Bertolotti’s Syndrome: A Case Report

Jung Eun Kim¹, Sang Sik Choi¹, Mi Kyung Lee¹, Sang Hoon Park¹, Keon Sik Kim², Sung Wook Park², Dae Hee Jeong²

Department of Anesthesiology and Pain medicine, Korea University Guro Hospital, Seoul, Republic of Korea¹, Department of Anesthesiology and Pain medicine, Kyung Hee Medical center, Seoul, Republic of Korea²

Introduction

Bertolotti’s syndrome (BS) was first described in 1917 as enlarged lower lumbar transverse processes which articulate with the sacrum or ilium.(1) BS refers to a total or partial unilateral or bilateral fusion of the transverse process of the lowest lumbar vertebra to the sacrum. These anomalies articulate or fuse with the sacrum or ilium and are associated with low back pain. The overall incidence of BS has been reported to be between 4% to 8% in patients with low back pain (2,3) and it is an important cause of low back pain in young patients. But there is no agreement as to the best method of treatment for BS patients. Low back pain in BS has been addressed by various methodologies but there is no consensus regarding definitive management. We present a case report of a patient with symptomatic Bertolotti’s syndrome managed successfully with fluoroscopically guided steroid injection.

Case Report

A 23-year-old female patient presented to pain clinic department at Korea University Hospital with 2 weeks history of low back pain. The patient’s pain was located in the low back, with radiation to the left buttock. The pain was not affected by prolonged sitting or standing. The pain intensity on visual analogue scale (VAS) was 8/10, she didn’t sleep because of pain.

Physical examination revealed normal reflex, sensation, and muscle strength in both lower limbs, and the straight led raise test was positive with radiating pain in the left leg at 45 degrees. Patrick’s test, gaenslen’s test, pelvic compression test was all negative. X-ray of lumbar spine revealed an abnormal articulation between the L5 transverse process and the medial aspect of the ilium at left side, consistent with Bertolotti’s syndrome (Fig. 1). An MRI of the lumbar spine was also reviewed left pseudoarthrosis with between the transverse process and ilium, but no significant central or foraminal stenosis.

As the patient’s clinical examination and radiographs were consistent with the articulation between the left L5 traverse process and ilium as a possible source of pain, We decided to administer local anesthestic and corticosteroid into the transverse process—ilium articulation.

The skin was prepared with 2% alcohol-chlorohexidine and draped in a sterile fashion and 22 gauge Quincke spinal needle was advanced into the
Fig. 1. Lumbar x-ray image of Bertolotti’s syndrome. White arrow: Abnormal articulation between the L5 transverse process and ilium.

Fig. 2. MRI image of Bertolotti’s syndrome. White arrow: Abnormal articulation between the L5 transverse process and ilium.

articulation between the transverse process and ilium with fluoroscopic guidance. Once the needle tip was felt to slip into the joint, 0.5 mL of contrast was injected into an articulation between the left transverse process and the ilium (Fig. 2). After confirming the needle tip placement, 0.19% ropivacaine and 10 mg of triamcinolone acetate was injected (Fig. 3).

At 2 weeks follow-up, the patient’s VAS decreased from 8/10 to 3/10.

Discussion

In 1917 Bertolotti described anomalous enlargement of the transverse process of the most caudal lumbar vertebra, which could articulate or fuse with the sacrum or ilium and be associated with low back pain. Bertolotti’s syndrome (BS) may account for 4%~8% of adult patients with low-back pain (9-13) and for more than 11% of patients with low back pain who are under 30 years old. (8) Quinlan et al. 2 reported a higher incidence of low back pain in the younger patient population with BS.(2)

The etiology of pain in symptomatic cases of BS is unknown. A possible etiology for pain includes the
articulation of the transverse process and ilium and resulting degenerative changes. Alternatively, the fused transitional vertebrae may result in instability above the level of the fusion. Elster et al. found that the incidence of degenerative disc disease and spinal stenosis was nearly nine times higher in the level adjacent to the to the transitional vertebrae. Cases are often associated with transitional vertebrae and there may be six lumbar vertebrae. These changes are associated with disc degeneration or instability, suggesting that there may be abnormal biomechanical stress above the fusion.(3) Our case suggests that the articulation between the transverse process and ilium may contribute to a portion of the pain and it was associated with axial low back pain secondary to arthritic changes.

Patients diagnosed with BS based on radiological findings: X-ray of the lumbosacral spine, bone scan, MRI, or CT scan. Plain X-ray of the lumbosacral spine is excellent in identification of BS but may be inadequate in the cases of patients with milder hemisacralization. Therefore, the patient estimated BS in clinical symptom and plain x-ray are advised to further evaluate by bone scan, MRI, or CT scan. It may prove to be an important tool in the armamentarium of pain physicians in evaluating patients with BS.

There are several treatment options for the syndrome but there is no consensus regarding definitive management. Initial treatment of Bertolotti’s syndrome typically includes pain management and physical therapy.(14) Injections of steroids or local anesthetics into the articulation site can be both diagnostic and provide pain relief.(15-17) Santaveri et al. reported a small series of 16 patients managed with resection, 10 of the 16 were found to have some improvement in their low back pain symptoms.(7) But Surgical resection had varied results.(4,5) In that study 6 of the 16 patients had temporary relief with local anesthetic challenge which did not correspond well with the efficacy of subsequent resection. Accordingly, surgical resection with decompression sheds little light on the etiology of pain in Bertolotti’s syndrome.(16)

The first challenge is to identify the patient with Bertolotti’s syndrome. The young patient with axial low back pain was visited and suspected BS, the physician should take a x-ray and other radiologic tools if needed. We present a case report of a patient with symptomatic BS managed successfully with c-arm guided steroid injection into the articulation between the transverse process and ilium. A simple steroid injection into the articulation between the transverse process and ilium may offer a simple initial diagnostic and therapeutic step in the management of Bertolotti’s syndrome.

Abstract

Bertolotti’s syndrome refers to a total or partial unilateral or bilateral fusion of the transverse process of the lowest lumbar vertebra to the sacrum. These anomalies articulate or fuse with the sacrum or ilium and are associated with low back pain. But there is no agreement as to the best method of treatment for Bertolotti’s syndrome patients. We present a case report of a patient with symptomatic Bertolotti’s syndrome managed successfully with fluoroscopically guided steroid injection.

Key Words: Bertolotti’s syndrome, low back pain, transverse process

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