

Sp61: What are the indications for 360-degree spinal fixation and anterior reconstruction in pyogenic spinal infections, and does it lead to better outcomes compared to posterior stabilization alone?

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Recommendation:

Both anterior and posterior techniques demonstrate significantly improved clinical outcomes for the surgical treatment of pyogenic spinal infection. However, there is conflicting evidence regarding which technique leads to better outcomes. In general, anterior reconstruction is indicated when there is severe anterior destruction, instability, kyphotic deformity, abscess formation, or neurological compromise. This approach may lead to better outcomes in terms of spinal stability, deformity correction, and neurological recovery. However, for less complex cases, posterior-only fixation may be sufficient and carries a lower risk of morbidity.

Strength of Recommendation: Moderate

Delegate Vote:

Rationale:

In a comparative study of 55 patients who underwent an anterior approach followed by posterior fixation versus 60 patients who received posterior fixation only, Wang et al. (2) found that the anterior intervention might still be necessary in cases with abscesses or more complicated infections. However, the posterior-only approach resulted in better outcomes and fewer complications. Similarly, in 2023, Duan et al. (10) compared the therapeutic efficacy of single posterior surgery (73 patients) and combined posterior-anterior surgery (46 patients) for lumbar tuberculosis. They concluded that while single posterior surgery is less invasive, it showed a slower rate of recovery of TB lesions. In contrast, the combined posterior-anterior surgery led to a faster recovery of abscesses and TB activity but was a more invasive procedure. The authors recommend using the anterior approach when there are large paravertebral abscesses or fluid abscesses on the anterior side.

Safran et al. (9) evaluated the efficacy and clinical outcomes of sequential or simultaneous anterior and posterior surgical approaches. The study found that while both approaches were effective, the combined anterior-posterior approach provided better correction of kyphotic deformity, particularly in the thoracolumbar and lumbar regions. Dimar et al., in a case series of 42 patients who received anterior debridement and fusion followed by delayed instrumented posterior fusion, reported effective infection management, neurological recovery, and structural support. (12) The authors concluded that anterior debridement and strut grafting provide initial stability, while delayed posterior fusion enhances spinal stabilization.

Future Directions for Research

The group recommends conducting randomized controlled trials or prospective studies to compare anterior, posterior-only, and 360-degree spinal fixation. Additionally, we recommend defining

whether posterior osteotomy (intradiscal or intraosseous) should be considered a form of 360-degree spinal fixation.

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