

hospital stay ( $r = 0.593$ ), operative delay ( $r = 0.104$ ) and operative duration ( $r = 0.09$ ) were not associated with infection. With regards to the operative technique, infection was not associated with the different procedures such as laminectomy ( $r = 0.05$ ), bone grafting ( $r = 1.055$ ). Furthermore, intra canal fragments ( $r = 0.45$ ), vertebral dislocations ( $r = 0.689$ ) and articular fracture ( $r = 0.79$ ) didn't seem to increase the risk for sepsis. **Conclusion:** Post-operative wound infection is a significant complication of posterior spine surgery. This causes distress for both patients and surgeons alike. Surgical site infections in spine surgery remain a significant cause of morbidity and prolonged hospitalization. The review of the literature reported that uncontrolled diabetes, spine instrumentation and long duration of surgery are significant risk factors for surgical site infection. In our study, diabetes and obesity were the most reported risk factors. Prevention and control of patient's comorbidities are the first steps to reduce the incidence of sepsis.

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### **P495: Anterior thoracic surgery - Transpleural versus retropleural approach**

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**Question:** There are several possible approaches for anterior surgery of pathologies of the thoracic spine. The lateral transpleural approach is very important because it enables direct access to the spine and can be performed minimally invasively as a mini-thoracotomy, however, perioperative problems have been reported with this approach. This prospective study was conducted to clarify whether the retropleural approach has any advantages over the transpleural approach in a lateral thoracotomy. **Method:** A total of 60 patients (30 per group) were included in the study. Inclusion criteria were: fractures, tumors, monosegmental spondylodiscitis in T5 to T12 with an indication for anterior stabilization following prior posterior instrumentation. Exclusion criteria were multisegmental pathologies, deformities, and previous ipsilateral pulmonary/thoracic operations. The approach was via a lateral mini-thoracotomy for all patients. A retropleural approach was used for the patients in group 1; transpleural approach in group 2. The follow-up observation period was 12 months and 51 (25/26) patients were available for follow-up. In addition to intra- and perioperative parameters, validated measuring instruments were used. **Results:** In group 1, injuries of the parietal pleura occurred in two patients. These patients were fitted with a Bülow drain post-operatively, as were all patients in group 2. The mean operation time was shorter in group 1. In group 2, post-operative pneumonia occurred in two patients; a clinically relevant pleural effusion required aspiration in six cases.

Atelectasis was detected in the postoperative chest X-ray in two patients in group 2. In one patient in group 1, an extrapleural seroma required aspiration. The mean hospital stay was one day shorter in group 1 than in group 2. After 12 months, there were no significant differences between the two groups in the constant results of the measuring instruments. **Conclusions:** In a lateral mini-thoracotomy, a retropleural approach is a viable alternative to a transpleural approach. Aside from advantages during surgery, there were significantly fewer postoperative pulmonary complications. This is also reflected in the reduction of the hospital stay. No significant difference between the two groups was found after 12 months. This correlates with available data in literature.

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### **P496: Failure rate of decompression-only procedure for lumbar degenerative spondylolisthesis - Evidence from a PRISMA compliant systematic review of literature**

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**Introduction:** To identify the failure rates of individual methods of decompression-only procedures to aid in the selection of the best possible method to achieve decompression that works the best in the hands of a given surgeon. **Methods:**

An independent systematic review of four scientific databases (PubMed, Scopus, [clinicaltrials.gov](http://clinicaltrials.gov), Web of Science) was performed to identify relevant articles as per the preferred reporting in systematic reviews and meta-analysis (PRISMA) guidelines. Studies reporting on failure rates of decompression-only procedure for degenerative lumbar spondylolisthesis were included for analysis. Analysis was performed using the Open Meta [Analyst] software. **Results:** The overall failure rate of decompression-only procedure 9.1% (95% CI [6.5, 11.7]). Further, open decompression had the highest failure rate of 10.9% (95% CI [6.5, 11.7]), while micro-endoscopic decompression had the least failure rate of 6.7% (95% CI [2.9, 10.6]). Similarly, the highest failure of 15.4% (95% CI [9.4, 21.4]) was noted at 2 years while the least failure of 5.8% (95% CI [-7.0, 18.6]) was noted during the first year following surgery. Single level decompression had a failure rate of 10.5% (95% CI [7.1, 13.9]), while multi-level decompression recorded a failure rate of 6.2% (95% CI [2.8, 9.5]). **Conclusion:** High-quality evidence on the decompression-only procedure for degenerative spondylolisthesis is limited. The decompression-only procedure had an overall failure rate of 9.1% with open decompression approach resulting in the highest failure rates compared to other minimally invasive approaches.

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### **P497: Incidence and risk factors for symptomatic spinal epidural hematoma following posterior thoracic spinal surgery in a single institute**

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**Introduction:** Symptomatic spinal epidural hematoma (SSEH) is one of the most devastating complications after spinal surgery. Numerous studies have identified many risk factors for SSEH, but most of them have drawn conclusions based on a cohort of lumbar and cervical spine patients. Therefore, the purpose of this study was to investigate the incidence of SSEH and recognize the risk factors based on patients who underwent posterior thoracic surgery. **Material and Methods:** From January 2010 to December 2019, patients who developed SSEH after posterior thoracic surgery and underwent hematoma evacuation were enrolled. For each SSEH patient, 2 or 3 controls who did not develop SSEH and underwent the same procedures with similar complexity at the same section of the thoracic spine in the same period were collected. The preoperative and intraoperative factors, blood pressure-related factors and radiographic parameters were collected to identify possible risk factors by comparing between the 2 groups. **Results:** A total of 24 of 1612 patients

(1.49%) were identified as having SSEH after thoracic spinal surgery. Compared to the control group (53 patients), SSEH patients had significant differences in the APTT (p. 0.028), INR (p. 0.009), ratio of previous spinal surgery (p. 0.012), ratio of cerebrospinal fluid leakage (p. 0.004), thoracic kyphosis (p < 0.05), local kyphosis angle (p < 0.05), epidural fat ratio at T7 (p. 0.003), occupying ratio of the cross-sectional area (p < 0.05) and spinal epidural venous plexus grade (p < 0.05). Multiple logistic regression analysis revealed 3 risk factors for SSEH: cerebrospinal fluid leakage, the local kyphosis angle (> 8.77") and the occupying ratio of the cross-sectional area (> 49.58%). **Conclusion:** The incidence of SSEH was 1.49% in posterior thoracic spinal surgeries. Large local kyphosis angle (> 8.77"), high occupying ratio of cross-sectional area (> 49.58%) and cerebrospinal fluid leakage were identified as risk factors for SSEH.

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### **P498: Comparison of anterior approach and posterior circumspinal decompression in the treatment of giant thoracic disc herniation**

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**Introduction:** The treatment of giant thoracic disc herniation (gTDH) remains challenging for surgeons worldwide because of its large volume and calcified or ossified nature and the limitations of the prior small-sample-size, single-center studies reporting comparative effectiveness. We aim to compare the anterior decompression and spinal fusion (ASF) and posterior circumspinal decompression and spinal fusion (PCDF) for patients with myelopathy due to gTDH in the largest study to date by sample size. **Material and Methods:** Preoperative and postoperative functional status, surgical details, and complication rates were compared between the two groups. **Results:** A total of 186 patients were included: 63 (33.9%) ASF and 123 (66.1%) PCDF. The PCDF group had significantly shorter operation duration (163.06 ± 53.49 min vs. 180.78 ± 52.06 min, p = 0.032) and a significant decrease in intraoperative blood loss (716.83 mL vs. 947.94 mL, p = 0.045), and also a shorter hospital length of stay (LOS) and postoperative LOS (6 vs. 7, p = 0.011). The perioperative complication rate (13.8% vs. 28.6%, p = 0.015) and surgery-associated complication rate (13.0% vs. 27.0%, p = 0.018) were significantly higher in the ASF group. A higher rate of complete decompression was achieved in the PCDF group. There were no observed significant differences in changes in functional status between the two groups. **Conclusion:** PCDF for central or paracentral gTDHs is a highly effective and reliable technique. It can be performed safely with a low complication rate. If either procedure can adequately excise a central or paracentral gTDH, a PCDF approach may be a better option.