Thoracolumbar spondylodiscitis surgery

Indications

see Spondylodiscitis surgery indications.

Percutaneous posterior pedicle screw fixation

The aim of a study was to investigate the suitability of percutaneous posterior pedicle screw fixation for surgical treatment in patients with thoracolumbar spondylodiscitis.

Janssen et al. conducted a retrospective review of a consecutive cohort of patients undergoing surgical treatment for thoracolumbar spondylodiscitis between January 2017 and December 2019. They assessed intraoperative and clinical data, comparing the classic open and the percutaneous approach. In total, they analyzed 125 cases (39 female, 86 male). The mean age was 69.49 years ± 12.63 years.

Forty-seven (37.6%) patients were operated on by a percutaneous approach for pedicle screw fixation, and 78 (62.4%) received open surgery. There was no significant difference in the mean age of patients between both groups ($p= 0.57$). The time of surgery for percutaneous fixation was statistically significantly shorter ($p= 0.03$). Furthermore, the estimated intraoperative blood loss was significantly lower in the minimally invasive group ($p < 0.001$). No significant difference could be observed regarding the recurrence rate of spondylodiscitis and the occurrence of surgical site infections ($p= 0.2$ and 0.5, respectively).

Percutaneous posterior pedicle screw fixation appears to be a feasible option for the surgical treatment of a selected patient group with spondylodiscitis of the thoracic spine and lumbar spine [1].

Percutaneous sacropelvic fixation

Although minimally invasive spine stabilization (MISt) with percutaneous pedicle screws is less invasive, percutaneous sacropelvic fixation techniques are not common practice.

Surgical intervention is indicated if neurological deficit, progressive deformity, failure to respond to conservative treatment, or the need to obtain specimens to identify causative pathogens is present. However, traditional anterior debridement and reconstruction with or without posterior instrumentation are associated with high rates of morbidity and mortality, especially in elderly immunocompromised patients and patients with multiple comorbidities. Percutaneous endoscopic discectomy, debridement, and drainage provide a minimally invasive surgical choice for the treatment of infectious spondylodiscitis [2] [3] [4].

XLIF

High rates of fusion and infection clearance have been reported with anterior lumbar interbody fusion (ALIF), but this approach requires a morbid exposure, associated with non-trivial rates of vascular and peritoneal complications. XLIF is an increasingly popular interbody fusion technique that utilizes a fast and minimally invasive approach, sparing the anterior longitudinal ligament, and allowing sufficient visualization of the intervertebral discs and bodies to debride and place a large, lordotic cage. The outcome measures for this study included lumbar lordosis, sagittal balance, subsidence, fusion, pain, neurological deficit, and microbiology/laboratory evidence of infection. The mean follow-up time was 9.3months. All patients had improvements in pain and neurological symptoms. The mean lordosis change was 11.0°, from 23.1° preoperatively to 34.0° postoperatively. Fusion was confirmed with CT scans in five of six patients. At the last follow-up, all patients had normalization of inflammatory markers, no symptoms of infection, and none required repeat surgical treatment for spondylodiscitis. XLIF with percutaneous posterior instrumentation is a minimally invasive technique with reduced morbidity for lumbar spine fusion which affords adequate exposure to the vertebral bodies and discs to aggressively debride necrotic and infected tissue.

XLIF may be a safe and effective alternative to ALIF for the treatment of spondylodiscitis [5].

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Mini-open anterior debridement and lumbar interbody fusion in combination with posterior percutaneous fixation via a modified ALIF approach results in little surgical trauma and intraoperative blood loss, acceptable postoperative complications, and is effective and safe for the treatment of single-level lumbar pyogenic spondylodiscitis. This approach could be an alternative to the conventional open surgery [7].

Funao et al., describe two cases in which spondylodiscitis in the lumbosacral spine was treated with a percutaneous stabilization using S2 alar-iliac (S2AI) screw technique.

Case 1: a 77-year-old male presented with low back pain and high fever. He was diagnosed with spondylodiscitis at L4-5. He had a history of lung cancer, which was complicated by the recurrence. Because non-surgical treatment failed, MISt with percutaneous S2AI screws was performed. The patient's low back pain subsided markedly one week after surgery, and there was no screw/rod breakage or recurrence of infection during follow-up period.

Case 2: a 71-year-old male presented with hemiparesis due to a stroke. He also developed high fever and was diagnosed with spondylodiscitis at L5-S. Because non-surgical treatment failed, the patient was treated by MISt with percutaneous S2AI screws while being maintained on anticoagulants for stroke. Although his clinical symptoms had markedly improved, a postoperative lumbar computed tomography demonstrated a bone defect at L5-S. An anterior spinal fusion with an iliac bone graft at L5-S was performed when a temporary cessation of anticoagulants was permitted. Both patients tolerated the procedures well, and had no major perioperative complications.

MISt with percutaneous S2AI screws was less invasive and efficacious for lumbosacral spondylodiscitis in providing rigid percutaneous sacropelvic fixation [8].

References

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