to describe a novel percutaneous CS approach and compare its safety and accuracy to PS fixation. **Methods:** Standard percutaneous PS fixation was performed using fluoroscopy from L1-L5 on one-side with percutaneous CS being placed on the other-side (10-instrumented PS and CS levels each). Anatomical confirmation and comparison of pedicle breach incidence was performed afterward via open dissection. **Results:** Dissection revealed no breaches of either construct. As such, no statistical comparison was possible. At one-level however, a CS was seen breaching the posterior-third lateral vertebral body under the superior end-plate. A couple of exposed screw threads were visualized well away from any entering and/or exiting foraminal or extra-spinal neurovascular structures. **Conclusions:** MIS and CS-based constructs are relatively new fixation techniques. We describe a novel percutaneous CS technique incorporating advantages of both MIS and CS-constructs. Although no difference was found in pedicle breach incidence, further study comparing these techniques and rigorous patient selection for application are necessary.

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Does a multidisciplinary triage pathway facilitate better outcomes after spine surgery?

A Wu (Saskatoon)* D Fourney (Saskatoon) L Liu (Saskatoon)

Background: The Saskatchewan Spine Pathway (SSP) facilitates timelier imaging and more appropriate surgical referrals. In this prospective study, pre- and post-operative wait times, satisfaction, and outcomes were compared between SSP and conventionally referred surgical patients. **Methods:** A prospective matched cohort comparison of 150 patients (SSP group n=75; conventional group n=75) undergoing elective lumbar surgery for mechanical back and leg pain between 2011 and 2016 was performed with 1 year follow-up. Outcomes were measured with patient questionnaires, Oswestry disability index (ODI), visual analogue back and leg pain scores (VAS), and EuroQol Group 5 –Dimension self-report (EQ5D). **Results:** Baseline measures were the same in both groups. Wait times to see the surgeon and for surgery were the same, and wait time for MRI was significantly shorter for the SSP group (p<0.001). SSP patients utilized more non-operative treatment strategies such as physiotherapy (p<0.04), and had higher satisfaction with pre-surgical care (p=0.03). Good surgical outcomes were obtained in both groups with no significant differences. **Conclusions:** There are minimal differences in post-surgical outcomes for SSP patients versus conventionally referred patients; however, the SSP facilitates significantly shorter wait times for MRI and non-operative treatment strategies. Pre-surgical patient satisfaction is significantly higher among SSP patients.

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Is a positive nerve root sedimentation sign associated with better outcomes after lumbar laminectomy?

L Neuburger (Saskatoon)* Z Huschi (Saskatoon) U Ahmed (Saskatoon) Y Cheng (Saskatoon) DR Fourney (Saskatoon)

Background: The nerve root sedimentation sign (SedSign) has been correlated with clinically significant lumbar spinal stenosis (LSS), and promoted as a possible prognostic indicator. However, diagnostic methods were not clearly defined in prior reports. In this study, the clinically validated Saskatchewan Spine Pathway enabled diagnosis of neurogenic claudication due to LSS. The objective was to compare the outcome of lumbar laminectomy for neurogenic claudication with respect to SedSign. **Methods:** This was a retrospective analysis of prospectively-collected data in patients with neurogenic claudication who underwent lumbar laminectomy. Outcome measures included Oswestry Disability Index, Visual Analogue Scale (VAS) for back and leg pain, and EuroQol 5-Dimension questionnaire. **Results:** Laminectomy was performed in 106 patients, and 60 were SedSign positive. Outcomes did not differ with respect to SedSign for all outcome measures, in non-instrumented and instrumented cohorts. Improvement in walking distance was associated with dural cross-sectional area of stenosis (p=0.02). VAS back and leg improvements were associated with back dominant (p=0.038) and leg dominant (p=0.0036) pain. **Conclusions:** This is the largest analysis of SedSign with respect to operative outcomes, and the only study with validated criteria for defining neurogenic claudication. Although other radiological and clinical factors are associated with improvements, SedSign did not correlate with laminectomy outcome.

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Minimally invasive MetrX microdiskectomy for lumbar disc herniation: review of long-term outcomes

MN Kindrachuk (Saskatoon)* A Persad (Saskatoon) E Noyes (Saskatoon) AS Wu (Saskatoon) DR Fourney (Saskatoon)

Background: Lumbar microdiskectomy is amongst the most common neurosurgical techniques. In Saskatoon, minimally invasive microdiskectomy using the MetrX tubular retractor system has become a routinely performed procedure. While the outcomes of microdiskectomy are known to be similar to open technique, long term outcomes have not been reported. **Methods:** We performed a retrospective study of 160 minimally invasive microdiskectomies. We excluded subjects with cauda equina syndrome, redo surgery, fusions, and multi-level decompressions. We used one-way ANOVA to compare VAS, ODI, SF36, and EQ5D scores at pre-operative, 6-week postoperative, and long-term timepoints. **Results:** The mean pre-operative back pain VAS score was 6.23+/-2.63, 6-week post-operative follow-up VAS was 3.21+/-2.49, and long-term follow-up VAS was 2.56+/-2.45. The mean preoperative leg pain VAS score was 7.66+/-1.99, 6-week follow-up VAS was 3.56+/-2.79, final follow-up VAS was 2.20+/-2.57. The mean preoperative ODI score was 60.41+/-13.97; falling to 32.54+/-20.57 at 6-week follow up, and further to 24.50+/-20.97 at long term follow up. The mean baseline EQ5D quality of life score was 46.4+/-18.1, 68.9+/-20.2 at 6-week follow up and 69.3+/-20.3 at final review. Data reached statistical significance. **Conclusions:** We report good outcomes for minimally invasive microdiskectomy that are as durable as published results using open technique.