

Case Report

Discovering a rare cause for backache – A case report in Bertolotti syndrome

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Abstract:

Bertolotti syndrome is one of the rare causes of chronic backache in all age groups. It is caused by an abnormally enlarged transverse process called “mega-apophysis” articulating with the sacrum or ilium leading to altered biomechanics of the spine.

A 16-year-old school-going girl with Castelli’s type II A was managed successfully with steroid and local anesthetic infiltration into the pseudoarticulation. An internet-based literature survey was conducted and the results were analyzed. 12 studies that describe the treatment modality of bertolotti syndrome were found.

The local infiltration of steroid and anesthetic agents can be used to diagnose or treat this entity. Recurrence of symptoms following infiltration deserved excision of mega-apophysis.

Keywords

Bertolotti syndrome, Lumbosacral transitional vertebra, Mega-apophysis, Radiofrequency ablation, Local steroid injection

Introduction

Bertolotti syndrome is a commonly missed diagnosis for chronic back pain. An abnormally enlarged fifth lumbar vertebral transverse process (mega-apophysis/ Lumbertrastional vertebra) fused with sacrum or ilium resulting in pseudoarthrosis and chronic arthrosis. These changes affect the biomechanism of spinal moments which result in chronic back pain. The incidence of Bertolotti syndrome among chronic back pain is about 4 to 8%. We shared our experience in the management of Bertolotti syndrome which was treated with fluoroscopic-guided intraarticular steroid injections.

Case report

An eighteen-year-old healthy schoolgirl, presented with a history of severe lower back pain confined to the left side of the sacral region for six-month duration. The severity of the pain increased gradually over the last month. It is an aching type of pain that is worsened by physical activity and relieved with rest. It is not radiating to the legs, and she had no neurological



Figure 1



Figure 2

Figure 1 : (anterior posterior view of lumbosacral x-ray) & 2 shows (Lateral view of lumbosacral x-ray) shows an enlargement of the left transverse process of the fifth lumbar vertebra with articulate with the sacrum



Figure 3

Figure 3 shows a Coronal section of computer tomographic view of lumbosacral region shows pseudo articulation of left fifth mega apophysis of transverse process of the fifth vertebra with the sacrum (Castellvi's classification type II a). facet joints are unremarkable.

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weakness nor numbness. On examination, she was of average built body person. She had an antalgic gait. She also had paraspinal tenderness at the sacral region, the left FABER test was positive, the lasague test was negative and the rest of her clinical examinations were normal. Her initial orthogonal views lumbosacral X-rays revealed pseudo articulation between mega-apophysis of the left fifth lumbar vertebral transverse process and the sacrum. A Computer tomographic study revealed a hypertrophic left fifth lumbar vertebral transverse process with pseudo articulation with the left sacral ala indicating type IIa lumbosacral transitional vertebra (Castellvi's classification).

The facet joints are unremarkable. The bony spinal canal appears normal. Her blood investigations reveal inflammatory markers are at a normal level.

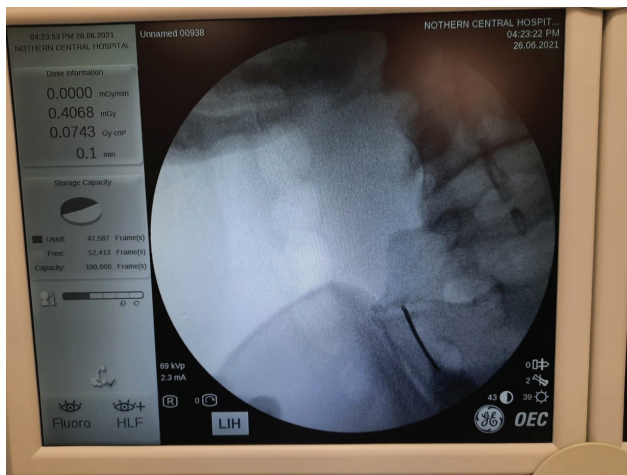


Figure 4

Figure 4 and 5 shows the intra operative image intensifier images of infiltration of local anaesthetic and steroid injection into the pseudo articulation.



Figure 5

Local infiltration of steroids with a local anesthetic solution to the articulation between the left fifth transitional vertebra and sacrum was performed in the theater under an aseptic method with the use of an image intensifier. The post-operative period was uneventful. She was prescribed analgesics and advised to have regular physiotherapy. Four weeks after the injection she has completely improved. She was advised to maintain regular physiotherapy and maintain optimal body mass index.

Discussion

Bertolotti syndrome is chronic back pain caused by a congenitally enlarged transverse process of the fifth lumbar vertebra either unilaterally or bilaterally. The incidence of an enlarged fifth lumbar vertebra is 20% in the normal population whereas only 4 – 8% presented with chronic back pain syndrome(1). Articulation between the fifth lumbar vertebral transverse process with the sacrum or ilium causes biomechanical changes in the spinal column and degenerative change which leads to chronic pain in that area(2). Castellvi classified the lumbosacral transitional vertebra in the anterior-posterior view of the plain radiography into four types(3). Each type is subclassified into a or b according to the presence of unilateral or bilateral precess of lumbosacral transitional vertebra respectively.

Type I	dysplastic transverse process
Type II	Lumbarization / Sacralization with enlarging of the transverse process forms a diarthrosis with the sacrum
Type III	Fusion of the transverse process with the sacrum
Type IV	Mixed type on both sides (it includes unilateral type II with type III on the contralateral side)

Initially, it was thought that the etiology of pain in Bertolotti syndrome was unknown. However recent studies suggest that abnormal biomechanical stress due to the fusion and the degenerative changes are the main reason for the pain(4). Abnormally fused vertebra causes instability and mobility more on above vertebra than below which leads to degenerative changes in the disc(4). The iliolumbar ligament on the above level of a patient who suffered from lower back pain was also found to be weaker and thinner which further adds to the

pathophysiology(4). The incidence of disc degeneration in an above-level vertebra is 63.5% and in a below-level vertebra is 37%(3). The incidence of lumbar disc herniation with the Bertolotti syndrome is 17% and in the control group 11%(5).

first-line treatment for bertolotti syndrome is conservative management with physiotherapy, muscle strengthening programs, analgesics, and local infiltration of corticosteroids (5). The guided local infiltration of corticosteroids can be used as a treatment modality as well as a diagnostic tool. Surgical resection of the enlarged transverse process is reserved for failed conservative management. The radiofrequency ablation of the never which supplies the abnormal articulation (rhizolysis) is also an intervention discussed in the literature(6).

Steroid injection with a local anesthetic solution into the pseudo articulation will help diagnose and treat patients with symptoms. Good responders to the injection are managed with continuing physiotherapy and analgesics. Transient responders were allocated for surgical resection. Non-responders have undergone a second injection and if they have not responded to it should be evaluated for other causes of back pain(5).

In the literature santaveri et al(7) have compared the management with surgical resection and conservative management of Bertolotti syndrome with eighteen patients. They found surgical outcomes are slightly better than those of conservatively managed patients. However, there are no large population studies available in the existing literature to suggest surgical resection is superior. Local anesthetic and corticosteroid injection into the pseudo articulation is a diagnostic as well as a therapeutic procedure that should be tried before surgical procedures

Conclusion

Bertolotti syndrome is a rare cause of chronic back pain which is commonly missed during the treatment process. Although a combination of local anesthetic

and steroid combination of local infiltration reduces the symptoms temporarily in many patients, It should be tried as first-line therapy as well as a diagnostic test in a patient with Bertolotti syndrome.

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