

fenestration of the anterior dura to permit communication of CSF between the dural space and pseudomeningocele. His strength and dexterity improved dramatically post-operatively. *Conclusions:* Spinal pseudomeningoceles following a traumatic brachial avulsion injury are typically found outside the spinal canal and are usually not associated with any neurological symptoms. There are few reported cases of post-avulsion intracanalicular pseudomeningoceles which present with delayed spinal cord compression and neurological dysfunction. Therefore, patients with a history of a traumatic avulsion injury and delayed neurological symptoms should warrant additional investigations.

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A retrospective analysis of the clinical utility of the Tokuhashi scale, and its impact in surgical management of spinal metastatic disease

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Background: The evaluation of patients presenting with spinal metastatic disease is often challenging. The Tokuhashi scale intends to facilitate this process. We conducted this study to investigate its clinical utility in surgical-decision making in patients with spinal metastasis. *Methods:* The oncology database was used to allocate 285 patients with spinal metastasis between 2010 and 2015. The Tokuhashi scale components were determined from a chart review. *Results:* Based on the Tokuhashi scale, there was 69.1% in the non-operative/radiation group (group 1), 23.2% in the palliative/excisional surgical group (group2) and 7.7% in the surgical group (group 3). Using Kaplan-Meiers estimate, survival time was significantly different across the three groups with means 232.8±30.8, 352.3±49.2 and 568.3±206.1 days, respectively. A significantly higher proportion of patients (84.6%) were treated non-surgically in group 1, compared to 45.5% in group 3 ($X^2=19.5$, $P<0.001$). However, there was no correlation between the type of surgical interventions (i.e. instrumented decompression, decompression alone, percutaneous vertebral augmentation and instrumented vertebral augmentation) and the Tokuhashi score. *Conclusions:* This review illustrates the utility of the Tokuhashi scale in predicting survival. However, it does not address the new role of emerging different surgical strategies for the treatment of spinal metastasis and lacks information concerning spinal instability.

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Spinal epidural abscess associated with septic facet joints-one center experience

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Background: Infection to the facet joints has been reported sporadically but the significance of this type of infection has not been clarified. In our study on spine infection, we identified the cases of spinal epidural abscess with septic joints and was able to compare to cases of epidural abscess with discitis and osteomyelitis. *Methods:* Between 2007 and 2014, we experienced 176 cases of spine infection

including discitis, osteomyelitis and epidural abscess. Retrospective review of the clinical data and radiological findings was performed. Among 176 cases, 80 patients had epidural abscess. They were divided to two groups, one with septic joint and the other with discitis and osteomyelitis. *Results:* 23 patients were found to have septic joints with epidural abscess based on the MRI findings. Mean age was 45.5. 15 of 23 patients (65%) required surgery and all treated with laminectomy. 78% had a good neurological outcome.

57 patients had epidural abscess with discitis and osteomyelitis. Mean age was 54. 51% required surgery. Only 62% was treated with laminectomy alone. Good neurological outcome was seen in 67% of the patients. *Conclusions:* Infected facet joints are not as rare as generally believed. The patients with septic joints are younger. Surgery was done more often and laminectomy provided better neurological outcome

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Epidemiology of spine infection in patients with history of IV drug use and HIV infection. Possibility of the secondary prevention

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Background: One of the major risk factors for spine infection is IV drug use and HIV infection. An increase in these risk factors has coincided with increased rates of spinal infection in Saskatchewan. However, the exact incidence and the clinical significance of spine infection associated with high-risk behavior is poorly understood. *Methods:* A retrospective review was completed for adult patients with discitis, osteomyelitis, or epidural abscess admitted to the Royal University Hospital, University of Saskatchewan over the last eight years. *Results:* This study included 176 patients consisting of 41% with discitis, 69% with osteomyelitis and 45% with epidural abscess. Overall mortality was 3% and 16% of patients developed severe disability. 40% of patients were intravenous drug users, 45% were hepatitis C positive and 12% were HIV positive. For the initial four years of our study we experienced 72 patients. We experienced 91 cases over the past four years. Geographical analysis showed high incidence areas within the city of Saskatoon. *Conclusions:* High rates of IV drug use, Hepatitis C, and HIV have important implications in terms of what measures would assist in prevention of this condition. Secondary prevention or early identification of patients may reduce the number of patients who require lengthy admission, surgery and long term care for disability.

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Type III odontoid fracture with C1 and C2 distraction injury manifesting as a variant of occipital-cervical dissociation

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Background: Isolated odontoid type III fractures are usually stable with surgical fixation reserved for significant fracture displacement or inability to maintain alignment with external immobilization. We present a rare but important pattern of injury involving a C2

fracture with C1 and C2 distraction behaving as a variant of occipital-cervical dissociation. *Methods:* Case Report *Results:* An 88-year-old female was involved in a motor vehicle accident and was transferred to a trauma centre from a peripheral hospital intubated. She was diagnosed with a significant injury to the C2 vertebral body with distraction between C1 and C2, which is a variant of an occipital-cervical dissociation. This patient had significant facial injuries, a zygomatic fracture, multiple lacerations, and a pulmonary contusion. Her ISS (Injury Severity Score) was greater than 16. She was however from a spine perspective neurologically intact. She required stabilization in the form of an occiput-cervical fusion. *Conclusions:* We present a polytrauma patient with a C2 distraction type injury and atlantoaxial dissociation manifesting more like an occipital-cervical dissociation injury with very good pre-operative imaging. These injury patterns are critical to recognize as they are unstable requiring occiput-cervical fusion instead of a cervical fusion alone which is reserved for some cases of odontoid Type III fractures.

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Biomechanical evaluation of the ProDisc-C stability following graded posterior cervical injury

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Background: There is limited data regarding the development of persistent or recurrent symptoms, and the implications of revision posterior surgery in the setting of previous cervical arthroplasty (CA). The purpose of this study was to analyze segmental kinematics in human cadaveric specimens with and without CA, in the context of graded posterior resection. *Methods:* Fourteen human cadaveric cervical spines were divided into arthroplasty (ProDisc-C) and control (intact disc) groups. Both groups underwent sequential posterior element resections: unilateral foraminotomy, laminoplasty, and finally laminectomy. Specimens were studied sequentially in two different loading apparatuses during induction of flexion-extension, lateral bending, and axial rotation. *Results:* Range of motion (ROM) after CA was reduced relative to the control group during axial rotation and lateral bending, but was similar during flexion and extension. With sequential resections, ROM increased by a similar magnitude following foraminotomy and laminoplasty. Laminectomy had a much greater effect following CA compared to the control group, with the largest magnitude of increase in flexion and extension. *Conclusions:* Foraminotomy and laminoplasty do not seem to induce greater instability in the setting of CA, compared to controls. Laminectomy alone would not be recommended for use with arthroplasty due to the significant change in kinematics, especially in flexion and extension.

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Corrective Adult Spinal Deformity Procedures in a community hospital: a single institution review

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Background: Adult spinal deformity (ASD) are typically managed in tertiary care centres due to their complexity in surgical planning and

peri-operative care. *Methods:* A retrospective analysis of consecutive corrective ASD surgery performed by a single surgeon at a community based centre performed between 2012 and 2014. Inclusion criteria were age \geq 18 years with a minimum of 1 year follow-up. We reviewed age, aetiology, mortality, medical and neurological deficit. All standard radiographic deformity parameters were also evaluated and analysed. *Results:* n=32 corrective spinal deformity procedures were performed. The most common aetiology was de novo degenerative scoliosis. The mean length of stay was 11.94 days. The most common levels fused from T1-pelvis (n=13). L5/S1 was the most common level requiring interbody fusion (n=17). There were n=10 who required a PSO. Only n=4 patients had EBL greater than 3500cc. There were a total of 9 medical complications with post-operative hypotension being the most common (n=3). Hardware failure across the PSO site was the most common long term complication (n=7). There were n=2 death. There were no reported deep infections requiring revisions. Radiographic parameters analysed showed significant improvement. *Conclusions:* ASD surgery perioperative complication rates in a community hospital are similar to those done in high volume academic centre.