Operative Treatment of Bertolotti Syndrome: Resection versus Fusion

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Background/Introduction: Bertolotti Syndrome is an anatomic abnormality of an enlarged transverse process of the most caudal lumbar vertebrae that creates a pseudoarticulation or fusion to the sacrum and can cause low back pain. Although Bertolotti Syndrome was first described nearly a century ago, the paucity of published literature of this rarely recognized anatomic variant has left uncertainty regarding its clinical significance and the optimal treatment of a symptomatic Bertolotti joint.

Materials/Methods: A retrospective chart review identified patients with Bertolotti Syndrome who underwent operative treatment, consisting of either Bertolotti joint resection or fusion across the abnormal transitional lumbosacral vertebrae. Patients with other symptomatic operative spinal disease were excluded. Collected variables included basic demographics, presenting symptom(s) and duration, Castellvi imaging classification, pre-operative Bertolotti joint injection, and outcomes for operative treatment.

Results: Twenty-nine patients (nine men, 20 women) were identified for inclusion in the study with an average age of 40 ± 16 years, BMI of 27 ± 5, and follow up of 38 ± 46 months. Most patients presented with back pain (79%) or leg pain (45%) for an average duration of 59 ± 52 months. Twenty-one patients (72%) presented with a Castellvi subtype 2a Bertolotti joint with CT as the most common method for radiographic diagnosis (52%). Nineteen patients (66%) had a targeted Bertolotti joint injection with 16/19 (84%) having a positive response. When comparing long term pain improvement (>12 months) after fusion (n=10) versus joint resection (n=19), more fusion patients reported improvement in their pain (80%) compared to joint resection (32%, p-value = 0.007). There was not a statistically significant difference in the short-term pain improvement (<6 months) between the fusion (100%) and resection (79%, p-value = 0.268) patients. There was no statistically significant difference between the two groups in terms of age, sex, BMI, symptom duration, follow up, Castellvi subtype, and complication rate.

Discussion/Conclusion: Patients with Bertolotti Syndrome who underwent surgical fusion across the transitional lumbosacral vertebrae had a higher rate of long-term pain improvement compared to patients who had resection of the abnormal pseudoarticulation.
Bertolotti Joint Resection versus Fusion

P-value = 0.007

Percentage of Patients

Resection Fusion

Short Term Pain Improvement: 79% (Resection), 100% (Fusion)
Long Term Pain Improvement: 32% (Resection), 80% (Fusion)