

Novel Surgical Treatment Strategies for Unstable Lumbar Osteodiscitis: A Three Patient Case Series

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Introduction

Surgical treatment of lumbar osteomyelitis is indicated when medical management fails or when patients present with spinal instability or neural compromise. Achieving successful arthrodesis can be difficult in these patients, and can sometimes require alternative surgical techniques.

Methods

This study reports on 3 novel methods for achieving successful arthrodesis in patients with lumbar osteomyelitis. In the first method, a vascularized iliac crest graft on a quadratus lumborum pedicle was utilized. In the second method, an anterior approach with debridement of the affected lumbar levels was followed by rotation of a vascularized iliac crest graft on an iliacus muscle pedicle into the anterior lumbar defect. In the third method, structural, nonvascularized iliac crest graft was harvested via a lateral approach to provide better surgical access and an autologous, tricortical bone graft which is placed in the debridement defect.

Results

Most recent followup imaging in each case suggests successful early incorporation of the grafts into their respective fusion beds. The first patient developed pseudoarthrosis 2 levels below where the vascularized graft was used. During surgical revision, the vascularized graft was explored and found to be incorporating well into the surrounding bone with maintained vascularity. The second patient developed a postoperative infected hematoma. Given that this patient's bone graft was vascularized, we were able to treat the graft in situ with IV antibiotics.

Conclusions

Certain patients with multiple risk factors for pseudarthrosis and recurrent infection will likely require an alternative surgical strategy for augmenting fusion. These patients are likely to benefit from vascularized or nonvascularized autografts. This study describes three novel methods for performing lumbar debridement, fixation, and fusion in the lumbar spine using vascularized or nonvascularized autograft. These methods furthermore accommodate posterior, anterior, and lateral surgical approaches. Further experience with these techniques is required to compare outcomes with traditional

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of surgical techniques that augment fusion rates in patients with lumbar osteomyelitis, 2) Discuss, in small groups, the advantages and disadvantages of these surgical techniques in treating patients at high risk of pseudoarthrosis, 3) Identify effective alternative surgical strategies for augmenting fusion rates in patients with lumbar osteomyelitis.

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