

## Low back pain from Bertolotti's syndrome: A not-so-uncommon aetiology

Sir,

Lumbosacral transitional vertebra (LSTV) is a variation in which enlarged transverse process of caudal-most lumbar vertebra can abnormally articulate with the ala of sacrum or iliac crest. This is known as "Bertolotti's syndrome" (BS) and can cause chronic low back pain (CLBP). BS affects 4%–8% of the population and is often underdiagnosed.<sup>[1,2]</sup> We report a case of BS with CLBP which was missed by earlier physicians and eventually got better after injection of pseudoarthrosis.

A 48-year-old woman presented to our pain clinic with left side LBP for 8 months. Her pain was located mostly around left side upper sacroiliac joint (SIJ) with occasional radiation to left buttock. Her pain was aching, throbbing and stabbing in nature. Prolonged sitting and turning around the bed used to aggravate her pain.

She had seen many specialist doctors with temporary relief from medications like anti-inflammatory, tramadol, pregabalin and amitriptyline. She already had a magnetic resonance imaging (MRI) spine which showed degenerative disc disease at L4/5 and L5/S1 level but without significant nerve compression. She also reported to have had a left SIJ injection with

steroid by another physician 6 weeks ago, but again without significant pain relief.

On examination, we found that she had tenderness over left side lower lumbar paraspinal area. Movement of lumbar spine like extension and rotation was painful. Rest of the examination was normal. The lumbar spine X-ray showed an enlarged left L5 transverse process leading to pseudoarticulation with sacrum ala [Figure 1a].

We suspected BS with pseudoarticulation as the source of pain and planned for diagnostic injection into the pseudoarticulation. After informed consent, 2 ml of 0.5% bupivacaine with 40 mg depomedrol injection was done under C-arm with a 22 gauge spinal needle [Figure 1b]. The patient reported complete relief of her symptoms following the procedure. She was recommended home-based back exercise. At 1-, 3- and 6-month follow-up, the patient reported excellent pain relief and better quality of life.

LBP is one of the most common conditions for seeking medical advice.<sup>[3]</sup> Common pain generators include facet joints, SIJ, intervertebral disc or nerve root.<sup>[4]</sup> BS as a cause of LBP is not considered in diagnostic algorithm and, hence, remains an underdiagnosed entity.

It is often challenging to accurately diagnose BS because of lack of specific clinical signs. Common findings in BS patients are nonspecific tenderness in the back and limitation in the ranges of motion.

Pseudoarticulation can sometimes mimic as if pain is stemming from SIJ, facet joints and hip.<sup>[5]</sup> To improve the diagnostic accuracy from plain radiographs, Castellvi *et al.* suggested 30° angled anteroposterior view and classified the pathology into 4 types [Table 1].<sup>[6]</sup>

Our patient presented with axial LBP and we, pain physicians commonly think of facet joint or SIJ as possible pain generators and proceed for diagnostic injections.<sup>[4]</sup> As the patient's pain was around the SIJ, the previous physician did SIJ injection. The failure of SIJ injection made us to analyse the radiograph and, thus, led to the diagnosis of BS. We postulated that the pseudoarticulation is the source of pain and proceeded with the injection of local anaesthetic (LA) and steroid which provided complete pain relief. Had the injection failed, we would have considered facet joint nerve block to rule out facet joint pain. Similar long-lasting pain relief from pseudoarthrosis injection has been reported by other authors.<sup>[5]</sup>

In the absence of specific guidelines, Jain *et al.* approached the BS patients as per the algorithm suggested by Manchikanti *et al.*<sup>[4]</sup> Many authors believe that diagnostic LA and/or steroid injection

into the pseudoarticulation should be the first choice in cases with axial LBP.<sup>[1,2,5]</sup> Radiofrequency lesion of the pseudoarthrosis has been reported to produce long-lasting relief and can be considered.<sup>[7]</sup> In resistant cases, surgical treatment has provided a good result.<sup>[8]</sup> Finally, Jadon proposed an algorithmic approach which can be helpful for pain physicians as BS is a common presentation in younger age group.<sup>[2]</sup>

In conclusion, BS is not an uncommon cause of LBP and should be considered in the differential diagnosis of CLBP. Our case report clearly shows how BS can be easily missed, thus, delaying the diagnosis. Diagnostic injection of pseudoarticulation with LA and/or steroid should be considered as first option in axial LBP.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

**Rajendra K Sahoo, Rajesh Kar, Roushan Patel, Ashok Jadon<sup>1</sup>**

Department of Anaesthesiology and Pain Management, HealthWorld Hospitals, Durgapur, West Bengal, <sup>2</sup>Chief Medical Superintendent and Head, Department of Anaesthesia and Pain Relief, Tata Motors Hospital, Jamshedpur, Jharkhand, India

**Address for correspondence:**

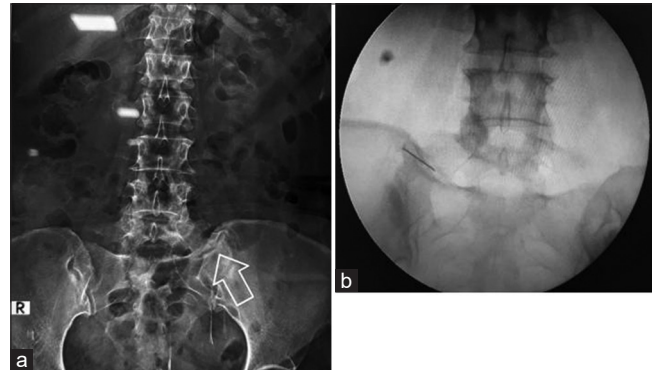
Dr. Rajendra K Sahoo, Department of Anaesthesiology and Pain Management, C-49, Commercial Area, Gandhi More, HealthWorld Hospitals, Durgapur - 713 216, West Bengal, India. E-mail: sss.raaj@gmail.com

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**Figure 1:** (a) Lumbosacral spine anteroposterior radiograph shows enlargement of last lumbar transverse process of left side with pseudoarticulation formation with sacrum ala (white arrow). (b) C-arm guided needle placement for injection of pseudoarticulation

Table 1: Castellvi's classification for lumbosacral transitional vertebrae <sup>[6]</sup>		
Type	Description	Anatomic features
Type 1	Dysplastic transverse process	Unilateral (a) or bilateral (b) large transverse process (>19 mm wide).
Type 2	Incomplete lumbarisation/sacralisation	Enlarged transverse process, with unilateral (a) or bilateral (b) pseudoarthrosis with the sacral ala.
Type 3	Complete lumbarisation/sacralisation	Enlarged transverse process, with unilateral (a) or bilateral (b) complete fusion with the sacral ala.
Type 4	Mixed	Type IIa on one side and type IIIa on the other

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