Spondylodiscitis treatment

- Spondylitis and spondylodiscitis
- An Elderly Patient With Lumbar Spondylodiscitis and Psoas Abscess: Diagnostic Considerations in the Context of Aerococcus urinae
- Staphylococcus aureus Infective Endocarditis Complicated by Embolic Stroke and Discitis in a Hypertensive Patient
- Percutaneous management of pyogenic spondylodiscitis using absorbable antibiotic carrier (STIMULAN): preliminary results from a single-center study
- Metastatic Colorectal Cancer Presenting as Spinal Cord Compression and Mimicking Tuberculosis
- Foot drop secondary to spinal abscess caused by brucellosis: A case report
- Aspergillus terreus Fungal Spondylodiscitis in a Healthy Patient Post-Lumbar Spine Surgery: A Rare Case Report
- Concomitant Pyogenic Atlantoaxial Spondylodiscitis with Retropharyngeal Abscesses and Tuberculous Spondylodiscitis with Gibbus Deformity: A Combined Rare Condition-A Case Report and Literature Review

General information

The spondylodiscitis outcome is generally good, and antibiotics together with spinal bracing (immobilization) are adequate treatment in ≈ 75% of cases. Occasionally surgery is required. See also under postoperative discitis for other aspects of management.

Most patients are started on strict bed rest and are then mobilized with or without a brace as tolerated.

The goals of treatment for spondylodiscitis are to eliminate infection, restore functionality of the spine, and relieve pain. Magnetic resonance imaging (MRI) remains the gold standard for the radiological demonstration of this condition, with 92% sensitivity and 96% specificity. It also enables visualization of the spatial extent of the infection and of abscess formation (if present). The most common bacterial cause of spondylodiscitis in Europe is Staphylococcus aureus, but tuberculous spondylodiscitis is the most common type worldwide. Antibiotic therapy is a pillar of treatment for spondylodiscitis and should be a part of the treatment in all cases. Neurologic deficits, sepsis, intraspinal empyema, the failure of conservative treatment, and spinal instability are all indications for surgical treatment.

The quality of life of patients who have been appropriately treated for spondylodiscitis has been found to be highly satisfactory in general, although back pain often persists. The risk of recurrence increases in the presence of accompanying illnesses such as diabetes mellitus, renal failure, or undrained epidural abscesses [1)].

Thanks to precise monitoring of conservative treatments and primarily stable surgical techniques, prolonged immobilization of the patient is no longer necessary nowadays [2)].

Candidates for non-surgical treatment in pyogenic spontaneous spondylodiscitis

- organism identified
- antibiotic sensitivity
- single disc space involvement with little VB involvement
- minimal or no neurologic deficit
- minimal or no spinal instability.

Identifying the causative pathogen is the key to treatment. CT guided biopsy and drainage are the standard procedure for identifying causative pathogens.

In Germany the lack of homogeneity regarding treatment strategies clearly shows the need for therapy guidelines as an aid to orientation. This will be a challenge for the future due to the low incidence and the situation regarding currently available studies [3].

With proper surveillance, surgical intervention, and appropriate postoperative follow-up, this complication can be effectively managed with excellent long-term outcome [4].

Although medical management is the first line treatment for spondylodiscitis, many patients fail antibiotic therapy and bracing, or present with instability, neurologic deficits, or sepsis, requiring operative debridement and stabilization.

Medical management

Conservative management of spondylodiscitis consists of antimicrobial therapy and non-pharmacological treatments such as physiotherapy and immobilization. Immobilization is advocated when pain is significant or there is a risk of spinal instability.

Antibiotic therapy

see Antibiotics for spondylodiscitis treatment.

Systematic review and meta-analysis

A meta-analysis, with an overall pooled sample size of 10,954 patients from 21 studies, found that the pooled mortality among the early surgery patient subgroup was 8% versus 13% for patients treated conservatively. The mean proportion of relapse/failure among the early surgery subgroup was 15% versus 21% for the conservative treatment subgroup. Further, it concluded that early surgical

treatment, when compared to conservative management, is associated with a 40% and 39% risk reduction in relapse/failure rate and mortality rate, respectively, and a 7.75 days per patient reduction in length of hospital stay ($p < 0.01$). The meta-analysis demonstrated that early surgical intervention consistently significantly outperforms conservative management in relapse/failure and mortality rates, and length of stay, in patients with pyogenic spondylodiscitis [5)]

Literature review with clinical recommendations

Five influential studies on Pyogenic Spondylodiscitis that have the potential to shape current practice in spinal infections were selected and reviewed. Each study was chosen for its contribution to a critical phase in PS management: diagnosis, imaging, surgical vs conservative treatment, and antibiotic duration. Recommendations were graded as strong or conditional following the GRADE methodology.

Five studies were highlighted. Article 1: Pluemer et al introduced the Spinal Infection Treatment Evaluation score, a novel scoring tool for standardizing treatment decision-making. Conditional recommendation to incorporate the SITE Score or SISS Score for improved treatment outcomes. Article 2: Maamari et al conducted a meta-analysis comparing imaging modalities, with a conditional recommendation to consider 18F positron emission tomography-CT to diagnose PS as an adjunct to MRI which remains the gold standard. Article 3: Thavarajasingam et al demonstrated the potential survival benefit of early surgery in specific PS cases, leading to a strong recommendation for early intervention in appropriate patients. Article 4: Neuhoff et al compared conservative and surgical treatments in well-resourced settings, concluding a strong recommendation for early surgery in appropriate patients. Article 5: Bernard et al evaluated antibiotics for spondylodiscitis treatment duration, with a conditional recommendation for a 6-week course in confirmed cases, based on comparable efficacy to a 12-week regimen.

Management of PS remains complex and varied. This perspective provides spine surgeons with evidence-based recommendations to enhance standardization and effectiveness in clinical practice [6)].

Surgery

Spondylodiscitis surgery.

Case reports

Spondylodiscitis treatment case reports.

1)
Herren C, Jung N, Pishnamaz M, Breuninger M, Siewe J, Sobottke R. Spondylodiscitis: Diagnosis and Treatment Options. Dtsch Arztebl Int. 2017 Dec 25;114(51-52):875-882. doi: 10.3238/arztebl.2017.0875. PMID: 29321098; PMCID: PMC5769318.
2)
Sobottke R, Seifert H, Fätkenheuer G, Schmidt M, Gossmann A, Eysel P. Current diagnosis and treatment of spondylodiscitis. Dtsch Arztebl Int. 2008 Mar;105(10):181-7. doi: 10.3238/arztebl.2008.0181. Epub 2008 Mar 7. PMID: 19629222; PMCID: PMC2696793.

3)
Quack V, Hermann I, Rath B, Dietrich K, Spreckelsen C, Lüring C, Arbab D, Mueller CA, Shousha M, Clusmann H, Tingart M. [Current treatment strategies for spondylodiscitis in surgical clinics in Germany]. Z Orthop Unfall. 2014 Dec;152(6):577-83. doi: 10.1055/s-0034-1383131. Epub 2014 Dec 22. German. PubMed PMID: 25531518.
4)
Werner BC, Hogan MV, Shen FH. Candida lusitaniae discitis after discogram in an immunocompetent patient. Spine J. 2011 Oct;11(10):e1-6. doi: 10.1016/j.spinee.2011.09.004. PubMed PMID: 22005083.
5)
Thavarajasingam SG, Vemulapalli KV, Vishnu K S, Ponniah HS, Vogel AS, Vardanyan R, Neuhoff J, Kramer A, Shiban E, Ringel F, Demetriades AK, Davies BM. Conservative versus early surgical treatment in the management of pyogenic spondylodiscitis: a systematic review and meta-analysis. Sci Rep. 2023 Sep 20;13(1):15647. doi: 10.1038/s41598-023-41381-1. PMID: 37730826.
6)
Bigdon SF, Vialle E, Dandurand C, Scherer J, Camino-Willhuber G, Joaquim AF, Chhabra HS, El-Sharkawi M, Bransford R, Fisher CG, Schnake KJ, Schroeder GD; AO KF Trauma and Infection Members. Streamlining the Journey of Research Into Clinical Practice: Making Your Patients and Practice Flourish Evaluation and Treatment of Pyogenic Spondylodiscitis of the Spine: AO Spine Knowledge Forum Trauma and Infection. Global Spine J. 2025 Jan 24:21925682251316814. doi: 10.1177/21925682251316814. Epub ahead of print. PMID: 39852953.