Lumbar Spondylodiscitis

Diagnosis

see Spondylodiscitis diagnosis.

Surgery

Spondylodiscitis still remains a serious problem especially in immunocompromised patients. Surgery is necessary when non-surgical treatment is unsuccessful. Although minimally invasive spine stabilization (MIS) 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 ¹ ² ³.

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 which 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 9.3 months. 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 ⁴.

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

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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.\(^5\)

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.\(^6\)

**Complications**

*Spinal epidural abscess.*

**Case series**

**2015**

4350 procedures performed in 4037 patients (mean age=53.2 yr). Sixty percent of the patients were male. The majority of procedures were performed in the lumbar spine (98.4%), and the indication was mostly degenerative in nature (96.9%). The databases were then reviewed for any infectious complications.

Postoperative infection was recorded in 4 patients (0.09%). All of them occurred in the lumbar region after discectomy. These patients presented with discitis and underwent revision in the form of open debridement and fusion. The time lapse between the index surgery and revision was 56 days. All 4 patients recovered, with a mean follow-up of 7.5 years.\(^7\)

**2014**

Of 107 cases, ranging between 17 to 83 years of age, 64 (59.8%) were male. Twenty-seven (25.2%):
patients had diabetes mellitus.

Laboratory investigations revealed elevated CRP in 70 (65%) patients, elevated ESR in 65 (61%) patients, and elevated white blood cell (WBC) counts in 41 (38.3%) patients. Thirty-six (33.6%) patients were identified as having brucellar SD, and 5 (4.7%) patients were identified as having tuberculous SD. A total of 66 (61.6%) patients were determined to have pyogenic SD. The most frequently isolated microorganism was Staphylococcus aureus. Antibiotic therapy was given intravenously to all pyogenic SD patients.

The incidence of SD has increased as a result of the higher life expectancy of older patients with chronic debilitating diseases and the increase of spinal surgical procedures. In patients with low back pain, SD should be considered as a diagnosis. For effective treatment, it is important to determine the etiology of the disease.

### Case reports

#### 2015

A patient with a history of L2 corpectomy and anterior spinal fusion presented with discitis at the L4/5 level and underwent an anterior lumbar interbody fusion (ALIF) supplemented with a locking plate placed anterolaterally for stability. Fifteen months after the ALIF procedure, he returned with a hardware infection. He underwent debridement of the infection site and removal of hardware. Results. Once hardware was exposed, removal of the locking plate screws was only successful in one out of four screws using a reverse thread screw removal device. Three of the reverse thread screw removal devices broke in attempt to remove the subsequent screws. A metal cutting drill was then used to break hoop stresses associated with the locking device and the plate was removed. Conclusion. Anterior locking plates add significant stability to an anterior spinal fusion mass. However, removal of this hardware can be complicated by the inherent properties of the design with significant risk of major vascular injury.

#### 2014

A 46 year-old patient who had had lumbar pain for several weeks that irradiated to the right leg, and did not respond to NSAID treatment. The work-up included MRI, biopsy with draining of the collection and a universal PCR followed by 16S rDNA sequencing. The latter was used to make the microbiologic diagnosis, which identified Fusobacterium nucleatum as the causative agent. Final treatment consisted of clindamycin.

Spondylodiscitis due to Fusobacterium spp. is a rare and difficult to diagnose entity, due both to its clinical characteristics and to the difficulty in making the right microbiologic diagnosis.


