#ESA Abstracts 20170173

**Percutaneous Fixation of Thoracolumbar Fracture**

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**Introduction:** Short segment pedicle screw fixation with involvement of the fractured level are commonly used in the management of thoracolumbar fractures especially in neurologically intact patients. Percutaneous pedicle screws are introduced recently in the fixation of thoracolumbar fractures with the proposed advantage of the less soft tissue dissection, muscle disruption and atrophy and assumed less wound related complications. Controversy remains about the ability of the percutaneous instrumentation to reduce and maintain local kyphosis developed by the fracture as the open instrumentation. The purpose of this prospective cohort controlled study is to study the safety and the effectiveness of short segment percutaneous pedicle screw fixation with involvement of the fractured vertebra and to compare its early outcome with the commonly used open technique in the management of the thoracolumbar fractures.

**Methods:** Thirty-eight neurologically intact patients with thoracolumbar fracture (T11-L2) were treated between 2012 and 2015 with posterior pedicle screw fixation (percutaneous and open). The patients were divided into two groups, group 1 included 18 patients treated with percutaneous pedicle screws (PPS) while group 2 included 20 patients treated by standard open pedicle screws (OPS). The operative data (blood loss, radiological exposure, operative time, cost of implants) were compared between groups and the radiological assessment for local kyphotic angle (LKA) correction and maintenance and anterior vertebral body height (AVH) compression were evaluated. The patients visual analogue scale (VAS) for back pain and treatment related complications were reported. Construct failure was defined as screw pullout or instrument breakage.

**Results:** The blood loss was the only operative parameter that was significantly less in the PPS group and although the operative time decreased in the PPS group by the increase in learning curve, the other operative data show significant difference in favor of the OPS group. Post-operative correction of the local vertebral compression assessed radiologically with LKA and AVH significantly improved in both groups compared to the pre-operative degree which was maintained till the end of follow up. No major wound related complication was found in both groups. VAS of back pain was significantly reduced in PPS group in the very early postoperative than the OPS, but both groups at the end showed a significant improvement between early post-operative and late follow up.

**Conclusion:** Percutaneous pedicle screw fixation is a good minimally invasive modality in the management of thoracolumbar fracture and the application of screw in the fractured vertebra improves the correction and maintenance of local kyphosis in short segment fixation. Cost effectiveness of this technique must be evaluated thoroughly with the final and late outcome of these fracture management. More randomized controlled and multicenter studies are needed to support these findings.

#ESA Abstracts 20170174

**Modified Posterior Closing Wedge Osteotomy for the Treatment of Posttraumatic Thoracolumbar Kyphosis**

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**Introduction:** Post traumatic thoracolumbar kyphosis can occur in a proportion of thoracolumbar fractures after inappropriate treatment, osteoporosis, or osteonecrosis of the vertebral body. There are several surgical options to correct posttraumatic thoracolumbar kyphosis, including anterior, posterior, and combined approaches, which are associated with varying degrees of success. The aim of this study was to assess the use of a modified posterior closing wedge osteotomy for the treatment of posttraumatic thoracolumbar kyphosis.

**Method:** Patients with symptomatic posttraumatic thoracolumbar kyphosis will be treated using a modified closing wedge osteotomy. The kyphosis apex ranged from T-10 to L-2. The sagittal alignment, kyphotic angle, neurological function, visual analog scale for back pain, and Oswestry Disability Index will be evaluated before surgery and at follow-up.

**Results:** A case of post traumatic thoracolumbar kyphosis treated by modified posterior closing wedge osteotomy will be presented with the technique described.

**Conclusion:** The modified posterior closing wedge osteotomy technique achieves satisfactory kyphosis correction with direct visualization of the circumferentially decompressed spinal cord, as well as good fusion with less blood loss and fewer complications. It is an alternative method for treating patients with posttraumatic thoracolumbar kyphosis.

#ESA Abstracts 20170175

**Survival Rate after Corpectomy for a Single Spinal Metastasis**

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**Introduction:** The choice of surgery versus radiotherapy and chemotherapy for treatment of spinal metastases can be hard to determine, and surgeons tend to base their decisions on objective scores, such as Tomita and modified Tokuhashi scores. This retrospective study aims to estimate the survival rate of patients with single spinal metastasis after corpectomy and vertebral body replacement.

**Methods:** 46 patients underwent corpectomy for a single metastasis of the spine. Mean age was 65.6 years. 23 patients were males.

**Results:** 17 patients (37%) died within 6 months post-operative. Tomita score of such group was >5 and Tokuhashi score was <10. 29 patients (63%) survived from 1-6 years after surgery. Tomita score for this group was <5 and Tokuhashi score was >10.

**Conclusion:** Patients with single spinal metastasis, Tomita score of >5 and Tokuhashi score of <10 are not candidate for corpectomy.
Comparison Study Between Anterior Cervical Discectomy with Cage Alone Versus Cage and Plate System in Cervical Disc Protrusion

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Introduction: Anterior cervical discectomy (ACD) considered an effective and safe treatment in managing cervical spondylotic and cervical disc herniation that cause spinal cord and or root compression. Cervical discectomy with interbody fusion preserve the physiological lordosis and stability of the cervical spine. Interbody fusion with cage alone decrease the fusion rate significantly especially in more than one level, and some authors recommend the addition of a plate system to improve results.

Methods: In this retrospective study, 20 patients with cervical disc prolapse were operated via an anterior cervical discectomy with interbody fusion, ten of them with anterior cervical plating system and the remaining with cage alone. Eight of them had three levels disc herniation, 6 had 2 levels and the remaining 6 patients had single disc prolapse.

All patients underwent preoperative complete neurological assessment, early and late postoperative complications, radiographic follow-up for evaluation of fusion, graft problems, implants problems, and the recovery rate using the Japanese Orthopedic Association score (JOA score) for evaluating the operative results.

Results: Radiculopathy improved after surgery in all cases. During the first year, fusion was achieved in 96% of the surgically treated patients; this was verified on cervical spine x-ray films. Cervical lordosis was restored in all patients with plate and were lost in 2 patients with 3 levels cage. Neither complications related to cage and plate extrusion nor symptomatic pseudoarthrosis were observed.

Conclusion: Interbody fusion with cage and plate preserve the function, stabilize the spine, preserving the physiological lordosis and improving the postoperative neck pain.

Outcome of Childhood Terminal Lipoma Surgical Management

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Introduction: the prognosis of Terminal lipomas is better than that of other sites and pathology especially their management nowadays became clearer with the better surgical outcome due to the advancement of surgical tools and neurophysiology study. This study aims to assess the outcome of excision of terminal lipomyelomeningocele and reconstruction of the neural tube.

Methods: From 2002 to 2016, 32 cases of terminal lipomyelomeningocele in Mansoura university hospital, insurance hospital, and El Ahar specialized center, the age of the cases ranged between 10 days and 4,3 years underwent surgical management of total or near-total lipoma excision and neural tube reformation with a minimum follow-up of 6 months.

Results: According to system which applied to show the success of the operations, Of the 32 patients, 9 cases represent (28.1%) showed total excision of the lipoma; 17 patients represent (53.1%) had 25 mm3 of lipoma or less and 6 patients represent (18.75%) had 26 mm3 of fat or more. The neurological and urological complications were about 25%, while other complications like the cerebrospinal fluid leak, wound disruption and infection were 9.4%. The surgical morbidity was comparable with the published papers.

Conclusion: the excision of terminal lipomyelomeningocele and recreation of the neural tube by monitoring throughout EMG & NCV with low surgical morbidity and better results than leaving them without management or surgical interference without neurophysiological monitoring.

Modified Mini-open Transforaminal Lumber Interbody Fusion

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Introduction: The paraspinal posterior approach to the lumbar spine initially was described for spinal fusion, particularly for treatment of lumbosacral spondylolisthesis. Wiltse described his approach for lower lumbar and sacral vertebræ by bilateral incisions 4.5 cm lateral to the mid-line going through the natural cleavage plane between the multifidus part of sacrosplinals and the longissimus part. In this study a modification to this approach by single midline skin incision from 3-5 cm with paraspinal dissection in the same plane described by Wiltse to get access to the transverse process and facet joints with minimal soft tissue dissection and retraction. This is less vascular than the mid-line approach, resulting in less bleeding and less post-operative back pain.

Methods: In this retrospective study, 30 patients with different lumbar spine pathology were operated via modified Wiltse approach with interbody fusion, this approach provides an access to the pedicle and lateral recess through a minimally invasive midline skin incision then dissection bilateral between the multifidus and the longissimus muscles, in a natural pathway. Unilateral or bilateral facetectomy to achieve a good posterior decompression with transpedicular screws and interbody fusion. Patients were full filled for complete pre and post-operative neurological assessment, early and late postoperative complications, radiographic follow-up for evaluation of fusion, and the recovery rate for evaluating the operative results.

Results: Sciatica and low back pain were improved after surgery in all cases. Post-operative the hospital stay was only one day. Fusion was achieved in all our patients during one year follow up verified by lumbosacral spine x-ray films. Neither complications related to the interbody cage nor screws were observed.

Conclusion: Modified Wiltse approach provides decreased risk of wound infection, less blood loss, rapid postoperative recovery and less incidence of adjacent segment disease.

Thoracoscopic Anterior Stabilization for Thoracic and Thoracolumbar Fractures in Patients Without Spinal Cord Injury: Quality of Life and Long Term Results

Department of Trauma Surgery, VU University Medical Center, Amsterdam

Introduction: To determine the health-related quality of life (QOL), safety and radiologic parameters after thoracoscopic treatment of traumatic thoracolumbar fractures using a distractible cage in patients without spinal cord injury (SCI).

Methods: Retrospective cohort study of patients treated between 2004-2012 in a university level-one trauma center. Patient and treatment characteristics were collected from the hospital information system. All available radiographic material was assessed for fracture characteristics and Cobb angle at consecutive times. Patients filled in the SF-36 and EQ-5D QOL questionnaires at follow-up.

Results: 105 patients were treated with a distractible cage, which was performed thoracoscopically in 86 cases, including 16 patients with SCI. Of 70 eligible patients 46 were available for follow up and filled in the questionnaires at median 49 months after surgery. QOL was lower
on most domains compared to the general population. Compared to patients that underwent only posterior fixation for less severe fractures, QOL did not differ significantly. The complication rate was low (10%) with one re-operation. Mean loss of correction was 6.8° and bony fusion on CT-scan was present in 98% of patients. Maintenance of kyphosis correction was significantly better for two segments anterolateral plating compared to one segment.

Conclusion: Thoracoscopic anterior stabilization leads to a high percentage of bony fusion in highly unstable thoracic and thoracolumbar fractures with limited post-operative loss of correction and no hardware failure. QOL of these patients does not return to normal population values but is comparable to that of patients with less severe fractures treated with only posterior instrumentation.

We offer an insight into how one could evaluate the level of involvement and tailor a surgical strategy. It is clear that one shoe size does not fit all but a flexible approach warrants consideration.

Methods: We present an approach to Management of Chiari Malformation with multiple associations including those in the supratentorial compartment (aqueductal stenosis, hydrocephalus, craniosynostosis), in the posterior fossa (small surface area, steep angle of tentorium, vertical cerebellum, ventral brainstem & vascular compression, vascular compression, loss of CSF signal at FM), at the foramen magnum (platybasia, basilar invagination, foramen magnum “incompetence”, atlas assimilation, clival anomalies) and at the spinal level (dolicoedens, os odontoideum, atlanto-axial instability, spinal cord compression, fusion segmentation anomalies, syrinx & scoliosis).

Results: Current management of CCJ anomalies include 1. Stabilization of instability, often horizontal alone, done by posterior approach alone; 2. Decompress stenosis or compression, often posterior approach with resection of bone and fixation, on occasion an anterior transoral or transnasal approach; 3. Stabilize reducible deformities with removal of brainstem and spinal cord compression and rigidly fix after distraction; 4. Decompress & stabilize deformities with removal of brainstem and spinal cord compression and rigidly fix after decompression into the least position of deformity. We discuss surgical approaches and the importance of intra-operative neuro-monitoring proposing an implementation paradigm and present a selection of cases illustrating the various conditions described above.

Conclusion: It is our conclusion that we should first treat the problem not the consequence, and that Chiari deformation and syrinx are effects not primary disorders. By considering the level of problem, the management of this complex combination becomes possible. We recommend ETV or shunting for Hydrocephalus, a posterior calvarial augmentation for supratentorial & foramen magnum causes. Where severe CCJ anomalies exist it is important to decompress where there is severe compression, perform a fixation in cases of instability along with a distraction when associated basilar invagination occurs. Finally consideration should first be given to management of hindbrain hernia as above when severe scoliosis is associated with syringomyelia.

The Craniovertebral junction is a complex junction made up of skull and spine with joint capsules and ligaments holding the whole junction together. Both congenital and acquired bony and soft tissue lesions account for a range of conditions in this region. The combination of ventriculomegaly/hydrocephalus and or craniosynostosis with Cranio-cervical junction (CCJ) anomalies, Chiari & Syringomyelia with or without scoliosis is commonly referred to as the “infernal” combination. The management of these isolated conditions is well described but when in combination they are rather more problematic and warrant a structured approach to its management.

Most symptomatic and asymptomatic patients report benefited clinical outcome. Removal decreased most symptoms and even asymptomatic patients reported benefit in most cases. An increase of symptoms after removal was reported in 11% of patients.

Conclusion: Implant removal is generally safe and provides high patient satisfaction. Overall, patients have a fairly good quality of life. Most symptomatic and asymptomatic patients report benefit from removal. However, low risks of complications and increase of symptoms have to be weighted for individual patients.

We will discuss the problems of spinal fractures in ankylosing spondylitis.

**#ESA Abstracts 20170180**
**Posterior Implant Removal in Patients with Thoracolumbar Spine Fractures: Long-Term Results**


Department of trauma surgery, VU University Medical Center, Amsterdam

Introduction: Debate remains whether posterior implants after thoracolumbar spine fracture stabilization should be removed routinely or only in symptomatic cases. Implant related problems might be resolved or even prevented but removal includes secondary risks. The aim of this study was to evaluate safety, patient satisfaction and quality of life after implant removal.

Methods: A retrospective cohort study was performed concerning 102 patients that underwent posterior implant removal after stabilization of a traumatic thoracolumbar fracture between 2003 and 2015. Patients were invited to fill in SF-36, EQ-5D and RMDQ questionnaires after implant removal. Additionally, questions concerning satisfaction were presented. Cobb angles before and after removal were measured and in- or decrease of symptoms was gathered from hospital charts.

Results: Mean age at removal was 38 years and time from implant removal to questionnaire was approximately 7 years, 62 patients filled in the questionnaires. Complications were present in 8% and quality of life was reported as fairly good. Patients had less back pain related disability compared to chronic low back pain patients. After removal there was a kyphosis increase which did not correspond with worsened clinical outcome. Removal decreased most symptoms and even asymptomatic patients reported benefit in most cases. An increase of symptoms after removal was reported in 11% of patients.

Conclusion: Implant removal is generally safe and provides high patient satisfaction. Overall, patients have a fairly good quality of life. Most symptomatic and asymptomatic patients report benefit from removal. However, low risks of complications and increase of symptoms have to be weighted for individual patients.

**#ESA Abstracts 20170181**
**Managing Chiari, Syrinx with CCJ Anomalies: Quid Facis?**

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Introduction: The Craniovertebral junction is a complex junction made up of skull and spine with joint capsules and ligaments holding the whole junction together. Both congenital and acquired bony and soft tissue lesions account for a range of conditions in this region. The combination of ventriculomegaly/hydrocephalus and or craniosynostosis with Cranio-cervical junction (CCJ) anomalies, Chiari & Syringomyelia with or without scoliosis is commonly referred to as the “infernal” combination. The management of these isolated conditions is well described but when in combination they are rather more problematic and warrant a structured approach to its management.

We will discuss the problems of spinal fractures in ankylosing spondylitis.

**#ESA Abstracts 20170182**
**Management of Fractures in Ankylosing Spondylitis**

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Spinal fractures in ankylosing spondylitis patients develop after minor trauma. However, they mostly result in severe neurologic insult, and their mortality and morbidity are higher. Most are in lower cervical spine. The most common mechanism is hyperextension. There is no consensus for ideal treatment of fractures in ankylosing spondylitis. In the past, the trend was to treat them conservatively. However, with advances in surgical techniques, advances in the intensive care unit, recommended treatment is internal fixation. Aggressive intraoperative pulmonary management and earlier rehabilitation is necessary. This talk will discuss the problems of spinal fractures in ankylosing spondylitis.

**#ESA Abstracts 20170183**
**Techniques to Prevent Complications in High Speed Drilling in Cervical Spine Surgery**

Jutty Parthiban, MD.

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High speed drilling is an integral part of surgical techniques in cervical spine surgery. The days of chisels and osteotomes have become history. However using a long nose angled drill in a narrow corridor with vital neuro vascular (Spinal cord, Nerves, Carotid artery and Jugular veins) and hollow organs (Oesophagus, Pharynx, Trachea and Larynx) need...
experience and hard core training. Though drilling related complications are not regularly published in reported we often heard of them from various discussions. The major cause of these dangerous complications are due to inexperience in using high speed drills by surgeons, improper understanding various modes in the drill system, improper selection of burrs and of course improper protections to the vital tissues. Once these four criteria are properly addressed complications due to drilling will be a rare event in cervical spine surgery. We emphasis systematic training for surgeons in using high speed drilling as mandatory in first place. Selection of appropriate mode of drill speed and rotation is very important viz: Use of diamond drill heads for posterior cortex of vertebral body, osteophytes and OPLL with varied speed and gentle wrist controlled pressure near the dura, use of abrupt lock of drill rotation before retrieving and NOTOUCH technique while retrieving the handle from the target site. Meticulous protection of vital organs with retractor blades, microsurgical techniques using high magnification (Operating Microscope) and bright illumination are vital in preventing complications. Attempt to use high speed drilling with out proper training and with out magnification and bright illumination should be discouraged and should not be allowed in the interest of the patients.

#ESA Abstracts 20170184
Surgical Technique in Tackling Epidural Venous Plexus at C1/2 Facet Joint in Posterior Approach
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Epidural venous plexus at C1 and C2 facet joint is usually large at the posterior region and in around C2 ganglion. Lateral mass screw fixation at C1 vertebral body hence becomes a challenge and need to be addressed. Since the venous channels and plexus vary in size and due to its extensive connections with upper cervical epidural veins and extra spinal venous drains bleeding from this plexus during dissection to expose the facet joint become a challenge and frustrating to many young surgeons and pose challenge to many experts too. If patience and sharp surgical technique these plexus can be easily mobilised or obliterated. The ganglion may be excised or left alone as per the wish of the surgeons. Meticulous dissection of the epidural veins from medial to lateral with sequential coagulation using low bipolar cautery is the key. The venules over the dorsal dura and later the venous plexus should be cauterised with copious saline and dissected away from the dura, root sleeve in and around the ganglion and then incised. Torrential venous ooze if occurs should be compressed with haemostats like oxidised cellulose fibres, sheets against a bony surface particularly on the medial side in the intra spinal canal region. Patient packing helps in haemostasis and no need to panic. Large venous lacunae are problematic but they can be shrunk with sequential low bipolar cautery. In few situations ball tipped cautery may be beneficial. The microsurgical view with good light illumination enhances haemostatic techniques. These techniques will be shown by video clips. Proper positioning the patient in prone position in concord position and good anaesthetic control of venous pressure helps in easier dissection of the epidural plexus dorsal to the C1/2 facet joints. A good exposure of joint and posterior wall of lateral mass of C1 is essential for proper placement of screws and inter facial fusion.

#ESA Abstracts 20170185
Problems and Solutions in Geriatric Spine Surgery
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After having more aged populations, the number of spine surgery in geriatric patients is increasing. The three main problems in geriatric spine surgery are: (1)Poor bone quality (osteoporosis), (2)Continuing degeneration and more deformity, and (3)More comorbidities. Surgery on older patients need special attention to these items. Weaker bone due to osteoporosis needs more fusion, less mobility preservation, needs additional support or bone augmentations. More deformity in aged patients need longer and balanced fixations. More comorbidities in aged patients may result with more systemic complications and outcomes are less satisfactory. This talk will discuss the problems of aging spine and try to give more precise criteria for patient selection.

#ESA Abstracts 20170186
Free Hand Technique of Cervical Lateral Mass Screw Fixation
Mohamed Mohi Eldin, MD.
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We introduce a simple free hand technique with great ease of application, without angles, measures or degrees and without any fluoroscopic guidance. It is a safe and reproducible technique. We present our preliminary experience with the use this technique, with inimitable simplicity. The primary aim of the procedure was to achieve adequate screw trajectory in an apparent challenging ease which is reproducible with good outcome. Overview of Literature: Lateral mass screw fixation is used for posterior subaxial cervical fixation. It was described by Louis, and Magerl, then by Anderson, An, and Ebrahim. Each one described the procedure with a unique screw entrance point and trajectory. This study is a prospective case study of 45 patients who underwent subaxial cervical lateral mass screw fixation. The screws were inserted using a free hand method. The described free hand technique was found to minimize the morbidity associated with other techniques without compromising the quality of fixation. Surgical experiences with this technique found it equally safe, rapid, easy and reproducible.

#ESA Abstracts 20170187
The Surgical Treatment of Cervical Spinal Tumors
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The cervical spinal tumors include extramedullary tumors, Intramedullary tumors, and intra-extra spinal tumors. From 2008.3 to 2016.3, we operated on 335 cases of cervical spinal tumors( M/F=1:1, Average age:40.5), among which extramedullary tumors are 117 cases, intramedullary tumors are 130 cases, intra-extra spinal tumors are 88 cases. Hemileminectomy approach was frequently used for resection of cervical extramedullary tumors. Laminectomy sometimes is necessary for decompression after removal of those malignant tumors. Laminotomy was used after totally remove of such benign intramedullary tumors as ependymoma, angioblastoma, carvenoma. Paramedian approach was used for resection of those intra-extra spinal tumors. The cervical stability was evaluated before and after resection of the cervical spinal tumors. Approximately 28.2% of the patients need spine instruments (either posterior screw fixation or anterior vertebral construction) to keep the cervical stability after resection of cervical extra-intra spinal tumors. All begin extramedullary tumors could be totally removed without any complications and severe neurologic dysfunction. After subtotal removal of those malignant tumors which was verified by intra-operative frozen biopsy, post operative radiotherapy or chemotherapy was suggested according to the pathologic character of the tumor. Such intramedullary tumors as ependimoma, angioblastoma,and carvenoma could be totally removed without post operative radiotherapy. We performed subtotal
Bertolotti’s syndrome was first described by Mario Bertolotti in 1917 as a congenital spinal anomaly, in which an elongated transverse process of the last lumbar vertebra fuses in varying degree to the “first” sacral segment. Sometimes the transverse process formed a pseudoarticulation with the sacrum or iliac crest. There is a lack of consensus about the cause, clinical significant, and treatment of this condition. The cause of low back pain in Bertolotti syndrome is multifactorial. Asymmetrical motion between the lumbar spine and the sacrum can result in degenerative changes to the contralateral facet joint or the anomalous articulation itself. Mechanical stress can also be transferred to the level superior to the pseudoarticulation. The enlarged Transverse process can also lead to sciatica due to extrarominal stenosis. Limited understanding of the pathophysiology of Bertolotti’s syndrome has led to a lack of uniformity in the diagnosis and treatment of patients with this condition. Diagnostic injections of steroids and local anesthetics into the Pseudoarticulation site can provide immediate pain relief. Surgical intervention described as resection of the anomalous transverse process is sometimes performed particularly when pseudoarticulation exists between the L-5 enlarged transverse process and the sacrum. Extrarominal nerve root decompression has also been described. Given the lack of evidence and limited cases reported in the literature, our experience at Mansoura University with 8 cases has supported the trigger point diagnostic injection prior to resection of enlarged transverse process particularly in the presence of pseudoarticulation.

**#ESA Abstracts 20170190**

**Vertebroplasty Combined with Posterior Stabilization and Decompression in the Treatment of Aggressive Vertebral Hemangiomas**

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Aggressive vertebral hemangioma is a rare entity. It can however; result in significant pathology by causing paraplegia. There is a lot of controversy regarding the ideal method of treatment. Each method of treatment has its advantages and limitations. This paper presents the outcome of treatment of five cases with aggressive vertebral hemangio- ma of the dorsal spine. Three of them were women and the remaining two were men with a mean age of 38 years. All presented with progressive neurological losses and the imaging studies were highly suggestive of aggressive vertebral hemangioma. The surgical procedure consisted of vertebroplasty of the affected vertebra with posterior decompression at the level, partial pediculotomy taken as a biopsy. Posterior transpedicular fixation of two vertebrae above and two verte- brae below was done in all cases. There were no intraoperative complications. The blood loss ranged between 500 ml and 2200 ml (mean: 900ml). All recovered neurologically in the first three months. The construct remained stable after a mean follow up of 26 months. Residual hemianoma tissue encroaching on the canal was still evident in 3 cases.

**#ESA Abstracts 20170189**

**Bertolotti’s Syndrome and Low Back Pain: Diagnostic Pitfalls and Management**

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#ESA Abstracts 20170188

**Spinal Cord Injury Computational Map**

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Spinal Cord Injury (SCI) is one of the most devastating scenarios that neurosurgeons and neurologist see on regular basis in their practice. The pathogenesis of SCI has been studied since the twenties of the last century and as neuroscience evolved it became clear how complex it is. There are more than a handful of variable mechanisms that are accused of causing neuronal death and hindering efforts of axonal regeneration in the location of injury. Moreover, there is a rapidly evolving study of the molecular basis of these mechanisms such as the up-regulation of some neurotransmitters and local tissue factors and the down-regulation of others, the cellular resistance to local ischemic insult, immune response and reactive oxygen species attack, and the glutamate excitotoxity sequences. All these mechanisms stand together to form a complex molecular story of events that are full of continuously changing special, temporal and individual key-players. The rocket increase in information about pathogenesis necessitates to be efficiently organized, so that the resulting data is available for exploration and analysis. Here we introduce a demo of a computationally tractable, comprehensive molecular interaction map of SCI. Our map integrates pathways implicated in SCI pathogenesis. In addition, we are presenting bioinformatics for the analysis, enrichment and annotation of the map, allowing researchers to open up routes to new innovations in SCI research.

The demo of the map is accessible at: https://scimap.lcsb.uni.lu/minerva?id=sci_map_jun17

**#ESA Abstracts 20170191**

**Congenital aAtresia of the Foramen Transversarium: Presenting as a Sclerotic Lesion. Case Report and Clinical Implications**

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The vertebral artery s typically divided into 4 segments: perforaminal, foraminal. Atlantic and intracranial. The preforaminal segment ends at C6 by entering the foramen transversarium. A 32 old lady presented with chronic axial neck pain of three months duration. The plain x-rays
of her cervical spine showed the presence of a sclerotic lesion in the region of the uncovertebral joint in C5 on the right side. MRI of her cervical spine showed occlusion of the foramen transversarium of C5 and C6 in addition to the sclerotic region and the presence of disc protrusion at the C6–C7 level. There was a debate to take biopsy or not; however, further radiologic workup proved the lesion to be congenital atresia of the foramen transversarium. Extensive search in the literature did not show similar cases.

#ESA Abstracts 20170192
Surgical Treatment of Infectious Diseases of the Spine
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The general principles for the treatment of pyogenic spine infections are immobilization and antibiotics. This study was performed to evaluate the surgical options by retrospective analyzing data, on operations performed for spine infections. Eighty-nighen patients with spine infections underwent surgery in the last five years. There were 52 men and 37 women. Their mean age was 42 years (range 27–60y). All patients presented by pain and or neurological deficits. There were 2 cervical cases, 5 lumbar cases and 33 dorsal cases. Anterior spine approaches and posterior approaches were used in management of these cases. Operative debridement of spine infection when indicated anteriorly or posteriorly, with or without instrumentations was accepted method in treatment of infectious diseases of the spine.

#ESA Abstracts 20170193
Rate of Recurrence of LDP after Unilateral Interlaminar Lumbar Discectomy
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Surgical management of lumbar disc prolapsed through unilateral interlaminar fenestration and discectomy became as standard technique in spine surgery. This study was performed to evaluate the outcome and rate of recurrence of lumbar disc prolapsed in patients managed by this technique. Our 490 patients were operated through unilateral interlaminar fenestration and discectomy in the last six years, were 117 males and 52 females and their main age was 37 years (range 17-74ys). All the cases presented by low back pain and sciatica with main duration of symptoms were 4 months (range 1 w to 36 ms). The operative decision based on clinical examination and MRI LSS finding. Most of the cases operated under spinal anesthesia 228 case and 262 cases under general anesthesia. The interlaminar fenestration and discectomy little complications and rate of recurrence was 3.7%. The study of the unilateral interlaminar fenestration and discectomy technique in surgical management of lumbar disc prolapsed including L5S1 level proved to be joys, grateful and hopeful for the surgeons and patients.

#ESA Abstracts 20170194
Case Study of Neonatal Cervical Spine Infection
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Spinal infections are uncommon in childhood, there is a peak incidence of discitis in neonates and infants, and a smaller peak in juveniles. There is a rare case of male patients 2-month age, with history of neonatal incubation 3 weeks, for chest condition. He was referred by a pediatrician, complaining of high fever, decreased movement of both upper limbs and marked limited and tender neck movement. He was examined clinically and radiologically with MRI cervical spine that diagnosed discitis C4-5, with epidural and prevertebral collection. He receives medication in the form of triple antibiotics, antipyretic and neck collar for 2 weeks with no clinical or laboratory improvement. He was managed by anterior cervical approach, through debridement of the infected disc space epidural and prevertebral collection, using small autologous rib graft, and anterior titanium miniplate.

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Sagittal Imbalance of the Spine
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It became clear that balanced spine in the different planes is essential for the the best quality life. Different diseases could cause damage to the perfect spinal alignments particularly in Sagittal plane; as the increased Dorsal kyphosis with scheurman's disese. Loss of Lumbar Lordosis with ankylosing spondylitis. And Regenerative scoliosis with aging, added to that the the iatrogenic mal alignment after surgical and instrumented spinal fusion in less perfect alignment specially in Sagittal plane Patients with Sagittal mal alignment will suffer from back pain , easy tiredness, pad performance in work and sport activities, limitations in walking and running, even frequent falling down. Treating physicians phythiotherabists, and spine surgeons should pay the required full attention to that situation while caring with their patients. Treatment of Sagittal mal alignment need well planned surgical interventions with long segments fusion and instrument ions, re doing is quiet common and required if the first surgery was not sufficient to restore the global balance of the spine. Elder age groups of patients with the common –associated morbidities are risky patients and should be properly evaluated and kindly handled to minimize the surgical risk. Well designed braces and the adoption of the recently popularised Minimally invasive surgical techniques are good alternatives in highly risk group to improve their life quality.

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Penalties of Post-Operative Sagittal Imbalance
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Sagittal balance is the balance between the normal sagittal curves of the spine to center the head on the pelvis with the least energy expenditure. Sagittal vertical axis (plumb line) is from center of C7 downwards. Normally pass within 0.5 cm from the postero-superior aspect of S1. Offset >2.5-4 cm anterior or posterior is abnormal. Lumbar lordosis is greatly related to pelvic incidence. Sagittal imbalance can be compensated by pelvic retroversion to maintain erect posture, resulting in a decreased sacral slope and increased pelvic tilt. The consequence of backward rotation of the pelvis is extension of the hips. This change may result in back muscle fatigue and exhaustion, with back pain in standing posture. When pelvis backward rotation overpasses, the only solution to stand with horizontal eyes axes is to bend the knees in order to keep the gravity line between the two feet. Adjacent segment degeneration is often used to refer to the onset of degenerative changes in previously normal disc spaces adjacent to the fusion segment. It may occur in the form of ruptured disc, spondyloretrolythesis, spinal canal stenosis, compression fracture, junctional kyphosis and lateral translation. Its incidence increases with many factors, one of the most important is failure to restore the sagittal balance (lumbar lordosis). Radiological parameter that most highly correlates with pain and disability is the balance between pelvic incidence and lumbar lordosis.