



İSTANBUL SPINE MASTERS 2025

24-27 April 2025

Üsküdar University
İstanbul-Türkiye

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Program & Abstract Book



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24-27 April 2025

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Faculty

Abd-El Hafiz Shebab Eldien		Michael J Faloon	
Abolfazl Rahimizadeh		Mohammad Zohair Shaker	
Barış Özöner		Muharrem Yazıcı	
Celal Özbek		Nayef Dajim	
Cumhur Kılınçer		Numan Karaaslan	
Çağrı Canbolat		Onur Yaman	
Emre Acaroğlu		Osama Arim	
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Güçlühan Güçlü		Richard Assaker	
Hamdi Nabawi Mostafa		Rovshan Khalil-zadeh	
Hossam Salah Taha		Sait Naderi	
Ibet Marie Sih		Salim Şentürk	
İdris Avcı		Salman Sharif	
İsmail Bozkurt		Sameh Abolfotouh	
İsmail İştemen		Sandeep Vaishya	
Joachim Oertel		Scott C. Robertson	
June Ho Lee		Se-Hoon Kim	
Jutty Parthiban		Serdar Çevik	
Kemal Koç		Suat Canbay	
Masoud Khadivi		Ülkün Ünlü Ünsal	
Mehdi Darmoul		Yahya Güvenç	
Mehmet Zileli			

Scientific Program



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24 April 2025, Thursday

IAS Meeting & Cervical Disc Herniation Consensus Meeting

08.30-08.45 Opening

Oscar L. Alves, Jutty Parthiban, Onur Yaman

SESSION 1

Moderator: Oscar L. Alves

08.45-09.00	Laminoplasty vs laminectomy and fusion for cervical OPLL	<i>Se Hoon Kim</i>
09.00-09.15	Surgeon directed erector spinae field blocks for lumbar post operation pain control	<i>Scott C. Robertson</i>
09.15-09.30	Cervical chordomas: Two of a kind	<i>Oscar L. Alves</i>
09.30-09.45	Complex atlanto axial stabilization: Techniques that makes it easier	<i>Jutty Parthiban</i>
09.45-10.00	Drop head surgical management	<i>Richard Assaker</i>
10.00-10.15	Discussion	
10.15-10.45	Refreshment break	

SESSION 2

Moderator: Jutty Parthiban

10.45-11.00	Short lumbar fusion: TLIF vs OLIF combined with MIS screws	<i>Richard Assaker</i>
11.00-11.15	Does minimally invasive decompression alone is sufficient for adjacent segment disease?	<i>Sandeep Vaishya</i>
11.15-11.30	Minimal invasiveness scale: A novel system to measure and grade destructiveness of spinal operations	<i>Cumhur Kılınçer</i>
11.30-11.45	Learning curve for MIS techniques	<i>Salman Sharif</i>
11.45-12.00	How to avoid complications in long cervical fusions	<i>Michael J Faloon</i>
12.00-12.30	Discussion	
12.30-14.00	Lunch	



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24 April 2025, Thursday

14.00-17.00 Consensus Meeting

Cervical Disc Herniation: IAS recommendations

14.00-14.20	Clinical presentation, and natural history of cervical disc herniation	<i>Scott Robertson</i>
14.20-14.40	Diagnostic techniques (imaging and electrophysiology) for cervical disc herniation	<i>Salman Sharif</i>
14.40-15.00	Conservative treatment for cervical disc herniation	<i>Ibet Marie Sih</i>
15.00-15.20	Surgical indications for cervical disc herniation	<i>Jutty Parthiban</i>

15:20-15:40 Refreshment break

15:40-16:00	Anterior surgical techniques for cervical disc herniation	<i>Mehmet Zileli</i>
16:00-16:20	Posterior surgical techniques for cervical disc herniation	<i>Sameh Abolfotouh</i>
16:20-16:40	Minimally invasive techniques for cervical disc herniation	<i>June Ho Lee</i>
16:40-17:00	Arthroplasty or fusion for cervical disc disease	<i>Oscar L Alves</i>
17:00-17:20	Outcomes and complications of surgery for cervical disc herniation	<i>Se-Hoon Kim</i>

Closing



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25 April 2025 Friday

Istanbul Spine Masters Day 1

08.30-08.45 Opening

Mohammad Zohair, Onur Yaman, Mehmet Zileli

SESSION 1 - Endoscopy

Moderator: Mehmet Zileli

08.45-09.00	Lumbar endoscopic interlaminar approach: Technical nuances	<i>Güçlühan Güçlü</i>
09.00-09.15	Minimal invasive spine surgery: 25 years' experience	<i>Richard Assaker</i>
09.15-09.30	Unilateral biportal endoscopy: Surgical technique, indications and results	<i>Rafael Portela</i>
09.30-09.45	Is there a consensus for endoscopic spine surgery?	<i>Joachim Oertel</i>
09.45-10.00	Full endoscopic interlaminar approach to lumbar disc herniation and other spinal pathologies	<i>Salim Şentürk</i>
10.00-10.15	Discussion	

10.15-10.45 Refreshment break

SESSION 2 - Deformity

Moderator: Cumhur Kılınçer

10.45-11.00	Adult spinal deformity: Classifications and update	<i>Barış Özener</i>
11.00-11.15	Degenerative scoliosis: Factors affecting successful outcome	<i>Mohammad Zohair</i>
11.15-11.30	Radiologic evaluation of sagittal balance	<i>Çağrı Canbolat</i>
11.30-11.45	Scheuermann's kyphosis	<i>Numan Karaaslan</i>
11.45-12.00	Parkinson disease and spinal deformity	<i>Richard Assaker</i>
12.00-12.15	Spinopelvic stabilization techniques	<i>Nayef Dajim</i>
12.15-12.30	Discussion	

12.30-13.30 Lunch



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SESSION 3 - Adult Deformity

Moderator: Onur Yaman

13.30-13.45	Robotic-assisted spine surgery	<i>Richard Assaker</i>
13.45-14.00	Patient selection in degenerative deformity	<i>İdris Avcı</i>
14.00-14.15	How to avoid PJK in adult deformity surgery	<i>Michael J Faloon</i>
14.15-14.30	The use of MIS in adult spine deformity surgeries	<i>Sameh Abolfotouh</i>
14.30-14.45	Surgical planning for degenerative deformity	<i>Emre Acaroğlu</i>
14.45-15.00	Discussion	

15.00-15.30 Refreshment break

SESSION 4 - Surgical Techniques and Technology

Moderator: Ender Ofluoğlu

15.30-15.45	Post-traumatic T3 to T5 late kyphosis: case series	<i>Abolfazl Rahimizadeh</i>
15.45-16.00	Lysis Repair surgical approaches	<i>Mohamed Mohi Eldin</i>
16.00-16.15	Pedicle subtraction osteotomy: Indications and surgical tips	<i>Suat Canbay</i>
16.15-16.30	Biomarkers in spinal trauma	<i>Abd-El Hafiz Shehab Eldien</i>
16.30-16.45	Role of intraoperative ultrasound in spinal neurosurgery	<i>Ibet Marie Sih</i>
16.45-17.00	Results of three different methods of local corticosteroid in sacro-iliac joint	<i>Hamdi Nabawi Mostafa</i>
17.00-17.15	Emerging role of artificial intelligence in spine surgery	<i>İsmail Bozkurt</i>
17.15-17.30	Discussion	

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26 April 2025 Saturday

Istanbul Spine Masters Day 2

SESSION 5

Moderator: Abd-El Hafiz Shehab Eldien

08.30-10.10 Free Papers

- OP-01 Could Increased Intracranial Pressure Be Responsible For The Pathogenesis Of Tarlov Cysts? A Novel Surgical Approach Utilizing Lumboperitoneal Shunting
Haytham Jabarin, Ahmet Küçük, Nimetullah Alper Durmuş, Şükrü Oral, Halil Ulutabanca, Ali Şahin, Rahmi Kemal Koç
- OP-02 Is a Reverse Fracture Line in Anderson/D'Alonzo Type II Odontoid Process Fractures a Modifier for Anterior Screw Fixation? "A Retrospective Study."
Jason Richard Degiannis, Nathan Monfroy, Joachim Oertel
- OP-03 Emergency Surgery-Requiring 33 Lumbar Disc Herniations and Their Results
Hüseyin Erdem Ak
- OP-04 Development and Validation of a Cost-Effective 3D-Printed Cervical Spine Model for Endoscopic Posterior Cervical Foraminotomy Training
Bilal Bahadır Akbulut, Elif Ezgi Çenberlitaş, Mustafa Serdar Bölük, Taşkın Yurtseven, Huseyin Biceroglu
- OP-05 Surgical Approach in spine metastases - our clinical experience
Sanan Gasimli, Demet Evleksiz Karınzada, Gardashkhan Karınzada, Sait Kayhan, Mehmet Can Ezgü, Mehmet Ozan Durmaz, Soner Yaşar, Özkan Tehli
- OP-06 Continuation Series of Surgical Treatment for Pyogenic Spondylodiscitis Using Carbon-Fiber-Reinforced Polyether Ether Ketone Implants in 159 Patients.
Muataz Bokhatwa, Magomed Lepshokov, Joachim K.M. Oertel
- OP-07 Surgeon Experience and Surgical Outcomes in Endoscopic Procedures with the EasyGO System
Kerim Hakan Sitoci Ficici, Fadi Aldaher, Magomed Lepshokov, Joachim Oertel
- OP-08 Demonstration of a New Screw Technique In C1-2 Fusion With Posterior Approach: Cadaveric Study
Bahadır Topal, Yahya Guvenc



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- OP-09 Gender and Age-Based Differences in Surgical Outcomes of EasyGO Endoscopic Procedures
Kerim Hakan Sitoci Ficici, Fadi Aldaher, Magomed Lepshokov, Joachim Oertel
- OP-10 Diastematomyelia Associated with Spinal Trauma Due to Gunshot Injury:
A Rare Case Report
Altan Demirel

10.10-10.15 Discussion

10.15-10.45 Refreshment Break

SESSION 6 - Cervical

Moderator: Yahya Güvenç

- 10.45-11.00 Understanding cervical sagittal balance *Sait Naderi*
- 11.00-11.15 Level diagnosis for acute cervical myelopathy overlapped with degenerative spondylotic radiculopathy *June Ho Lee*
- 11.15-11.30 En bloc cervical laminoplasty for CSM *Kemal Koç*
- 11.30-11.45 Long cervical fusions and complications *Michael J Faloon*
- 11.45-12.00 Cervical osteotomy classification *Yahya Güvenç*
- 12.00-12.15 Artificial cervical disc: Personal experience over 1000 cases *Masoud Khadivi*
- 12.15-12.30 Discussion
- 12.30-13.30 Lunch

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SESSION 7 - Deformity

Moderator: Salman Sharif

13.30-13.45	Spinal osteotomy classification	Onur Yaman
13.45-14.00	Surgery for kyphosis	Mehmet Zileli
14.00-14.15	Management of early onset scoliosis	Muharrem Yazıcı
14.15-14.30	Decision for upper and lower end vertebra in degenerative deformity instrumentation	Ender Ofluoğlu
14.30-14.45	Principles for management of congenital pediatric deformities	Muharrem Yazıcı
14.45-15.00	Discussion	

15.00-15.30 Refreshment Break

SESSION 8 - Spinal Tumors and Various Subjects

Moderator: Mohamed Mohi Eldin

15.30-15.45	Metastatic spine tumors: WFNS recommendations	Salman Sharif
15.45-16.00	Laparoscopy-assisted sacral tumor surgery	Osama Arim
16.00-16.15	Brown tumor of the spine: Presentation of four cases	Mehdi Darmoul
16.15-16.30	En bloc vertebrectomy for spine tumors	Hossam Salah Taha
16.30-16.45	Far lateral tubular microdiscectomy	İsmail İştemen
16.45-17.00	Current concepts on management of spinal infections	Rovshan Khalil-zadeh
17.00-17.15	Management of dural laceration and CSF leakage	Serdar Çevik
17.15-17.30	Discussion	

17:30 Closing



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27 April 2025 Sunday

MESS Basic Course 2 & Advanced Course (UpSurgeon) MESS Basic Course Module 2: Spine Trauma and Spine Deformity

08:00-08:30 Registration

Spine and Spinal Cord Trauma Moderator: Mehmet Zileli

08:30-08:45	Management of upper cervical fractures	Yahya Güvenç
08:45-09:00	Management of lower cervical fractures	Salman Sharif
09:00-09:15	Case discussion: Odontoid fracture	Abolfazl Rahimizadeh
09:15-09:30	Case discussion: Facet fracture /locking	Numan Karaaslan
09:30-09:45	Case with video: Anterior cervical fixation	Masoud Khadivi
09:45-10:00	Case with video: Posterior cervical fixation	Cumhur Kılınçer

10:00-10:30 Coffee break

10:30-10:45	Early management of spinal cord injury	Serdar Çevik
10:45-11:00	Intensive care and medical management of spinal cord injury	Barış Özener
11:00-11:15	Management of thoracolumbar fractures	Mohammad Zohair
11:15-11:30	Case with Video: Thoracolumbar pedicle screw insertion	Mehdi Darmoul
11:30-11:45	Case with video: Sacral and iliac screw insertion	Ender Ofluoğlu
11:45-12:00	Case with video: Vertebral body cage or graft	Suat Canbay
12:00-13:00	Practice on spine models Screw insertion techniques	All

13:00-13:30 Lunch Break



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Spine Deformity

Moderator: Sait Naderi

13:30-13:45	Principles of spinal deformity	Mehmet Zileli
13:45-14:00	Case with video: Deformity correction techniques	Celal Özbek
14:00-14:15	Case with video: Ponte and SPO osteotomy	Salim Şentürk
14:15-14:30	Case with video: PSO and VCR osteotomy	Kemal Koç
14:30-14:45	Preventing complications in deformity surgery	Sait Naderi
14:45-15:00 Coffee Break		
15:00-16:00	Practice on spine models Deformity correction techniques	All
16:00-16:10	Case Discussion	İsmail Bozkurt
16:10-16:20	Case Discussion	Güçlühan Güçlü
16:20-16:30	Case Discussion	İsmail İştemen
16:30-16:40	Case Discussion	Rovshan Khalil-Zadeh
16:40-16:50	Case Discussion	Çağrı Canbolat
16:50-17:00	Case Discussion	Osama Arim
17:00	Closing	

Oral Presentations



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OP-01

COULD INCREASED INTRACRANIAL PRESSURE BE RESPONSIBLE FOR THE PATHOGENESIS OF TARLOV CYSTS? A NOVEL SURGICAL APPROACH UTILIZING LUMBOPERITONEAL SHUNTING

Haytham Jabarin, Ahmet Küçük, Nimetullah Alper Durmuş, Şükrü Oral, Halil Ulutabanca, Ali Şahin, Rahmi Kemal Koç

Erciyes University Faculty of Medicine, Department of Neurosurgery, Kayseri, Türkiye

INTRODUCTION AND OBJECTIVE: Tarlov cysts (TC) are fluid-filled cystic lesions that typically occur in the perineural spaces surrounding spinal nerve roots. Although several theories have been proposed regarding their pathophysiology, there remains a lack of consensus, which has hindered the establishment of a standardized treatment protocol. This study aims to investigate the pathogenesis of TCs and to develop treatment protocols.

MATERIALS-METHODS: Between 2022 and 2024, a prospective study was conducted involving symptomatic patients aged 18 to 65 diagnosed with TC. Symptoms were thoroughly investigated through detailed questioning. The characteristics of the cysts were assessed using MRI. To evaluate increased intracranial pressure (ICP), fundoscopy and transcranial Doppler ultrasound were performed. For patients suspected of having increased ICP, an evacuatory lumbar puncture (LP) was conducted, and the pressure of the cerebrospinal fluid (CSF) was measured. Clinical improvement after LP was assessed. Patients who benefited from the LP but later experienced a recurrence of symptoms underwent placement of a lumboperitoneal shunt (LPS).

RESULTS: These study included 17 patients, 82.4% of whom were female, with an average age of 40.5 years. The mean follow-up was 27.9 months. Common symptoms included headaches, lower back pain, radicular pain, and urinary dysfunction. Among 11 patients who benefited from LP, the average CSF pressure was 35 cm H₂O, while it was 20 cm H₂O for the 6 who did not. Of the 11 patients who benefited from LP, 2 achieved complete recovery post-procedure. LPS was placed in 9 patients, with 8 (89%) experiencing significant improvement.

CONCLUSION: Symptomatic TCs are more frequently observed in young women. We believe that increased ICP plays a significant role in the pathogenesis of TCs. We recommend performing an LP on patients with symptomatic TCs, and for those who benefit from the LP, we suggest considering LPS placement.

Keywords: Increased intracranial pressure, lumboperitoneal shunt, Perineural cyst, Tarlov cyst.

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OP-02

IS A REVERSE FRACTURE LINE IN ANDERSON/D'ALONZO TYPE II ODONTOID PROCESS FRACTURES A MODIFIER FOR ANTERIOR SCREW FIXATION? "A RETROSPECTIVE STUDY."

Jason Richard Degiannis, Nathan Monfroy, Joachim Oertel

Department of Neurosurgery, University of Saarland, Homburg, Germany

AIM: To compare the outcome of anterior screw fixation in Anderson D'Alonzo type II odontoid process fractures in relation to the fracture angle in relation to the fracture angle and its role as an outcome predictor.

PATIENTS AND METHODS: This is a retrospective study including 52 patients with Anderson D'Alonzo Type II fractures of the odontoid process who underwent anterior screw fixation. The preoperative CT-scans of the patients were reviewed had the fracture angle was measured. The patients CT-scans were divided into 2 groups: those with a fracture angle of more than 90 degrees (reverse fracture line /Grauer IIC) and those with a fracture angle of less than 90 degrees (Grauer IIB). The need for posterior revision due to unsatisfactory results was recorded.

RESULTS: Of the 52 patients in 7 (13.4%) the result was unsatisfactory and had to undergo revision with posterior fusion. When the angle of the fracture in the 52 patients was taken into consideration, out of 45 patients with an angle of less than 90 degrees (Grauer IIB), 5 (11.1%) underwent revision and out of 7 patients with an angle more than 90 degrees reverse fracture line, 2 (28.6%) underwent revision.

CONCLUSION: We are wondering if advising the patient to undergo anterior screw fixation in a reverse fracture line of the odontoid process, is a viable proposition considering the functional advantages of the operation. Our failure rate of 29% is close to that of the internationally reported failure rate of up to 20%, which is seen in patients with Grauer Type IIB / fracture angle of less than 90° undergoing anterior screw fixation. We feel that the possibility of practicing anterior screw fixation in Grauer IIC fractures, considered at present as an adverse modifier, could well be a viable proposition and should be further explored.

Keywords: Trauma, Odontoid process, anterior screw fixation



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OP-03

EMERGENCY SURGERY-REQUIRING 33 LUMBAR DISC HERNIATIONS AND THEIR RESULTS

Hüseyin Erdem Ak

Bilecik Şeyh Edebali Üniv. Medical Faculty. Department of Neurosurgery

Untreated lumbar disk herniation can lead to permanent nerve damage and permanent disabilities in the future. In this case, the patient may experience symptoms such as weakness, numbness, and limited mobility in the lower back, hips, and legs. Additionally, more severe symptoms such as loss of bladder or bowel control or severe pain episodes may occur. An urgent microdiscectomy can help relieve the patient's symptoms and prevent complications. We evaluated the clinical characteristics and outcomes of patients with disc herniation who presented to the neurosurgery clinic with cauda equina syndrome, drop foot and severe pain and were diagnosed with far lateral disk herniation and underwent surgical treatment within the first 24 hours. We observed that drop foot and urinary incontinence largely disappeared immediately after surgery. It was determined that their preoperative complaints completely resolved after three months. As a result, we found that emergency surgical intervention is important in far lateral disk herniations that cause cauda equina syndrome and severe pain.

Keywords: Lumbar disc herniation, Urgent treatment, Nerve damage, Permanent disability, Pain management

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OP-04

DEVELOPMENT AND VALIDATION OF A COST-EFFECTIVE 3D-PRINTED CERVICAL SPINE MODEL FOR ENDOSCOPIC POSTERIOR CERVICAL FORAMINOTOMY TRAINING

Bilal Bahadır Akbulut, Elif Ezgi Çenberlitaş, Mustafa Serdar Bölük, Taşkın Yurtseven, Huseyin Biceroglu
Department of Neurosurgery, Ege University, Izmir, Turkey

INTRODUCTION: Expanding upon established surgical simulation methods, we developed a fused deposition modeling (FDM) three-dimensional (3D) printed model of the C1–T1 vertebra for posterior cervical foraminotomy training, featuring silicone-based neural elements, polyurethane foam-based ligaments, and polyethylene terephthalate glycol (PETG) vertebrae. This study evaluates the effectiveness of a cost-efficient 3D-printed training model designed to help neurosurgical residents acquire fundamental skills in endoscopic posterior cervical foraminotomy, addressing the technique's challenging learning curve and limited training resources.

METHODS: Eight neurosurgery residents with over 2 years of training each completed four training sessions on two randomly assigned cervical spine levels using the newly developed 3D-printed model. A simple plumbing endoscope was used for real-time operative visualization.

RESULTS: In the total of 64 completed surgical levels, left-sided procedures showed significantly higher insufficient decompression rates than right-sided operations (25.0% vs 3.6%, $p=0.002$). However, overall complication rates between sides did not reach statistical significance ($p=0.073$). Surgical parameters demonstrated consistent performance across sides, with no significant differences in operative duration. The Brunner-Langer analysis revealed substantial improvements across sessions in surgery duration (mean time decreasing from $21:42 \pm 2:15$ to $6:33 \pm 0:42$ minutes, $p=0.004$) and total complications (mean decreasing from 2.1 ± 0.8 to 0.4 ± 0.5 , $p=0.007$). While fluoroscopy timing showed marginal improvement (mean time decreasing from $2:12 \pm 1:15$ to $0:55 \pm 0:23$ minutes, $p=0.057$), the number of fluoroscopic images demonstrated a trend toward reduction.

CONCLUSIONS: This novel 3D-printed cervical spine model provides a viable, low-cost option for neurosurgical training programs, helping residents develop essential endoscopic skills in a controlled setting. Facilitating early proficiency in posterior cervical foraminotomy, it can serve as a valuable intermediate step before transitioning to cadaveric models and clinical practice.

Keywords: Endoscopes, Residency, Minimally Invasive Surgical Procedures, 3D Printing, Simulation Training

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OP-05

SURGICAL APPROACH IN SPINE METASTASES - OUR CLINICAL EXPERIENCE

Sanan Gasimli¹, Demet Evleksiz Karınzada², Gardashkhan Karınzada², Sait Kayhan¹, Mehmet Can Ezgü¹, Mehmet Ozan Durmaz¹, Soner Yaşar¹, Özkan Tehli¹

¹Gülhane Training and Research Hospital, Neurosurgery clinic, Ankara, Türkiye

²Hitit University Erol Olçok Education and Research Hospital, Neurosurgery clinic, Çorum, Türkiye

INTRODUCTION: Skeletal system metastases are the most common after lung and liver metastases. Spinal metastases constitute 50-70% of these metastases. These tumors that spread hematogenously are most frequently breast, lung, prostate, kidney, thyroid, gastrointestinal system, multiple myeloma and lymphomas. It is most frequently seen in adults aged 60-70 and in males. It is most commonly seen in the thoracic region at a rate of 60-80%. Clinically, it often presents with back pain. It can also present with systemic malignancy findings and neurological deficits. This study aims to present our surgical results according to the location of metastases and neoplastic instability.

MATERIALS-METHODS: 38 spinal metastasis cases operated by us between 2021-2025 were evaluated. Patients were evaluated with Karnofsky performance score, Bilsky epidural spinal cord compression classification and Spinal instability neoplastic score.

RESULTS: 2/3 of the patients were male and the mean age was 60.5. The most common complaint was low back pain, and 8 of the patients had neurological deficits. Metastases were in the thoracic region in 20 patients. Separation surgery was performed in 12 patients with Bilsky 1c, 2 and 3 who were evaluated as stable, decompression and posterior stabilization were performed in 24 patients who were evaluated as unstable or potentially unstable, and biopsy was performed in 2 patients. Pathology results showed that 13 patients had breast, 9 had lung, 5 had prostate, and the others had thyroid, gastrointestinal system, and lymphoma origin.

DISCUSSION AND CONCLUSION: Spinal metastases are also oncological emergencies, and are conditions that require multidisciplinary evaluation. There is no standard surgical treatment technique. Despite all treatment approaches, since spinal metastases result in poor prognosis, a multidisciplinary approach should be determined according to the prognosis of the disease and the patient's performance status.

Keywords: Spine, metastasis, oncology, low back pain.



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OP-06

CONTINUATION SERIES OF SURGICAL TREATMENT FOR PYOGENIC SPONDYLODISCITIS USING CARBON-FIBER-REINFORCED POLYETHER ETHER KETONE IMPLANTS IN 159 PATIENTS.

Muataz Bokhatwa, Magomed Lepshokov, Joachim K.m. Oertel

Department of Neurosurgery, Saarland University Medical Center, Homburg-saar, Saarland, Germany

OBJECTIVE: This study aimed to assess the safety of utilizing Carbon/PEEK implants for managing pyogenic spondylodiscitis in different segments of the spine.

METHODS: A retrospective analysis of 159 patients treated with carbon/PEEK implants was performed. The analysis included a review of the patients medical records, MRI and CT scans, and clinical outcomes. Data analysis included descriptive statistics and various statistical tests, such as chi-square, Student's t-test and one-way analysis of variance. Significance was determined as $P < 0.05$.

RESULTS: Between 2017 and 2023, 215 primary and revision procedures were performed on 159 patients with spondylodiscitis. The study group included 104 males and 55 females, with an average age of 69.2 years (± 12.4). Most surgeries occurred within 24 hours of hospital admission. The average hospital stay was 14.4 days (± 14.3). Staphylococcus aureus was the most frequently identified pathogen in intraoperative cultures, affecting 44 patients (27.7%). Surgeries were done at a single level in 121 patients (76.1%), at two levels in 17 patients (10.7%), and at 3 to 5 levels in 21 patients (13.2%). Screw loosening was observed in 18 patients (11.3%), with the highest frequency seen in patients with stabilization at the thoracolumbar junction (42.9%). These differences were statistically significant (Pearson Chi-Square = 7.9; $p = 0.048$). Repeat surgical procedures were performed on 47 patients (29.6%): 35 patients (22.01%) underwent one repeat procedure, while 12 patients (7.5%) had two repeat procedures, with an average duration of 73.34 ± 121.3 days from the initial surgery.

CONCLUSION: An analysis of a six-year treatment history of spondylodiscitis patients using carbon implants indicates adequate safety. Despite the higher proportion of elderly patients (40.9%), favorable treatment outcomes were observed in 85.7% of cases, with a relatively low mortality rate of 11.3%.

Keywords: Carbon fiber reinforced PEEK, Pyogenic spondylodiscitis, CT scan, MRI scan, Clinical outcome

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OP-07

SURGEON EXPERIENCE AND SURGICAL OUTCOMES IN ENDOSCOPIC PROCEDURES WITH THE EASYGO SYSTEM

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INTRODUCTION: Surgeon experience is often linked to improved surgical outcomes. This study investigates whether surgeon case volume influences postoperative outcomes after endoscopic spine surgery with EasyGO system, including complication rates and operation duration.

METHODS: A retrospective analysis was conducted on 505 patients who underwent endoscopic spine surgery with EasyGO system. Surgeons were categorized into three experience levels (Low, Medium, High) based on case volume percentiles with EasyGo. Postoperative outcomes, including complication rates (dural tears) and operation duration, were analyzed using ANOVA and Chi-Square tests. Additionally, surgeries were classified into single-level (443 cases), two-level (58 cases), and three-level (4 cases) procedures.

RESULTS: No statistically significant association was found between surgeon experience and complication rates ($p = 0.368$). This suggests that higher case volume does not necessarily correlate with fewer complications. However, a trend was observed where highly experienced surgeons had slightly shorter operation durations ($p = 0.08$). Single-level surgeries were the most common, making up 88% of cases, while multi-level surgeries were less frequent.

CONCLUSION: The findings suggest that complication rates in EasyGO procedures are not strongly influenced by surgeon experience. Efficiency improves with experience, but patient safety remains stable across all levels. The results also imply that even surgeons with less endoscopic adapt easily to the technique, meaning the EasyGO system may not require an extensive learning curve. Further research should explore whether functional recovery and long-term outcomes differ based on surgeon expertise.

Keywords: surgical experience, learning curve, outcomes, endoscopic

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OP-08

DEMONSTRATION OF A NEW SCREW TECHNIQUE IN C1-2 FUSION WITH POSTERIOR APPROACH: CADAVERIC STUDY

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The objective of this study is to introduce a novel approach to the management of upper cervical vertebral fractures and anomalies, offering an alternative to the conventional posterior and anterior fixation methods.

In the present study, the following instruments were utilised: K-wire, lag screw, cervical pedicle probe, control probe. Three-dimensional (3D) modelling and measurements of the CT images were conducted using the Bee DICOM viewer programme and 3D Slicer programmes.

In the present study, to mitigate the risk of VA injury, the CT examinations performed along the trajectory of the LM-B screw revealed that there was no VA at C1 and C2. Upon further analysis, it was observed that the (lateral mass-C2 body)LM-B screw passed the C1 lateral mass and reached C2, entering the body near the C2 superior articular facet-C2 body junction. It was noted that the screw remained anterior to the VA. By observing the medial aspect of the C1 lateral mass at the insertion site of the LM-B screw and noting the location of the medulla spinalis, the junction of the transverse process and the inferior articular facet was identified, lateral to the VA sulcus of the C1 posterior arch. It was demonstrated that a screw sent from this point could be directed to the C2 body. The trajectory of the LM-B screw was found to be advantageous in that it went directly to the body from the anterior aspect of the C2 superior articular facet, thus minimising the risk of VA injury, even in the presence of HRVA. However, it was found that, due to the single LM-B screw entry site, it was necessary to exclude the VA superiorly in some cadavers. The absence of C2 sacrifice is anticipated to be a significant finding in terms of postoperative pain management when compared to traditional methods.

Keywords: C1-2 fusion, posterior approach, posterior C1-2 transarticular screw, vertebral artery

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OP-09

GENDER AND AGE-BASED DIFFERENCES IN SURGICAL OUTCOMES OF EASYGO ENDOSCOPIC PROCEDURES

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INTRODUCTION: Surgical outcomes can be influenced by demographic factors such as gender and age. This study investigates whether gender-based differences exist in post-operative paresis, pain relief, and sensory deficits in patients undergoing endoscopic spine surgery with the EasyGO system. Additionally, it examines whether age at the time of surgery influences recovery time and final functional outcome. All included patients underwent procedures utilizing this system, ensuring consistency in surgical technique and outcome assessment.

METHODS: A retrospective analysis was conducted on 535 patients who underwent EasyGO procedures. Post-operative outcomes were compared between male and female patients using descriptive statistics and t-tests. To assess the influence of age, ANOVA was used to compare age distributions across different post-op paresis categories (no paresis, improvement, no change, new paresis). Tukey's HSD post-hoc test was performed for pairwise age comparisons between groups.

RESULTS: We did not see statistically significant difference in post-operative paresis rates between males and females ($p = 0.65$). Age at surgery was not significantly associated with paresis outcomes (ANOVA $p = 0.055$), although a weak trend was observed. Tukey's post-hoc test confirmed that no individual age group comparison was statistically significant, reinforcing that age is not a major factor in surgical success. The analysis demonstrated a broad age distribution across paresis categories, indicating that recovery outcomes are not strongly age-dependent.

CONCLUSIONS: These findings suggest that gender and age do not significantly influence surgical outcomes in EasyGO procedures. Both male and female patients, as well as younger and older patients, exhibit similar recovery patterns. Future research should focus on other preoperative predictors such as comorbidities and imaging findings to better assess surgical success.

Keywords: endoscopic, spine surgery, outcomes

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OP-10

DIASTEMATOMYELIA ASSOCIATED WITH SPINAL TRAUMA DUE TO GUNSHOT INJURY: A RARE CASE REPORT

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OBJECTIVE: Diastematomyelia is a rare congenital spinal dysraphism characterized by sagittal division of the spinal cord. It is usually diagnosed in childhood due to neurological symptoms, but incidental detection in trauma patients is extremely rare. This case report presents a dual pathology in a 16-year-old male with a gunshot injury, where spinal trauma revealed an underlying diastematomyelia.

METHODS: A 16-year-old male presented with a gunshot injury and developed right lower limb monoplegia, absent deep tendon reflexes, and urinary and fecal incontinence. Imaging revealed L5 spinous process and right lamina fractures, along with bone fragments within the spinal cord. The patient also had an abdominal injury, which required emergency surgery by the General Surgery team before neurosurgical intervention.

During the neurosurgical procedure, L5 level shotgun pellets and fractured spinous process were excised, and a right L5 hemilaminectomy was performed. Avulsed nerve roots were sutured end-to-end, and bone fragments compressing the cord were removed. Despite decompression, persistent spinal cord compression was observed at L5. Further dissection revealed that the compressive lesion was not a bone fragment but a fibrous spur associated with diastematomyelia. The spur was carefully dissected and excised, achieving adequate decompression of the spinal cord.

RESULTS: Postoperative imaging confirmed successful decompression. The presence of diastematomyelia as an incidental finding highlights the importance of thorough intraoperative assessment in trauma cases, as congenital anomalies may influence surgical strategy and patient outcomes.

CONCLUSION: Gunshot injury can unmask underlying congenital spinal anomalies, complicating surgical management. This case underscores the need for detailed imaging and intraoperative vigilance in spinal trauma. Recognition and proper management of diastematomyelia in such scenarios are crucial for optimizing neurological outcomes.

Keywords: Diastematomyelia, gunshot injury, spinal trauma, congenital spinal anomaly, fibrous spur

Poster Presentations



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PP-01

RETROSPECTIVE EVALUATION OF RECURRENT LUMBAR DISC HERNIATIONS USING CARRAGEE CLASSIFICATION

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The recurrence rate of disc herniation is 25%, with an average of 10% of patients undergoing reoperation due to recurrent pain. In 2003, the Carragee classification was published to determine the recurrence rate of lumbar disc herniation due to a posterior annulus defect. The present study retrospectively evaluated recurrent lumbar disc herniations performed in the author's clinic, determining the category according to the Carragee classification and assessing the efficacy of the classification in evaluating recurrence.

In this study, 25 cases of recurrent lumbar disc herniations that were treated in our clinic between 2021 and 2025 were retrospectively categorised according to the Carragee classification. This classification was determined by the analysis of lumbar MRI obtained prior to the initial surgical procedure.

Fourteen of the patients were female and 11 were male. The mean age of the female patients was 53.7(43y-63y) and the mean age of the male patients was 53.27(38y-65y)(table1). Recurrent lumbar disc level was 1 L3-L4, 6 L4-5, 7 L5-S1 in women and 1 L3-4, 8 L4-5, 2 L5-S1 in men(table2). According to the carragee classification; in women at L3-L4 level, 1 carragee group 2; at L4-L5 level, 1 group 1, 2 groups 2, 3 groups 4; at L5-S1 level, 3 groups 2, 4 groups 4; in men at L3-L4 level, 1 group 4; at L4-L5 level, 1 group 1, 6 groups 2, 1 group 4; at L5-S1 level, 2 groups 4(table 3).

In conclusion, the recurrence rate of Carragee group 2 and 4 disc herniations was found to be significantly higher in the Carragee classification group than in the other groups in the study performed in our clinic. If patients with lumbar disc herniation do not have low foot, progressive deficit or cauda equina syndrome, it would be beneficial in terms of morbidity to consider the Carragee classification when deciding on surgery.

Keywords: carragee classification, rekurren disc herniation, lomber disc herniation

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PP-02

THE EFFECT OF DEPRESSION ON BONE FUSION IN A RABBIT POSTEROLATERAL BONE FUSION MODEL

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OBJECTIVE: Evaluating the effect of depression on bone fusion in the rabbit spine using Katz's unpredictable chronic mild stress model (UCMS).

METHODS: 12 male New Zealand rabbits were divided randomly into 6 control and 6 experimental groups. Each rabbit underwent the same surgical procedure. Autograft was harvested from the iliac crest and put into the L5-L6 space where the laminae and facets were decorticated. The animals of the control group were followed up for 8 weeks under standard laboratory conditions. The ones in the experimental group were put in Katz's UCMS. After 8 weeks all rabbits were sacrificed and the vertebra segments were evaluated with manual palpation and X-rays.

RESULTS: On manual palpation, fusion was detected in 83.34% in the control group compared to just 33.32% in the UCMS group. The model showed that depression had a significant negative effect on fusion on manual palpation ($p=0.045$). Secondly, if no fusion was detected on X-rays 0 points were given, callus formation received 1 point, sclerosis 2 points. In the control group just 16.66% showed nonunion, 49.98% had a callus formation 16.66% showed sclerosis. In the experimental group the non-fusion rate was 66.68%.

CONCLUSIONS: Depression has a negative effect on fusion of rabbit vertebrae. But vertebrae which are evaluated as "fused" on palpation do not show meaningful relation in their radiologic scores. We believe that our model can work as a basis for further experimental trials.

Keywords: unpredictable chronic mild stress, depression, fusion

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