CASE REPORT OF LUMBOSACRAL TRANSITIONAL VERTEBRA (BERTOLOTTI'S SYNDROME)

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PRESENTATION OF CASE

Lumbosacral transitional vertebra is an anatomical variation of the fifth lumbar vertebra. Transverse process becomes enlarged and forms a joint or fusion with the sacrum or ilium. In young people with low backache, one must consider it as a differential diagnosis. We report two cases with lower back pain and sciatica.

One case is of a 24-years-old girl who presented with a history of low back pain for a period of 18 months. Pain radiated to the left leg. She didn't have any co-morbidities. She took non-steroidal anti-inflammatory drugs for 12 months, but pain was not relieved. The second case is of a 26-years-old girl who presented with a history of lower backache for a period of 14 months. Back pain is radiating to right leg. She didn't have any co-morbidities. She had taken non-steroidal anti-inflammatory drugs for 12 months and local steroid one time but pain still persistent. It is not a rare anatomical variation. Incidence of Bertolotti's syndrome is 4% to 21%^{2,3}. Recently a very high incidence of 30% has also been reported³. Some authors opine that the transitional vertebrae cause symptoms of back pain or sciatica, some authors claim that this doesn't affect their incidence.^{4,5}

Case Report 1

Physical examination revealed an antalgic gait and tenderness at the lower lumbar region and left posterior iliac and sacral region. Lasegue's sign/ Bragard's sign is positive on left side. There were no motor and sensory deficits. Reflexes were normal, Babinski's sign was equivocal. There was no distal vascular deficit.

Plain x-ray and MRI done. Plain x-ray shows pseudo articulation of left L5 transverse process and the sacrum (Figure 1). MRI scan shows degeneration of disc at L4-L5 level with no stenosis.

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Figure 1(a). Pre-Operative X-Ray L-S Spine Anteroposterior (AP) View Shows Pseudo-Articulation of L5 with Sacrum on Left Side

Figure 1(b). Diagrammatic Representation Showing Pseudo-Articulation

Figure 2. Post-Operative X-Ray L-S Spine AP View Shows Resected Area with Restoration of the Gap Between L5 Transverse Process and Sacrum on Left Side

Figure 3. Pre-Operative X-Ray of L-S Spine Anteroposterior (AP) View Shows the Enlarged Transverse Process of L5 Fusing with Sacrum on Right Side

Figure 4. Post-Operative X-Ray AP View of Lumbar Sacral Spine Shows Resected Area with Restoration of Gap Between Transverse Process of L5 and Sacrum

In view of chronic pain and non-relief of symptoms with medical and physiotherapy treatment, surgical excision of the pseudo-articulation of the left L5 transverse process with the sacrum was done (Figure 2). Patient became pain free after excision. The pre- and post-operative x-rays shows the restoration of normal gap between the transverse process and the sacrum.

Case Report 2

On examination shows antalgic gait, tenderness at lower lumbar region and at right posterior iliac and sacrum. Lasegue's sign/ Bragard's sign is positive on right side. Motor examination reveals EHL (Extensor hallucis longus) power 3/5, ankle dorsiflexion 4/5 power, reflexes normal, Babinski equivocal, no distal vascular deficit.

Plain x-ray and MRI done. Plain x-ray shows pseudo articulation of right L5 transverse process and sacrum (Figure 3). MRI scan shows disc degeneration at L4-L5 with posterolateral bulge on right side.

In view of chronic pain and non-relief of symptoms with medical and physiotherapy treatment, surgical excision is planned. Surgical excision of the pseudo-articulation of the right L5 transverse process with the sacrum was done (Figure 4). The pre and post-operative x- rays show the restoration of normal gap between the transverse process and the sacrum.

DIFFERENTIAL DIAGNOSIS

- Prolapsed intervertebral disc
- Lumbar muscular strain
- Spinal stenosis
- Vertebral discitis

DISCUSSION OF MANAGEMENT

Bertolotti's syndrome patients on examination clinically didn't reveal much information. Clinically tenderness present at the lower lumbar region severity range from mild to moderate level, particularly around the pseudo-articulation. Spine range of movements limited during acute episodes of pain and sometimes normal when there is no pain. Occasionally, there may be radicular signs. Diagnosis is based on radiological study and their correlation with clinical presentation. Plain x-ray of the lumbar-sacral spine AP view showing the presence of an enlarged transverse process of the L5 vertebra forms a joint with the sacrum or the ilium.

According to Castellvi's classification² four types present, type I- dysplastic type transverse process (Height > 19 mm),

Type II- incomplete lumbarisation/sacralisation, type III- complete lumbarisation/sacralisation with complete fusion with the neighbouring sacrum and type IV- mixed. There is association between lumbosacral transitional vertebra and disc herniation and facet joint degeneration. Discs immediately above the transitional vertebra were significantly more degenerative (Disc protrusion or extrusion) compared with the disc found between the transitional vertebra and the sacrum.^{3,6} Luoma et al⁷ hypothesized that pseudo-articulation at L5-S1 restricts rotational and bending movements and the L5-S1 disc is protected from trauma. Aihara et al⁶ study of 70 cadavers reported that the iliolumbar ligament at the level immediately above the transitional vertebra is much thinner and weaker, especially the posterior bands of the ligament had the appearance of fascia and at the level of lumbosacral transitional vertebra it is dense fibrous connective tissue, because of this disc degeneration occur at higher vertebral levels more frequently than level L5-S1. Marks and Thulbourne⁸ studied 10 patients with chronic low backache who had given a steroid and local anaesthetic infiltration for pseudo- articulation, immediate pain relief was found in 8, but only one patient remained pain free for 2 years. Jonsson et al⁹ study reported relief of symptoms in 9 out of 11 patients who received an injection of local anaesthetic into the pseudo-articulation. However, these Patients underwent surgical excision of the pseudo-articulation because of recurrence of pain. Santavirta et al¹⁰ said that when the non-operative treatment fails then resection of the abnormal transverse process can be tried. Bertolotti's syndrome¹ fail to respond to non-surgical treatment that includes NSAIDs, life style activity modification and local anaesthetic and steroid injections, then surgical excision is indicated. In our two cases we identified that pain generator is the articulation between the transverse process of the L5 vertebra and the sacrum (Type II Castellvi's) based on radiographic imaging. We treated initially by conservative methods for a period of 12 months, even then no symptomatic relief. Then we excise the pseudo-articulation because of failure of conservative management. After excision patient becomes symptom free.

FINAL DIAGNOSIS

Bertolotti's Syndrome

In chronic lower back pain in younger patients one must always include Bertolotti's syndrome as a differential diagnosis. Thoroughly evaluated to identify the cause of pain. Assessment is done by proper history taking, physical examination and radiological imaging. Failure to identify it leads to misdiagnosis and sub-optimal management. Plain x-ray of lumbar sacral spine anterior-posterior (AP) view confirms the diagnosis of Bertolotti's syndrome. Failure of non- surgical treatment in Bertolotti's syndrome surgical excision to be done to relief pain.

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