoscopic cervical spine procedures, tubular-assisted spine procedures, and cervical nucleoplasty. Three databases were used as information sources. All English-published clinical articles, published articles till December 2017 concerning anterior and posterior minimally invasive procedures for the treatment of degenerative cervical pathology, were included. Included articles were analyzed using different pre-operative, intra-operative, and post-operative parameters.

**Result:** Only 33 articles fulfilled the eligibility criteria, with the vast majority of studies classified as class III level of evidence. The primary indication was radiculopathy (75%), and the mean age of the included subjects was 52.4±7 years. Mean follow up period was 24±11 months. Most reported procedure in included articles was endoscopic procedures (52%), the most commonly reported site of the MIS procedure was posterior (64%). Mean

estimated blood loss was around 59±38 ml, mean operative time was 89±42 minutes, and mean hospital stay was 3.2±1.9 (0.63-7.59) days. There was a significant reduction between pre-operative and post-operative Visual Analogue Scale (VAS) neck and arm (0.02, 0.03, respectively).

**Conclusion:** Loss of homogeneity of data retrieved from the included articles poses a challenge in recommending cervical minimal invasive procedures over open procedures in the treatment of degenerative cervical pathologies; however, it can be a valid safer alternative option in selected cases.

### Abstract 2.7 Surgical treatment of solitary myeloma of the spine

Mohamed Abdel Wanis<sup>1</sup>

Sohag University hospital, Egypt

**Introduction:** Solitary plasmacytoma of the vertebra is a rare condition. Treatment options include radiotherapy, surgery, radiotherapy combined with surgery, and vertebroplasty or kyphoplasty. Although radiotherapy is the treatment of choice for solitary plasmacytoma of the spine, recommendations for treatment have been based on limited data from retrospective studies.

**Methodology:** Thirteen patients of solitary spinal plasmacytoma were treated at Sohag University Hospital between 2003 and 2014. Patients were 12 males and 1 female. Age ranged between 35 and 74 (mean 57.7) years. Lumbar spine was affected in 7 patients and thoracic spine in 6 patients. Pain was assessed on Denis pain scale. On presentation 8 patients had pain grade P5, 4 patients had pain grade P4 and 1 patient had pain grade P2. The Frankel grading system was used to assess the neurologic outcome. On presentation, 6 patients had neurological deficits; 3 Frankel grade C, and 3 Frankel grade D. Indications for surgery included pathological fracture (9 patients) and neurological compromise (6 patients). All patients received operation through a single posterior exposure. The lesion was curetted and anterior reconstruction was achieved by spinal shortening (5 patients), or anterior bone grafting (6 patients), and anterior reconstruction was not needed in 2 patients. Then posterior fusion was performed. Radiotherapy began 3 weeks after the operation.

**Result:** All patients got neurological recovery to

Frankel grade E and improvement of pre-operative pain (6 patients to P1, 5 patients to P2 and 2 patients to P3). No local recurrence occurred after follow up for 7-102 (mean 36.9).

**Conclusion:** Gross-total tumor resection on piecemeal basis with post-operative adjuvant radiotherapy for solitary plasmacytoma of the spine gives long-term local control of the tumor. It can help to improve patient's quality of life.

### Abstract 2.8 Posterior displacement index of the vertebra rostral to thoracolumbar burst fracture relative to the caudal vertebra correlates with the degree of kyphosis

Jehad Ahmed<sup>1\*</sup>, Amro Alhabib<sup>1\*</sup>, Thamer Alfawaz<sup>1\*</sup>  
Neurosurgery Department, King Khalid University Hospital, King Saud University – Saudi Arabia

**Introduction:** Burst fracture is the most common fracture of thoracolumbar junction (TLJ). Determining the degree of kyphosis associated with thoracolumbar burst fracture is an integral part in the treatment decision. Currently, there are challenges facing the assessment of kyphosis in thoracolumbar burst fractures. One challenge is the difficulty in accurately defining the endplates in osteoporotic fractures. Another challenge is the variability in the assessment method for determining the degree of kyphosis. Objective: The current paper aims at evaluating another radiological parameter, Posterior displacement index (PDI), for assessment of segmental kyphosis associated with thoracolumbar burst fracture.

**Methodology:** This is a retrospective study. It included all consecutive adult cases diagnosed with traumatic burst fracture affecting the thoracolumbar junction (TLJ; T10 to L2 levels) from 2010 to 2016. Searching the radiology database identified cases. Two board-certified neurosurgeons reviewed all cases and evaluated all the relevant radiologic parameters on TLJ x-ray, mid sagittal CT, and MRI images. Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version 22.0 software (SPSS Inc., Chicago, IL, USA).

Result: Result: Posterior displacement distance

(PDD): Comparison of (PDD) before and after surgery: we found the mean of PDD on x-ray before surgery 10.14mm (+4.55) it reduced to 5.49mm (+4.71) after surgery which indicates significant difference with p value (0.016). Posterior Displacement Index (PDI:(PDD/SVL ratio): In Surgical patients: The mean PDI (PDD/SVL ratio) on x ray was 26.07% decreased to 13.99% with P.V(0.022), while in non-surgical group: The mean PDI (PDD/SVL ratio) on x ray was 22.89% and increased to 25.64% PDI has positive relation with cobb's angle and has no correlation with TLICS.

**Conclusion:** Conclusion: The new method (PDI) correlated with segmental kyphosis in TLJ burst fracture. PDI also correlated with improvement in kyphotic angle after surgery. Therefore, it can be used to supplement our understanding the magnitude of segmental injury

Result: Mean age was 27 years old, and 79% were male. Surgical residents comprised 39% (n = 110) of the participants. Out of all the residents, 82.9% (n = 116) suffered from a musculoskeletal complaint, with the majority involving the lower back (53%). Surgical residents were more likely to take time off work (16%), and attributed their pain to their profession (38%). Body mass index (BMI) affected reports of lower back pain (P-value: 0.04). Univariate logistical regression revealed that being a surgeon (OR = 5.08, CI = 0.27-94.14) and spending time doing interventional procedures (0 hours; OR = 0.23, CI = 0.007-7.92) are predisposing factors to musculoskeletal pain.

**Conclusion:** Ergonomic changes are needed to enhance productivity and decrease time off work. Surgical residents need to be aware of the risk of experiencing musculoskeletal pain, and be educated of ways to avoid or cope with their pain.

### Abstract 2.9 Comparison of musculoskeletal pain prevalence between medical and surgical specialty residents in a major hospital in Riyadh, Saudi Arabia

Abdullah Al-Sultan <sup>1\*</sup>, Abdullah Al Zahrani <sup>1\*</sup>, Faisal Al Zahrani <sup>1\*</sup>, Emad Masuadi <sup>1\*</sup>, Salman Al Ahmed <sup>1\*</sup>

1 King Abdulziz Medical City – National Guard Health Affairs – King Saud Bin Abdulaziz University For Health Sciences

**Introduction:** Musculoskeletal disorders are an occupational hazard amongst physicians. Physicians whose practice involves physical undertakings, such as surgeons, are prone to complain of pain, which can lead to decreased productivity. This study aimed to compare surgical and non-surgical specialties musculoskeletal pain prevalence, as well as assess whether certain factors contribute to their pain.

**Methodology:** A cross-sectional study that utilized a self-administered questionnaire handed out to 140 conveniently selected surgical and non-surgical residents at King Abdulaziz Medical City, Riyadh. The questionnaire included a demographics section and a section inquiring about nine anatomical areas derived from the Nordic Musculoskeletal Questionnaire (NMQ).

### Abstract 2.10 Practical approach for pott's disease of the spine

Abubakr Darrag Salim<sup>1</sup>, Mohammed Awad Elzain<sup>2</sup>

National Center for Neurological Sciences, Khartoum, Sudan 2. King Abdullah Hospital, Department of Neurosurgery, Bisha, KSA

**Introduction:** Spinal tuberculosis was first discovered by Pott in 1776. This condition is believed to be more predominant in developing countries but it is found that its incidence is also increasing in the developed countries. More than 50% of skeletal tuberculosis is localized in the spine. The MRI scan is highly sensitive in the detection of various pathological processes of spinal tuberculosis although other blood tests may be helpful in setting the diagnosis and in the follow up of the cases. The treatment of the spinal tuberculosis is mainly drug therapy this is effective with a minimum duration of 6-12 months

**Methodology:** The aims of this study is to study the pattern of the spinal tuberculosis in Sudanese patients treated in the department of neurosur-



gery in 15 years In the period from January 1995 to December 2010 and to study the methods used in management of these patient and their efficiency. 150 patients were found to be complaining from spinal tuberculosis as the main cause of their spinal problems

**Result:** One hundred fifty cases were found; their ages were ranging between 4 to 85 years. Most of the patients presented with backache (91.3%) followed by lower extremities weakness in (86%) for an average duration of less than one year. MRI was the main diagnostic tool. The findings were either in a form of destruction of the spine or abscess collection. Operations were performed in two third of patients n=103 (68.7%) while the remaining one third not operated n=47 (31.3%). The final outcome was cure or improvement in 120 patients (80%), 13 patients (8.7%) remained static in their conditions, one patient deteriorated (0.7%), 11 patients (7.3%) lost their follow up.

**Conclusion:** Management of the spinal tuberculosis should be tailored for each patient condition. Surgical interventions should be reserved for patients with neurological dysfunction, deformities or in case of failure to respond to medical treatment. Surgical approaches from behind is usually associated with less complications so anterior approaches should be reserved for selected cases

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### **Abstract 2.11 Intraspinal gunshot injury presented without neurological deficit: case report**

. Ahmad Zaitoni<sup>1</sup>, Naser Khalil<sup>2</sup>, Amr Abdulhameed<sup>2</sup>, Omar AlAnzi<sup>3</sup>, Sultan Askar<sup>3</sup>, Aisha AlJumiah<sup>3</sup>, Hajar Askar<sup>4</sup>

1. Consultant & chief of Neursurgery department, King Fahad Hospital, Al Hofuf
2. Specialist Neursurgery, Neursurgery department, King Fahad Hospital, Al Hofuf
3. Medical Intern, King Faisal University, Al Hofuf
4. ICU Resident, ICU Department, King Fahad Hospital, Al Hofuf

**Introduction:** The civilized society has increasing rate of Gunshot wounds due to the availability of weapons. A very high percentage of gunshot injuries are Intentional not accidental, In general the gunshot wounds that injured the spinal cord injuries are the third most common cause of spinal

cord injury after vehicle trauma and falls from height.

**Methodology:** 51 male known to be a psychiatric patient had back pain after hearing explosion sound as he described it, he did fall down when he was trying to get into his vehicle. As the patients mentioned, he on the ground for few moments then he did stand and start riding his vehicle going back to home without helping from anybody. Two Weeks later, the patient presented in Emergency Department complaining only from back pain, the patient was neurologically free on examination, but after examining the back, CT and X-Ray were ordered. The history was declared in a retrograde way after the bullet was seen in radiographs.

**Result:** Spinal cord injuries caused by Gunshot Wounds (GSW) are about 17% of all spinal cord injuries and they are the third most common cause of spinal cord injury after vehicle trauma and falls from height. [1, 2, 3, 4] The civilized society has increasing rate of Gunshot wounds due to the availability of weapons. A very high percentage of gunshot injuries are Intentional not accidental, this can be caused by increased violence rate in society and Assaults. [3] Localization of spinal cord injury is important; the most common site is thoracic followed by lumbar then cervical spine. The most important factors that determine the tissue damage are the velocity of the bullet and it diminutions. We can also add ballistic properties and the firing distance as other factors contribute to the extent of the injury. [1, 3] We can categories the velocity by the weapon type, if its civilian weapon it is a low velocity weapon and if it is a military weapon it's a high velocity weapon which characterized by comminuted fractures and devitalized soft tissue and also has higher rate in mortality and morbidity when compared with low velocity weapons. [1, 3, 4] A thorough history should be taken, in which the type of weapon, number of shots fired, and distance from the which the patient was shot at should be identified, as these questions provide important clues to the extent of the injury and the treatment plan. A complete neurological examination should be performed to document any neurological deficits. Moreover, a rectal examination should be performed. Entrance and exit wounds should be inspected and radio-opaque markers should be placed over all wounds to help identify the gunshot path in radiographic studies [4, 5, 6, 7]. The wound should be inspected for cerebrospinal fluid (CSF) leak,

bullet, and other foreign bodies. Any foreign body found in the wound should not be removed as the foreign body itself could be preventing hemorrhage. Removing such objects should be reserved to the operating room [4]. At first, plain radiographs should be taken to locate bullet fragments and assess for any fractures. CT scan is the modality of choice as it allows for better localization of bullet fragments, detection of fractures, and assessment of spine instability [1]. CT angiogram helps to rule out vascular injury. CT myelography can be quite helpful in selected cases with persistent CSF fistula [4]. Use of MRI in GSWs to the spine is controversial due to the possibility that bullet fragments might migrate because of the magnetic field and cause further damage. Bullets used in low velocity guns are usually covered in copper, which is not ferromagnetic, therefore making an MRI safe. Bullets used in high velocity guns, however, are usually encased in steel, which is ferromagnetic [4, 6]. It should be noted that it is difficult to determine the kind of bullet in the emergency room. Initial management is that of standard trauma protocol (ATLS). Airway, breathing, and circulation must be maintained. Tetanus vaccination must be confirmed, and if unknown, the patient should be vaccinated at the initial management. Broad spectrum antibiotics should be administered immediately, for duration of 48-72 hours. [4, 5, 7] If viscus perforation is present, especially colonic perforation, it is recommended to administer antibiotics for 7-14 days in order to prevent infection. [7, 8] There has been widespread use of high dose methylprednisone ever since the results of the results of the National Acute SCI Study (NASCIS) II and III came out. However, the use of steroids in spinal cord injury has been questioned in recent years. Given the lack of evidence for improved outcome after the use of steroids, it should not be administered to patients. [4, 5, 7, 8, 9] Surgical management of GSW to the spine is controversial. Bumpass et al. concluded that the majority of civilian GSWs to the spine should be managed conservatively regardless of the neurological grade or the number of spinal injuries. The only exception, according to the study, is where spinal infection is present, or a persistent CSF leak. [10] There is a lack of clear guidelines for indications of surgery. However, it is accepted that all cases should be managed conservatively except when there is a persistent CSF fistula, neurological deterioration, bullet migration, spinal column instability, pain due to nerve root

decompression, and cauda equine syndrome. [4, 5, 7] Common gunshot wound-related medical complications included pain (54%), infections (40%), pneumothorax (24%), nonspinal fractures (22%), colonic perforation (17%), cerebrospinal fluid leak (10%), and retroperitoneal hematoma (10%). [11] Pain is probably the most common complication in the long term and is quite prevalent in cases of involvement of the cauda equina and conus medullaris. The removal of the bullet is not associated with the resolution of the pain. [7] Metal toxicity is a problem related to the lodged bullet, particularly from lead. Systemic intoxication by lead, also known as lead poisoning, plumbism or saturnism, is a rare but reported complication after GSW cases in which the bullet remains lodged in the spine. [7] Lead poisoning can result in various clinical symptoms, with an effect on laboratory examinations and with joint pain, anemia, peripheral paresthesia due to demyelination of the motor axon, abdominal complaints, headache, fatigue, signs of encephalopathy (such as memory loss), and attention deficit and behavioral alterations, and may even lead to death. [7] Spinal infection is common in cases of GSW to spine, especially when associated with visceral perforation. Meningitis, osteomyelitis, epidural abscess, intra-medullary abscess all have been reported in the literature. With the advent of antibiotic the rate of infection has drastically reduce. Meningitis is a complication inherent to trauma, and surgical treatment is considered a risk factor. [4] Neurogenic bladder and urinary tract infections are other common complications. Another possible complication is the migration of the projectile, which may or may not cause changes in neurological function. [7]

**Conclusion:** In Conclusion, we are providing a case report of Intraspinal bullet managed without neurological deficit.

#### **Abstract 2.12 Does full reduction of spondylolisthesis improve symptoms and quality of life of patients?**

Ahmed Rizk<sup>1</sup>, Issam Abd Alhamid<sup>1</sup>, Amr El Adawy<sup>2</sup>, Muhamed Yahyia<sup>3</sup>

1. Neurosurgery Department, Zagazig University, Egypt
2. Orthopedics Department, Zagazig University,

ty, Egypt

3. General Organization For Teaching Hospitals & Institutes, Egypt

**Introduction:** Spondylolisthesis has become well defined and appropriately classified only in the past 50 years. Introduction of spinal fusion technology and, more recently, instrumented stabilization and reduction methods have led to greater choices in treatment options. The aim of this work is to confirm proposal of full reduction deserve to be done for improve quality of life.

**Methodology:** Prospective study was conducted, where 30 consecutive adult pa. During standing reported as unable, less than 10 minutes (prayer time) and more than 10 minutes but not enough to do any task. The distance of claudication pain during walking reported as unable, less than 10 meters indoor and outdoor could walk for limited distance more than 10 meters but the pain obliged to stop waking several times where patient adopted pain relief position. Job or house work limitation was reported as severely limited or unable to do. Surgery: All patient did posterior decompression including extended laminectomy and facetectomy, removal of disc material and fibrocartilagenous mass of facet and complete exposure of nerve roots till far lateral extension and Total reduction of displaced vertebra pulling and reduction force was applied. Always straight rod was used at first for reduction then changed by the curved one. PLIF was done to all cases at one or two levels using bone graft from removed laminectomy. Postero-lateral fusion by bone graft or artificial bone was done to 8 cases of non PLIF cases of L2-L3 L4 unstable segment and some PLIF cases of high degree L4-L5 -S1. Rehb and external hard lumbar brace for 6 weeks. Follow up: It was done after 6 weeks, 3 months and one year for 6 items VAS pain during standing and waking, standing time, walking distance, job recovery, preop -neurological deficit improvement and radiological evaluation for stability and fusion by plain X-ray and Stress dynamic films.

**Result:** According to Meyer's classification, there were 6 cases L2- L3- L4 unstable degenerative stenotic segment mainly G I & G II, at L3-L4 were 2 cases G II and 3 cases G I, at L4 - L5 were 6 cases G II & 2 cases Gr III and at L5 - S1 there were 4 cases Gr II, 3 cases Gr III, 2 cases Gr IV and 2 cases spondyloptosis. Clinically there were 4 cases complaining from severe low back pain and sciatica during

rest specially at night and unable to stand nor to walke, 2 patients able to stand less than 10 minutes and 14 patients able to stand more than 10 minutes but not enough to do indoor tasks. There were 9 patients walked less than 10 meters indoor only and 16 patients walked more than 10 meters outdoor but obliged to stop several times and 5 of them used stick or walking aids. There were 14 patients unable to do their jobs or housework and 16 patients their jobs severely limited. There were 2 patients having bilateral dropped foot and 3 patients unilateral dropped foot. Plain X ray after one week, 6 weeks, 3 months and one year were normal spine alignment except two cases did 2 points fixation slipped and showed step after 3 months. As regard LBP and claudication pain disappeared once the patient able to stand and freely walk after 6 weeks except 6 patients of high grad needed more long time of limited movement. After 3 months all patients reported stand and walked freely excepts high grade suffered from low back pain after long time walking. Also all housewife (n= 11) could do their routine housework tasks. Non-manual persons (n=10) return to full jobs. Manual worker (n =9) could return their jobs with modification to avoid violent back effort. Plain X-rays after 6 weeks, 3 months and one year showed fixed fusion and reduction and good alignment except 2 cases there were step with fusion but stable

**Conclusion:** Full reduction in cases of spondylolisthesis of all Meyer's grad greatly improve the suffering of patients, quality of life and return to jobs.

### Abstract 2.13 Primary healthcare physicians' adherence to acute low back pain referral guidelines in Riyadh, Saudi Arabia

Faisal Alhusain <sup>1\*</sup>, Arallah Albahlal <sup>1\*</sup>, Ali Alhend <sup>1\*</sup>, Khalid Aldihan <sup>1\*</sup>, Odai Alsultan <sup>1\*</sup>, Hanadi Alqahtani <sup>1\*</sup>, Sami Aleissa <sup>1\*</sup>

King Abdulziz Medical City – National Guard Health Affairs – King Saud Bin Abdulaziz University For Health Sciences

**Introduction:** Back pain is a common disorder involving multiple structures such as bones, joints,

muscles or nerve roots of the back. It remains one of the most common causes of primary care visits, with a peak presentation age between 15 to 52 years. Primary health care physicians play a major role in diagnosing and managing acute back pain which has numerous negative effects on the patients' lives and the healthcare system. Current guidelines strongly recommend primary healthcare physicians to exclude red flags of back pain or immediately refer the patient to specialized service. The objective of this study was to assess the primary healthcare physicians' adherence to referral guidelines for acute low back pain and if there is any association with experience level.

**Methodology:** A cross-sectional study was conducted by distributing questionnaires in-person by the research team through convenience sampling technique among one hundred primary healthcare physicians, with a 78% response rate, to assess their behavior and adherence to back pain referral guidelines as per The National Institute for Health and Care Excellence (NICE) and Institution of Health Economics (IHS) guidelines. The inclusion criteria were All family medicine physicians including consultants, specialists and residents and all general practitioners who are working in King Abdul-Aziz medical city and its primary care centers in Riyadh, Saudi Arabia.

**Result:** The distribution between male to female was 43% to 57%, respectively. 25% of physicians encounter 1-5 patients weekly, while 28% encounter more than 15 patients. The physicians included had a higher than expected adherence to referral guidelines with percentages ranging between 63-94% referral rates for back pain related red flags. A trend was noted where there was an increase in referral decisions with increased experience when encountering red flags. More experienced physicians were more likely to refer when encountering; pain worse after prolonged sitting, limited mobility, and pain worse while coughing or sneezing ( $p < 0.05$ ).

**Conclusion:** The physicians included had a higher than expected adherence to referral guidelines with percentages ranging between 63-94% referral rates for back pain related red flags. It was very interesting to see, however, physicians with longer years of experience were also more likely to refer to a specialist service when encountering symptoms that were not considered as red flags for back pain, with three out of the four distractors included had a significant association with increased level of

experience. This trend is in line with what the literature reported on many occasions.

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### **Abstract 2.14 Review of 104 spinal deformity surgeries operated at kfshd**

*Bachar Harfouch<sup>1</sup>, Reem Fahd Bunyan<sup>2</sup>, Saud Al Hamad<sup>1</sup>, Fahd Al Mulhim<sup>1</sup>*

1 Department Of Orthopedics, king Fahd Specialist Hospital Dammam, Saudi Arabia

2 Department Of Neurology, king Fahd Specialist Hospital Dammam, Saudi Arabia

**Introduction:** Assess safety and efficacy of spinal deformity surgeries at KFSHD.

**Methodology:** A retrospective review of spinal deformity cases operated at KFSHD Between Nov 2014 and May 2018 revealed 104 surgeries.

**Method:** All cases were done by the same Spine consultant (BH) and Neuromonitoring monitoring under the same neurologist (RB). All cases posterior approach only. Screws were inserted using free hand techniques of Lenke after posterior release. VCR technique according to Lenke Description of the technique Patients with SCD underwent blood exchange prior to surgery 3 cases were done in two sessions (because of NM signal loss).

**Result:** We had 71 females and 34 Males. Age between 4-37 deformities Cobb angle is: 45-132 degrees. Correction rate of the deformity is: 60%-90% Type of deformity: 69 Cases AIS, 7 cases of congenital deformities, 11 cases of syndromic deformities, 7 cases of neuromuscular deformities, 3 cases of EOS, 4 cases of Scheuermann disease. 3 redo Surgeries. 3 cases of Spinal deformity and SCD PSF with PCO in All cases except 3 cases where a VCR done because of the rigid congenital spinal deformities Complications: One case of spinal infection treated with debridement and IV Antibiotics. One case of broken Magic rod (4 y postop) treated with a new rod One Neuromuscular case complicated by screw pullout and skin breakdown (6 months Postop) where the hardware was removed 5 cases of intraoperative Neuromonitoring loss which was back before skin closure. All these patients woke up with normal Neuro exam.

**Conclusion:** King Fahd Specialist Hospital Spinal deformity surgery results match the international success rate and complications risk.



### **Abstract 2.15 Anterior approach cases of lumbar and dorsal fractures using expandable corpectomy cage linked to anterolateral vertebral plate as one unite (new idea)**

Ahmed Rizk <sup>1\*</sup>, Issam Abd Alhamid<sup>1\*</sup>, Amr El Adawy <sup>2\*</sup>, Muhamed Yahia<sup>3\*</sup>

1 Neurosurgery department, Zagazzy University, Egypt

Orthopedics Department, Zagazzy University, Egypt

3 General Organization For Teaching Hospitals & Institutes, Egypt

**Introduction:** Lumbodorsal fractures are most common site of spine fractures. Realignment, decompression and consolidation can be achieved by instrumentation. Some cases need 2 devices to safeguard these needs, mostly interbody device is reinforced by either anterior plat or posterior instrumentation. Under certain circumstances each device behaves alone which lead to dislodgment of interbody device under forces be created by spines loading and movement. Frist author designed new system composed of interbody expandable cage which is linked to anterolateral plate be fixed during one setting of anterior approach. Aim of work : to test the functionality of system segment composed of interbody expandable cage linked to vertebral body anterolateral plate and superjacent and subjacent vertebral bodies as regard stability and fixability function during spine loadings and movements in cases of wedge fractures in lumbar or dorsal region.

**Methodology:** Prospective study open label was done during 2015-2017 for 65 adult patients 40 males and 25 females their ages from 18 to 67years, all of them having wedge compressed fractures stable or unstable No cause was exempted, there were 45 cases post traumatic, 8 cases previous system failure, 4 cases metastases, 3 cases nonspecific infection, 3 cases TB and 2 V B hemanangioma. Clinically there were 18 cases paraplegia, 28 cases paraparieties and 19 cases normal. All surgery was done from left side through trans-pleural thoracotomy, trans abdominal retroperitoneal or combined in cases of dorso-lumbar region. The diseased V B and disc above and disc below were removed with decompression spinal canal and expose the spinal cord, then putting of suitable cage length, then expanding the cage to correct the alignment, then fixation of suitable length plat to cage and to vertebral body above and below by

screws. Patients were followed up clinically and radiologically by Plain X-ray and stress dynamic was done after one week, one month, 3 months and one year. CT was done after one year to show bone consolidation around the cage.

**Result:** Clinically post-op all patients were pain free at fracture site during erect position (setting and standing) after one week where paraplegic patient could set with support, paraparietic patients could stand with support and normal patients could walk alone. Plain x-rays were done after one week a month, 3 month and 6 month to show stability of system segment (SS) (which is composed of expanded interbody cage, V B plate, superjacent V B and subjacent VB) during loading and spine flexion. It was found SS fixed and stable in all patients except one where cage displaced anterior in case where the linked screw between cage and plat was missed after 3 months but spines were stable. CT after one year showed consolidation between bone graft inside and outside the cage.

**Conclusion:** The new idea of expandable cage fixed to vertebral pate be fixed during one setting creates strong system segment can withstand the forces that arise during spine loading and movement without risk of dislodgement.

### **Abstract 2.16 Lumbar disc herniation in pediatric**

Ahmed Taha <sup>1</sup>, Mostafa Abdelsamee <sup>1</sup>

Neurosurgery department Alazhar University Hospitals, Egypt.

**Introduction:** Lumbar disc herniation is a common disorder among adults with degenerated lumbar intervertebral discs. However, its occurrence in childhood and adolescence is much less frequent mostly because children and adolescents tend to have a healthier lumbar spine as compared with adults. Unique physiological natures of children and adolescents endow pediatric lumbar disc herniation with some distinctive features. However, almost all attention was given to adult lumbar disc herniation with pediatric lumbar disc herniation remaining partially understood. Over the years, the number of studies in this regard was on a rise,

which led to an ever increasing understanding of this entity<sup>10</sup>. Low back pain is the most common causes of debility in individuals aged 45 years or younger and imposes a large socioeconomic burden on society<sup>1</sup>. Patients with lumbar disc herniation frequency suffer from symptoms including, pain, radicular symptoms, and weakness, low back pain might to be aggravated by position and drive<sup>3</sup>. The accurate occurrence of lumbar disc herniation in pediatrics is not completely clear. It was stated that it comprise 0.5-6.8% of entire patients hospitalization for lumbar disc herniation<sup>7,8</sup>. There have been little described cases of lumbar disc protrusions under the age of ten in literature, and the youngest age reported was 13 months <sup>11</sup>. Overall, less than 10% of pediatric low back pain cases are owing to disc herniation and it has been described that fewer than half of these cases need surgery<sup>12,13</sup>. Thus the clinical appearance of these patients has not been well-defined. Trauma (sport injury) is usually measured as the greatest portable reasons because as many as 30% -60% of children and adolescences with symptoms lumbar disc herniation have a previous history of trauma prior to the beginning of pain<sup>2</sup>. However, more recent studies suggest that instead of being a primary contributory factor, trauma is likely to be an inciting event in the exacerbation of the pre-existing lesion in the discs, e.g. micro-damage, degenerative changes. The second generally recognized cause is genetic factor. Studies have shown that between 13 and 57% of pediatrics with LDH have a first-degree relative with the same disorder <sup>19,20</sup>. Vertebral anomalies such as scoliosis, transitional vertebra (lumbarisation and sacralisation) et al. are known to be associated with LDH in children. Clinical appearance of pediatric lumbar disc herniation are normally like those detected in adults, one characteristic feature is that up to 90% of the patients have a positive straight leg raising test, which can be clarified by the reason that children and adolescence incline to have larger nerve root tightness than adults <sup>14</sup>. Though neurological symptoms such as numbness and weakness are less than in the adult.

**Methodology:** The present study was a retrospective analytical study of 12 patients with lumbar disc herniation in pediatrics, who underwent surgery in the period between 2012 to 2016 in the neuro-surgery department, Al-Azhar , faculty of medicine

(Damietta). Diagnosis of lumbar disc herniation in these patients was performed using MRI of the lumbosacral spine, it is a non invasive methods to evaluate lumbar disc herniation and excluding other cause of back pain. Preoperative data, radiological study, postoperative follow up were recorded and reviewed

**Result:** 12 patients were included in this study 10 males(83%), and 2 females (17%), the age range from 12-18 years with an average age of 15 years. The average duration of symptoms was 11 months (range between 10-12 months) and the average follow up period was 14 months (range between 13-15 months). Prior to the surgery all the patients has evaluated using the Pain Visual Analogue Scale. All the patients had sciatica(100%), 35% had more deficit in the form of weakness and 60% had parathesia, some of the patients had also tight hamstring (50%). As regards to the level of lumbar disc herniation, L4-5 was the most common followed by L5-S1 level. Preoperative and postoperative I4-5 disc . All the patients were subjected to medical treatment and physiotherapy for about four weeks, and the surgery was done after failure of medical treatment. The operative techniques was done for the patients in the form of discectomy either open or microscopic without laminectomy, laminoplasty or spinal fusions after surgery and follow up period, improvement occur in 80% of all patients. Ranging from excellent (45%) to good (35%) , and fair outcome in (20%) of patients in the form of residual back pain and some degree of weakness. Regarding to Visual Analogue Scale back pain reduced from 80- 35, and leg pain from 90-30.

**Conclusion:** Pediatric lumbar disc herniation is an uncommon object leading to hospitalization of about 0.1-0.2% of children and adolescence. Surgery for lumbar disc herniation in pediatric does not lead chronic back pain or interfere with physical activity and is associated with excellent short term consequence

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### Abstract 2.17 Comprehensive model for spina bifida and hydrocephalus multidisciplinary care

Walaa AlGhamdi<sup>1</sup>, Anwar AlZahrani<sup>1</sup>, Abdulrazaq Aloan<sup>2</sup>, Ahmed Ammar<sup>2</sup>, Sharifah Othman<sup>1</sup>.

1 College of Medicine, Imam Abdulrahman bin Faisal University, Saudi Arabia, Dammam  
Neurosurgery department, King Fahad Hospital of the University, Imam Abdulrahman bin Faisal University, Saudi Arabia, Dammam

**Introduction:** Spina bifida is a congenital anomaly which considered as neural tube defects, it is the most common central nervous system disease among children. The average worldwide incidence of spina bifida is 1 case per 1000 births, but marked geographic variations occur. The incidence was 1.09 per 1000 live births in AL Madinah which is similar to that reported from eastern province<sup>3</sup>. The most common type of spina bifida worldwide is myelomeningocele, it is compatible with life with some impairment of both spinal cord and brain<sup>4</sup>. Pediatric neurosurgery is the one who work with these conditions with the help of other departments (orthopedic, urology, genetic, social workers and physiotherapy). Figure 1. overall degree of satisfaction.

**Methodology:** We retrospectively reviewed the database of all patients in King Fahad university hospital and collected a sample of 99 patients from 2015 to 2017 who diagnosed with myelomeningocele and had at least two years of follow-up in the clinic. We screened their demographic data, diagnosis, their health status in presentations. The study based on questionnaire, and we used questionnaire that measured patients/ patient's families satisfaction and improvements with health services which contains questions with scores of 5 as (1 means very unsatisfied and 5 very satisfied, and in between score of 3 means adequate). By this survey, we evaluated the health status outcomes in the start of the clinic visit till the last follow-up. The data was collected and analyzed by using the statistical package for social sciences, SPSS. Discussion Spina bifida clinic at king Fahad hospital of the university is the only withstanding clinic that serves such kind of disease with multidisciplinary team management in Saudi Arabia and Gulf region. A similar Study done in 1999-2009 of 188 patient showed that multidisciplinary clinic in Riyadh helped in decrease the need for surgical intercession in urological cases<sup>5</sup>. Spina bifida is a constellation of

**Result:** Out of 99 patients of myelomeningocele, 55.5% were female and 44.4% were male (F:M, 1.25:1) and the mean age was 6.4 (SD  $\pm$  5.8) in a range of Minimum 0.08- maximum 28 years. Out of 99 patients, 2 dead. Total number of respondents to the survey was 50 (response rate 50.5%). The mean follow-up period was 6 months. The descriptive statistics of 50 respondents showed mean score of 4, 4.2 for the explaining the (condition and managements) and answering all patients' family questions, respectively. Most of patient's families reported a good satisfaction from the clinic in the side of awareness of their child's condition. Score of 4-4.2 was answered which showed most of them was satisfied the clinic saved their time and efforts in getting multiple services in one visits and in decisions made by the multidisciplinary clinic's physicians. So, the percentage of satisfaction (who was in range of satisfied and very satisfied) in answering their concerns in understandable way, saving the time, decreased the effort in getting multiple services, decision made in the clinic and the benefits they received in one visit was 80%, 62%, 78%, 68% and 80%, respectively (chart 1). Overall, the satisfaction about multidisciplinary clinic was 80% (figure 1).

**Conclusion:** Myelomeningocele (MMC) patients have other medical issues related to their neurological conditions in which the demand of multidisciplinary approach is necessary. This multidisciplinary clinic work with other clinicians in different subspecialties to serve MMC patients by establishing management for those children, ensuring the provision of continuous and coordinated care of the highest quality, minimizing the time consumed and increasing efficiency for patients visiting the clinic. This study proved that most of the patient's families and patients are satisfied from the clinic since it's reserve more time in precede many services and making decisions which are approximately increase the satisfaction and improve the health outcomes.

### Abstract 2.18 Knowledge and awareness about osteoporosis among Saudi adults in Riyadh, Saudi Arabia, 2016

Abdullah AL-Kahil

**Introduction:** Introduction: Osteoporosis is a

major public health problem, which affects millions of people around the world and its frequency increases by age, and the Kingdom of Saudi Arabia (KSA) is not an exception. Osteoporosis is a disease characterized by low bone mass and micro architectural deterioration of bone tissue. Objectives: This study aimed to evaluate knowledge and awareness of osteoporosis among general Saudi adult in Riyadh.

**Methodology:** An observational, descriptive cross-sectional study conducted on 150 males and females participants of general Saudi adult in Riyadh city, 2016. Inclusion criteria: Saudi adults, and Exclusion criteria: other than Saudi nationalities and children. The Sample technique used in this study: convenience consecutive sampling. The data was cleared, coded, entered and analyzed by SPSS (Static Package For Social Science) and Microsoft excel was used to generate figures and charts. Chi-square test with significance level (P value 0.05).

**Result:** Out of 150 participants, 145 have heard about osteoporosis. About (60.66%) of participants have moderate general knowledge about osteoporosis. while only (25.33%) have good general knowledge about osteoporosis. Males participants had the best knowledge about the high risk age group of getting Osteoporosis (55.44%) compared to females participants (44.89%). Approximately most of the participants (48%) thought that they are susceptible to contracting osteoporosis in a point of their lives. Out of 49 females, who participated in the study, on asking about their susceptibility to contracting osteoporosis, approximately half (51.02%) of them knew that they are susceptible of contracting osteoporosis, while males were (46.53%) out of 101. This indicates that there is no statistically significant between males and females on perceived susceptibility. This study showed there is significant relations (P-Value: 0.046) between participants with high perceived knowledge (87.76%), low perceived knowledge (66.67%) and their knowledge about relation between eating a diet low in milk products and getting osteoporosis. **Conclusion:** Conclusion: Knowledge and awareness are moderate towards this disease. This finding is similar to other studies done in the kingdom in different cities implying no serious actions were taken to improve this situation. Health authorities should create programs to upraise the awareness of the community for this important disease

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**Abstract 2.19 A novel joint injection and peroneal, sural injection technique for lumbar pathology: how does its effect disc resolution and pain reduction rate?**

Figen Aslan <sup>1</sup>

University of Akdeniz, Turkey

**Introduction:** We aimed to investigate that how this technique effects the disc resolution rate in only disc or disc with foraminal stenosis patients groups. Pain reduction rate evaluated in only disc or disc with foraminal stenosis or spondylolisthesis groups with lumbar radiculopathy in patients with mild neurological deficits. **Methodology:** A novel combination of joint injection and peroneal, sural nerves blocks performed with radiculopathy were evaluated by archives records for foraminal stenosis, disc hernia and spondylolisthesis, retrospectively. Fluoroscopically (4 or 8 magnified) guided system was used for joint injection. Mixsture solution (muscoril, dicloran, trental, bupivacain, dexstrose, saline solution or diluated depomedrol) separated two parts was used for sural-peroneal block for foot or sciatic injections.

**Result:** Single level block was used in 214 patients and double level block was used in 172 patients, sural and peroneal block was used in all of the patients. After the injection therapy, They returned the daily activites 10 days, returned the their job 20-25 days later. The final outcome evaluated to the Macnab; excellent in 254, good in 115, fair 17. Disc resorption percent was evaluated in 1 years later. Disc resorption volume rate was changed 20% to 80% Only 7 patients show no difference on pain reduction rate and operated.

**Conclusion:** A novel combination of joint injection, peroneal and sural block was to be effective to reduce the pain and disc volume. Pain map and injection therapy should be very important aspect of the non operative treatment with lumbar pathology. Injection combination helps to reduce the pain and resorption of the disc volume visibly more than spontaneous disc resorption rate to be expected. How can we find the source of the pain, Neural therapy, Mesotherapy, Spinal pain, Neural therapy.

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**Abstract 2.20 Evaluation of low level laser therapy (LLT) in post lumbar laminectomy syndrome**

Amal Mowafy<sup>1</sup>

Suez Canal University Hospital, Egypt

**Introduction:** The post lumbar discectomy syndrome contributes social and economic burden and almost present in patients after disc surgery. Syndrome is mainly undertaken as a sequel of surgical technique rather than a complication of lumbar discectomy. These symptoms are considered major problems regards pain decreases functional status that's lead to restriction of daily activities or ability to return to work.

**Methodology:** This study is a comparative study including 30 patients. They were divided in two groups, the first group include 15 patients were subjected to LLLT and rehabilitation program .The second group include 15 patients were subjected to rehabilitation programs only. All patients were subjected to full medical and surgical histories and complete clinical examinations. Both groups were assessed by VAS score Schubert test, Denis functional score and wound healing assessments

**Result:** The post program results of pain evaluation on VAS score showed statistical difference in laser group competed to control group. Also the result of pain on Denis functional score were smaller. The result of Schober test reveled that patients in laser group 100% improvement comparing to 80% in control group .There was highly significant improvement in post program work score in laser group < p value 0.004 >. Also wound healing showed laser group showed 100% improvement with no scare while in control group 12 patients had scares and 3 patients had infected wound

**Conclusion:** LLLT to rehabilitation program is highly effective than rehabilitation program alone regarding improvement, of pain, lumbar mobility ,and wound healing acceleration in post-laminectomy syndrome. Also LLLT had excellent functional out come as all patients can return to the previous job with laser.

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**Abstract 2.21 Bilateral CT guided sacroplasty for treatment of painful metastasis in two patients, a therapeutic challenge**

Ahmed Bessar

**Introduction:** Sacroplasty is considered as an advanced technique used for painful lesions in the sacrum, we inject cement guided by different imaging modalities not only to reduce pain but also to improve stability. CT is considered as the preferred imaging modality as it helps physician to accurately place needle tips and avoid complex neural and vascular structures in the sacral region.

**Methodology:** In our study we collected data from patients suffered from bilateral osteolytic metastatic lesions in both ala of the sacrum. There are two patients in our study with single center experience; we adjusted needle tips into the osteolytic lesions using serial CT cuts. We injected cement in both sides at the same time with rapid CT monitoring to avoid leak. Both procedures were performed under complete aseptic conditions with patients generally anesthetized and on prone position.

**Result:** After monitoring of pain score on (VAS), stability on clinical examination and sphincter control, we found a considerable relief of pain score (from 10 to 2 in the first patient and from 9 to 3 in the second patient), the first patient started to walk independently after 4 hours from the procedure with better sphincter control. The second patient started to raise his legs with the ability to stand in the week after the procedure. No immediate or delayed post-operative complications recorded.

**Conclusion:** Sacroplasty is considered as a safe and minimal invasive palliative technique used to help cancer patients with metastatic lesions in the sacrum to gain better life. CT makes it easier and safer with potential greater efficacy and lower complication rate. Pain is reduced greatly after the procedure, also cement could help to reduce pain related instability and helps in more mechanical stability due to its direct effect. Other body functions like sphincter control seemed to be improved after control of pain with related reduced neural compression and improved psychological state of the patients.

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**Abstract 2.22 Prevalence of low back pain among dentistry students, in King Saud University.**

*Abdulaziz Alsudairi<sup>1</sup>, Raed Hashem<sup>1</sup>, Muhannad AlSharidah<sup>1</sup>, Fahad AlShyhan<sup>2</sup>, Muneer Saad Aldeen<sup>2</sup>*

1 King Khalid University hospital, King Saud University, Saudi Arabia

**Introduction:** Low back pain (LBP) is considered as one of the most common musculoskeletal complaints worldwide. LBP in health care workers is very common due to many reasons including work load Exposures. Prevalence of LBP among hospital staff varies between 39% in Hong Kong and 76% in the Netherlands. Dental students, like dental practitioners, are at high risk to develop musculoskeletal disorders, especially during their clinical years. we aim to determine the prevalence of LBP in dentistry students and its associated factors.

**Methodology:** Cross-sectional study that was conducted among 247 students from the collage of dentistry in King Saud University. The Questionnaire was distributed which included: demographic characteristics, risk factors, Nordic musculoskeletal questionnaire and Oswestry disability questionnaire.

**Result:** Mean age was  $21.2 \pm (1.58)$ . 58.3% of students were female. Lifetime prevalence of LBP was 70.4%. 12-month prevalence was 68.4%, and point prevalence was 38.1%. Lifetime prevalence was associated with age and physical inactivity (p-value = 0.005, 0.026 respectively). 12- month prevalence was associated with type of year and BMI (p-value = 0.002, 0.009 respectively). Psychological condition showed high impact on the LBP. Lifetime prevalence was associated with feeling overwhelmed, sad and exhausted (P-value= 0.003, 0.047, 0.033 respectively) , 12- month prevalence and point prevalence where also associated with feeling Overwhelmed (p-value=0.002,  $\geq 0.001$ ), feeling sad (p-value=0.01,  $\geq 0.001$ ) and feeling exhausted (p-value=0.035, 0.029)

**Conclusion:** This study has shown high prevalence of LBP among future dentists. These risk factors should be well established to minimize the prevalence of LBP among Dentistry students.

**Abstract 2.23 The awareness of scoliosis among Saudi population in Riyadh, Saudi Arabia**

*Prof.Abdulmonem AlSiddiky<sup>1</sup>, Abdulaziz Alsudairi<sup>2</sup>, Hisham Ghabbani<sup>2</sup>, Meshal AlOhali<sup>2</sup>, Sara AlSiddiqi<sup>2</sup>, Fahad Alkahtani<sup>2</sup>.*

1 King Khalid University hospital, King Saud University, Saudi Arabia

**Introduction:** Scoliosis is a condition that causes the spine to curve sideways. The prevalence of scoliosis ranges from 0.47%-5.2% worldwide. A disease of such impact needs to be studied further to promote knowledge of great importance. Regarding any disease, it is essential to evaluate the population and patients' knowledge and awareness regarding the diseases. We aim to identify the awareness of the Saudi Population towards scoliosis in Riyadh, Saudi Arabia.

**Methodology:** We Preformed a cross sectional study in various parts of Riyadh. Our sample size was 604 of the general Saudi population. Questionnaires were distributed, which obtained basic data regarding awareness, knowledge, traditional beliefs, treatment practices and other issues.

**Result:** Regarding scoliosis definition, 36.8% answered correctly. Age was associated with general knowledge (p < 0.0001). Participants in lower age group, lack essential information regarding scoliosis. Education level and employment status had a significant correlation with the basic knowledge on scoliosis (p-value = 0.002 and 0.001, respectively). Participants with higher education level and who are currently working or retired were most aware about to scoliosis. 18.7% of the participants stated that they do not know the cause of scoliosis. Majority of these participants were from lower age group (p-value = 0.0002) . Education level had a significant effect on the awareness, as those of lower education levels had difficulty in identifying the causes of scoliosis(p-value = 0.0012).

**Conclusion:** In conclusion, an employed or retired person who is above 40 years and holding a university degree is the most likely to have knowledge about scoliosis.

**Abstract 2.24 Multiple levels vertebroplasty in treatment of painful vertebral metastasis**

Ahmed Bessar

**Introduction:** Vertebroplasty is considered a well-known widely used minimal invasive interventional technique used in the treatment of painful spinal lesions related to the vertebral bodies with complicated fractures or impending fractures or metastatic lesions with pain not responding to conventional treatment modalities

**Methodology:** In our study we collected data from patients suffered from metastatic lesions in multiple vertebral bodies, all were suffering from intractable pain with instability and fractures in some vertebral bodies. We asked all patients to perform multislice CT on the vertebral bodies and contrast enhanced MRI to detect the accurate points of tumoral invasion in the vertebral bodies and epidural invasion. We decided to perform vertebroplasty in all patients in more than two levels (5 levels in one case, 4 levels in three cases, three levels in two cases), with maximum cement amount of 20 cc.

**Result:** After monitoring of pain score on (VAS) and stability on clinical examination, we found a considerable relief of pain score (from 10 to 2 in the two patients, from 9 to 2 in the two patients, and from 10 to 1 in two cases); no epidural leak could be detected in post-procedural images. No immediate or delayed postoperative serious complications, apart from thigh pain in a patient suffered from metastatic lesions in the femur and droplets of cement leak in vertebral venous plexus in two patients with no pulmonary complications or respiratory affection.

**Conclusion:** In conclusion, vertebroplasty could be performed in more than two levels in the same setting with reduced morbidity and improved outcome. The greater benefits are considered related to wide control of metastatic lesions and fewer times of exposure to general anesthesia or operative stress. Also the minimal invasive nature of the technique carries a greater benefit in debilitated patients not fit for traditional operative techniques.

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**Abstract 2.25 Aneurysmal bone cyst of spine: report of five cases and review of literature**

Majid S. Aljoghaiman<sup>1</sup>, Saud Alhamad<sup>2</sup>, Bachar Harfouch<sup>3</sup>, Mohammed A Homan<sup>3</sup>

1 Department of Neurosurgery, King Faisal University, Alahsa, Saudi Arabia.

2 Department of Orthopedic Surgery, King Fahad Specialist Hospital, Dammam, Saudi Arabia.

3 Department of Neurosurgery, King Fahad Specialist Hospital, Dammam, Saudi Arabia.

**Introduction:** Aneurysmal bone cyst (ABC) is a benign osteolytic bone tumor that is characterized by locally destructive behavior. It is a relatively rare pathology, constituting around 1.4% of primary bone tumors with spinal cases involved in around 30 % of the cases. We report five cases of spinal ABC that were managed surgically at King Fahad Specialist Hospital in Dammam, Saudi Arabia. This report aims to describe the clinical features and the need for surgical excision preceded by embolization in spinal ABC

**Methodology:** A retrospective review of the OR list and tumor board records between 2013 and 2016 yielded a total of 5 cases of spinal ABC who were surgically treated at KFSH-D. Their clinical presentations, radiological and pathological features are reviewed along with the surgical intervention utilized and its outcome

**Result:** Total of 5 cases were identified, all of them were female (100 %). The age ranged from 13 to 25 years old (mean age = 17). Three cases (60 %) were located in the thoracic spine, one (20 %) cervical and one (20 %) in the lumbar spine. Back pain, unsteady gait, and progressive limb weakness were the most common presenting symptoms. All the cases underwent embolization followed by surgical excision and fixation with a variable degree of improvement postoperatively

**Conclusion:** ABC is a benign tumor that can present with a wide variety of non-specific symptoms. Pre-operative embolization can be helpful to reduce bleeding during surgery. Surgical decompression can lead to significant improvement even in case of severe neurological deficit. Radiation therapy can be used as an adjunct treatment in selected cases

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**Abstract 2.26 Intra discal ozone for backache**

*Shahzad Bhatti*<sup>1</sup>

Department of Interventional and Diagnostic Radiology Sir Ganga Ram Hospital/Fatima Jinnah Medical University, Lahore, Pakistan.

**Introduction:** Ozone is an upcoming remedy for most of musculoskeletal related pains specially for backache. Directly injecting Oxygen-Ozone in to the discs has proved to be the effective alternative for surgery in patients with disc herniation. We share our experience with ozonucleolysis with patients affected by lower backache and sciatica due to disc herniation including post operative recurrence.

**Methodology:** Twenty two thousand patients were treated with single to multiple sessions of Oxygen Ozone therapy from January 2008 to June 2017. All the patients had MRI evidence of annulus tear/ disc prolapse with clinical signs of nerve root compression. All the patients received intra discal injection of Oxygen Ozone mixture under angiofloro with 22/23 G cheeba needle at an ozone concentration 27 Ugm/ml with peri ganglionic infiltration with depomedrol and 1% xylocaine. Males were 15600 and 7400 females between the age of 18-80 years. Therapeutic outcome was assessed 5 months after treatment by using modified MacNab method.

**Result:** A satisfactory therapeutic outcome was obtained. 75 % showed signs of recovery. Among them 55% of the patients showed complete recovery with resolution of symptoms. 20% of the patients complained of occasional episodic pain and with no limitation of occupational activity. 15% of cases showed insufficient improvement. 5% of cases had insufficient improvement and went for surgery. 5% of cases never turned up after the first visit.

**Conclusion:** Intra discal injection of Ozone for herniated discs has revolutionized percutaneous approach to nerve root diseases making it safer, cheaper and easier to repeat than treatments currently used in Pakistan.

**Abstract 2.27 Effectiveness of snags mobilization in chronic mechanical low back pain**

*Nourah Al Muhanna, Shabana Khan*<sup>1</sup>

Prince Sultan Military Medical City, Saudi Arabia

**Introduction:** To determine effectiveness of SNAGS Mobilization in Chronic Mechanical Low Back Pain.

**Methodology:** A total of 40 patients were included as per inclusion criteria and randomly assigned into two groups each having 20 patients. Group A was given SNAG consisted of stretching and strengthening exercises while Group B was given Ultrasound consisted of stretching and strengthening exercises for 4 weeks, 3 sessions per week one session per day. The patient's outcome measures were assessed by visual analog scale, ODI and Goniometry of Lumbar Range of Motion. Measurements were recorded before and after the end of the treatment period.

**Result:** Results revealed that means and S.D of both group were significant ( $p=.000$ ) statically but clinically the Group of patients treated with SNAGS along with stretching and strengthening exercises managed pain (pre= $7.61 \pm 1.26$ , post= $0.45 \pm 0.47$ ), ODI(pre=  $40 \pm 20.57$ , post=  $9 \pm 4.69$ ) and range of motion (flexion pre= $31 \pm 6.01$ , post= $52 \pm 10.12$ , extension pre= $16 \pm 2.23$ , post= $30 \pm 5.17$  Rt side flexion pre= $11 \pm 2.17$ , post= $20 \pm 4.21$  and Lt. side flexion pre= $10 \pm 2.85$ , post= $21 \pm 4.33$ , Rt side rotation pre=  $9 \pm 1.97$ , post= $18 \pm 2.15$ ) Lt. side rotation pre= $9 \pm 2.01$ , post= $18 \pm 2.47$  better than group of patient treated with Ultrasound along with stretching and strengthening exercises in terms of pain( pre= $6.67 \pm 1.51$ , post= $2.83 \pm 1.17$ ), ODI (pre= $43 \pm 21.62$ , post= $25 \pm 12.8$ ) and range of motion (flexion pre= $25 \pm 5.95$ , post= $37 \pm 10.56$ , extension pre= $14 \pm 2.13$ , post= $21 \pm 5.41$ , Rt side flexion pre= $10 \pm 2.15$  post= $15 \pm 2.28$ , Lt Side flexion pre= $12 \pm 2.75$ , post= $18 \pm 2.96$ , Rt side rotation pre= $9 \pm 1.90$  post= $15 \pm 2.71$ , Lt Side rotation pre= $8 \pm 1.85$ , post= $16 \pm 3.17$ ).

**Conclusion:** The result of study suggests that both SNAG and Ultrasound improves the symptoms of chronic Mechanical back pain. Better improvement was shown by SNAG group than Ultrasound group. Based on these results SNAG and Exercise should be the treatment of choice for chronic Mechanical Low back pain rather than Ultrasound with Exercise.

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**Abstract 2.28 Prevalence and risk factors of low back pain among Taif surgeons.**

*Turki Alzidani, Basel Alzahrani, Arwa Aljuhani, Khaled Alzahrani, Abdullah Alturkistani<sup>1</sup>*

<sup>1</sup> Taif University, Saudi Arabia

**Introduction:** Low back pain (LBP) is one of the most common complaints especially among healthcare workers, with great impact on daily lifestyle and job performance in term of disability and absence. Therefore, in this study, we aimed to assess the prevalence and associated risk factors of LBP among surgeons of different specialties in Taif city, Saudi Arabia.

**Methodology:** A cross sectional study among surgeons in Taif city randomly selected from the three major hospitals in the city, using a self-administered questionnaire of 41 items divided into three parts including demographic data, individual and occupational characteristics, and prevalence data. Result: Prevalence data of LBP was; point prevalence of 28 (20.3%), last month prevalence of 67 (48.6%), last year prevalence of 91 (65.9%), and lifetime prevalence of 101 (73.2%). Some of the investigated individual and occupational characteristics associated with the prevalence of LBP with a statistical significant (P-value < 0.05) such as smoking, specialty, overall standing time, perceived level of stress, and using preventive strategies. Others might be associated but with no statistical significant (P-value > 0.05) such as age, gender, BMI and job satisfaction. Rest and painkillers are the best option for most of the affected surgeons to relieve the pain.

**Conclusion:** LBP has a high prevalence in the healthcare field, and results of this study show high prevalence among surgeons, with many avoidable risk factors. Therefore, more studies must be conducted, and planning educational programs and campaigns to reduce the magnitude of this problem.

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**Abstract 2.29 Challenges and early outcome of scoliosis surgery in Sudan as a low resource country**

*Yasir Gashi, Ahmed Shakir<sup>1</sup>*

University of Khartoum, Sudan

**Introduction:** Scoliosis surgery in Sudan restarted at 2010, many challenges were associated with

the new start, which include social, financial and surgical issues. In this study we are reporting our experience and evaluating the early outcome.

**Methodology:** Case series of 76 patients who operated between 2010 and 2016 were evaluated clinically and radiologically pre and post surgery. Clinical and functional outcome were evaluated using Frankel scale and modified SRS 22 respectively.

**Result:** 76 patients enrolled in this study, male to female ratio was 1:3. AIS was the common type of scoliosis with mean age of 21 years. The mean Cobb angle correction was 73%. Most of the patients at final follow-up were either fully or partially satisfied, very few patients were unsatisfied.

**Conclusion:** Although most of the patients presented late, with big curves and the surgical setup is not as perfect as it should be, the outcome of surgery is satisfactory and comparable to the reported literature.

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