

10-Yr Follow-up for Adolescent with Low Back Pain & Symptomatic Lumbo Sacral Transitional Vertebra/Bertolotti's Syndrome: A case study

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ABSTRACT

CASE HISTORY: A 16-yr old female presented a lower back pain (LBP) with significant axial pain extending bilaterally to buttocks and anterolateral thighs. Past health history revealed laminectomy for removal of a benign tumor on L4/L5 at 8-yr old and structural scoliosis (e.g., C-curve). Computed tomographic (CT) scans of the lumbosacral spine conducted 10 years prior revealed: an abnormal articulation between the L5 transverse processes and the sacrum ala bilaterally with 5 regular lumbar vertebrae and a transitional vertebra (L6); there was no evidence of disc degeneration or spinal nor foraminal stenosis. Initial diagnosis revealed lumbosacral transitional vertebra (LSTV), however classification wasn't proposed due to patient of adolescent age. LBP was stated to be potentially due to a complicated case of Bertolotti's syndrome (BS). Conservative therapy was recommended and a follow-up post-pubertal changes to see if articulating surfaces fused with time and determine if disc above the LSTV incurred degeneration. **PHYSICAL EXAM:** Recent physical exam revealed no lack of strength bilaterally in lower extremities. The LBP intensity on a numeric rating scale was 7/10 and Oswestry score of 33 (moderate disability). LBP affected by prolonged sitting or standing and presenting tenderness. Provocative factors included forward flexion-based movement and restricted mobility in back extension-based movement. **DIFFERENTIAL DIAGNOSES:** Disc degeneration or herniation; facet joint arthrosis; spinal canal or foraminal stenosis. **TESTS & RESULTS:** CT scan for comparison with initial diagnosis were ordered; complete lumbarization/sacralization with complete fusion with the neighboring sacral basis with no disc herniation or degeneration. **FINAL DIAGNOSIS:** CT scan revealed LSTV classification type III. **DISCUSSION:** LSTV are congenital spinal anomalies with variation of L5 in which enlarged/elongated transverse processes form a joint or fusion with sacrum or ilium. BS is stated to be the association of LSTV with LBP with change in biomechanical properties of the lumbar spine, however, the etiology of pain is unclear. The contact between bones at the pseudo-articulation has been debated as a source of pain which can be manifested as sacroiliac, hip, groin or imitating an L5 radicular pain. Infiltration with local steroids and anesthetics, along with positive imaging are useful diagnostic tool to study BS and pain generator – more specifically which patients have pain generator exclusively at the pseudo-articulation (complete relief of pain after the injection) and which patients have pain due to the irritation of L4 or L5 nerve root. In rare cases, patients with negative response to injections are candidates to more complex procedures such as resection of L5 transverse process and decompression with varied results. **OUTCOME OF THE CASE:** Patient received an interlaminar and a transforaminal epidural steroid injection with negative response. **RETURN TO ACTIVITY AND FURTHER FOLLOW-UP:** Despite the steroid injections, muscle relaxants and an aggressive physical therapy rehab regimen (core strengthening, stretching/flexibility, hydrotherapy, massage therapy) has been unsuccessful in pain mitigation. Resection of the abnormality has been proposed. Further research is warranted, given the pathophysiology of BS remains obscure and there being no consensus about the most appropriate therapy/management of disorder in each patient especially for younger populations.