Fluoroscopic-Guided Pseudoarticular Injection for Bertolotti Syndrome in an Elderly Male With Refractory Low Back Pain

Zachary Lin, D.O.; Benjamin Eike, D.O.

THE UNIVERSITY OF TEXAS MEDICAL BRANCH

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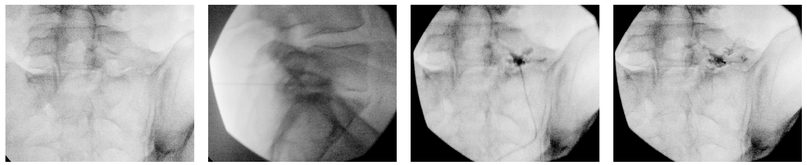
Case Presentation

- **79-year-old male**, postal worker, referred from Neurosurgery for **right-sided sharp lower back pain**, ~3 months, no inciting event.
- Pain worsened with **recumbency and forward flexion**; localized to the **right lumbosacral junction**.
- Constant ache with **episodic exacerbations** triggered by rotation and lifting during occupational activity.
- **Failed prior treatments:** acetaminophen and hydrocodone/acetaminophen without relief; right **sacroiliac (SI) joint injection** without therapeutic benefit; completed prior physical therapy; continues 3–4 home exercises daily.
- The **negative SI injection response** prompted reconsideration of the pain generator and closer review of the transitional lumbosacral anatomy.
- **Past medical history:** coronary artery disease, chronic kidney disease stage 3, hyperlipidemia, hypertension.
- **Medications:** cyclobenzaprine 5 mg (once daily before work, due to prior sedation), gabapentin 300 mg QHS, curcumin, acetaminophen, nifedipine. **NSAIDs contraindicated** due to cardiac disease; aspirin only.

Physical Exam

- General appearance, gait, and psychiatric exam normal.
- Lumbar **spinous-process tenderness: negative**; lumbar **paraspinous tenderness: positive, right lower**.
- Lumbar **range of motion: normal**; **facet loading: negative**. **SI joint tenderness: negative bilaterally.**
- Deep point tenderness lateral to the facet joint over the L5 transverse process–sacral pseudoarticulation on the right
- FABER/Patrick, Gaenslen, thigh thrust, distraction, compression negative
- Facet loading negative
- **Straight-leg raise negative bilaterally**, segmental motor testing (L4 knee extension, L5 dorsiflexion, S1 plantar flexion) 5/5 bilaterally, sensation intact, and patellar/Achilles reflexes 2+

Imaging



Clinical Course

Procedure

- **Index procedure — Fluoroscopic-guided right L5 TP–sacral pseudoarticular injection**
- Injectate: **triamcinolone 40 mg (1 mL), lidocaine 1% (2 mL), bupivacaine 0.25% (2 mL)**.
- AP fluoroscopy to identify the right L5 TP–S1 pseudo-articular interspace; oblique imaging for facet visualization.
- Skin anesthesia with 1% lidocaine via 25-gauge needle; **22-gauge spinal needle** advanced into the joint under fluoroscopic guidance.
- **Negative aspiration**; 1 mL Omnipaque 300 confirmed intra-articular spread; 5 mL injectate delivered without complication.

Response

- **First (index) pseudoarticular injection: 70–80% relief for ~6 weeks**, then intermittent short-lived exacerbations (triggered by rotation/lifting) — this **robust response identified the pseudoarticulation as the pain generator**.
- Plan for **radiofrequency ablation / strip lesion** of the sensory nerves around the pseudoarticulation discussed as the next step per the treatment algorithm

References

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Discussion

- Bertolotti syndrome = low back pain from a **lumbosacral transitional vertebra (LSTV)**, with enlargement of the L5 transverse process and pseudoarticulation or fusion with the sacrum
- Frequently **underdiagnosed**: 33% of LSTV cases were unidentified by the provider, leading to more numerous and less effective injections.
- **Pseudoarticulation-targeted injections** yield significantly greater symptomatic improvement than injections at other spinal sites in LSTV patients — mirrored here by the robust response to the first pseudoarticular injection after the earlier failed SI joint injection.
- The **first diagnostic-therapeutic pseudoarticular injection confirmed the pain generator**: durable relief after the SI joint injection had failed established the pseudoarticulation as the source of pain.
- Proposed **stepwise algorithm**: local anesthetic + steroid injection of the pseudoarticulation → radiofrequency ablation → endoscopic resection if needed.
- Although classically considered in younger patients given its congenital origin, **symptom onset can occur in the elderly** — LSTV belongs in the differential of low back pain across all age groups.

Conclusion

- Fluoroscopic-guided pseudoarticular injection serves as both a **diagnostic and therapeutic** tool in Bertolotti syndrome.
- **A single diagnostic-therapeutic pseudoarticular injection** — durable relief after an ineffective SI joint injection — confirmed the pseudoarticulation as the pain generator and directs subsequent care toward **radiofrequency ablation** if pain recurs.
- Maintaining clinical suspicion — including in elderly patients — prevents diagnostic delay, reduces unnecessary procedures, and guides patients toward targeted interventions within an established treatment algorithm.
- **Key teaching point for regional anesthesia and pain clinicians:** consider LSTV in refractory low back pain, target the pseudoarticulation directly, and use a condition-directed exam plus selective injections to confirm the responsible structure.

Targeted pseudoarticular injection provided 70–80% pain relief for approximately 6 weeks.