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Therapeutic Medial Branch Radio Frequency Ablation for Refractory Chronic Low Back Pain Post Annuloplasty

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Abstract: ***Facet arthropathy although less common than discogenic pain is still a predominant cause of back pain and is often a missed diagnosis. We present a case of 28 - year - old male who presented to us with low back pain, was diagnosed with annular tear and treated with annuloplasty. He had partial pain relief, and his functionality improved but his pain again increased after 6 months. Based on clinical findings a diagnosis of facet arthropathy was made and confirmed with medial branch diagnostic block followed by radiofrequency ablation which resulted in significant pain relief over 3 weeks.***

Keywords: Annuloplasty**,** Discogenic Pain, Facet Arthropathy, refractory low back pain, residual low back pain, Radio Frequency Ablation

1. Introduction

The most common cause of low back pain is a degenerated disc. Owing to the frequency and intensity of discogenic pain presentation, other causes of low back pain (LBA) are frequently missed like facet arthropathy, paraspinal muscle sprain or strain, ligament sprain or strain, and lumbar spondylolisthesis. Lumbar facet arthropathy is a condition which often coexists with degenerated disc and discogenic pain which makes it even more difficult to diagnose as the source of pain.1

We present such a case where the patient was previously treated with Annuloplasty for chronic LBA and he presented to us with residual low back pain. We diagnosed as Lumbar Facet Arthropathy as a cause of pain. A diagnostic medical branch block was done which turned out to be positive and hence Radio Frequency Ablation was done to manage the pain.

2. Case Report

A 28yr old male presented with a gradual onset axial low back pain since past 4 yrs. Pain was radiating to bilateral lower limbs till level of mid - thigh with a NRS pain score of 8 - 9/10. Aggravating factors were standing and walking downstairs and prolonged sitting more than 30 minutes. Patient complained of night pain causing disturbed sleep. Walking distance reduced to 0.5 km. Pain was associated with paresthesia and burning sensation in the lateral part of thigh. Patient felt relief on leaning forward and taking support while walking. Pain was taking multiple analgesics over the counter which gave relief for a short duration. Patient had been previously diagnosed with annular fissure at L4 - L5 and had undergone annuloplasty 8 months ago. Following Annuloplasty the severity of pain has come down with NRS score of 4 - 5/10. His ADL (activities of daily living) and ability to sit for prolonged hours have improved but patient never had a complete pain free interval.6 months post annuloplasty patient presented to us with low back pain radiating to B/L buttocks and upper thigh with NRS score of 6 - 7/10. Pain was dull aching, aggravated on bending sideways, extension and stretching during exercises. Relieved on taking rest and bending forwards. No relief with oral medications. Patient was fully evaluated with clinical examination and essential imaging. He had axial tenderness of the low back with paraspinal muscle spasm. B/L SLRT was negative. MRI had no significant findings which corelated with clinical examination. Patient was clinically diagnosed to have a L4 - 5 Facet joint Arthropathy and a diagnostic L3 and L4 medial branch block was performed under fluoroscopic guidance. Patient was followed for one week. Diagnostic block was positive with more than 50% pain relief 12 hours post procedure. The pain returned to a score of 4 - 5/10, 3 days post procedure. Radiofrequency ablation of L3 & L4 was done using Cooled Radio Frequency technology. Patient was followed up weekly for 3 weeks and NRS pain scores of 4 - 6 (1^{st} week), 2 - 4 (2^{nd} week) and 0 - 2 (3^{rd} week) were noted.

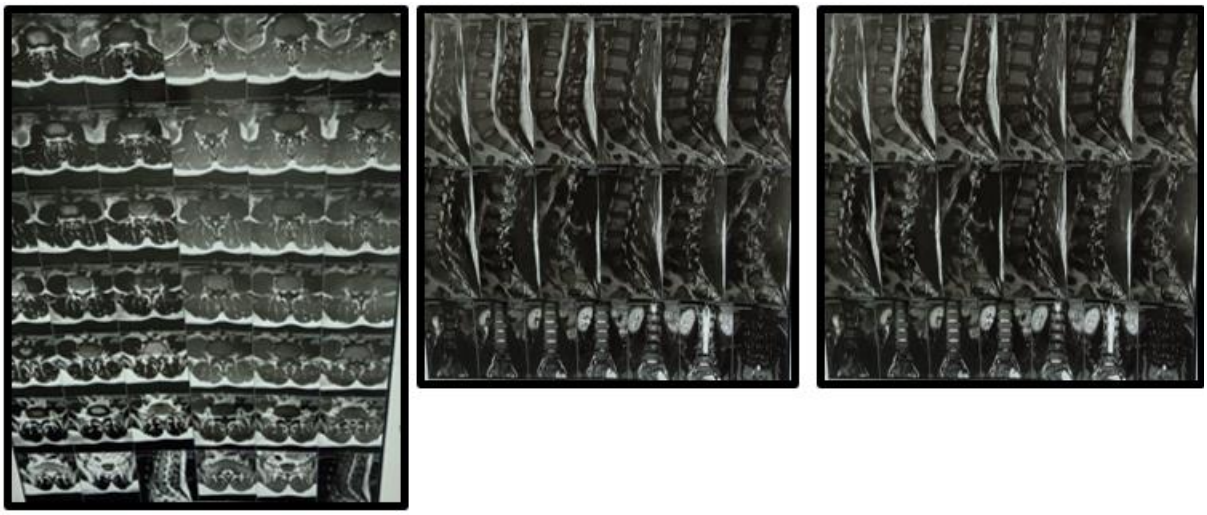
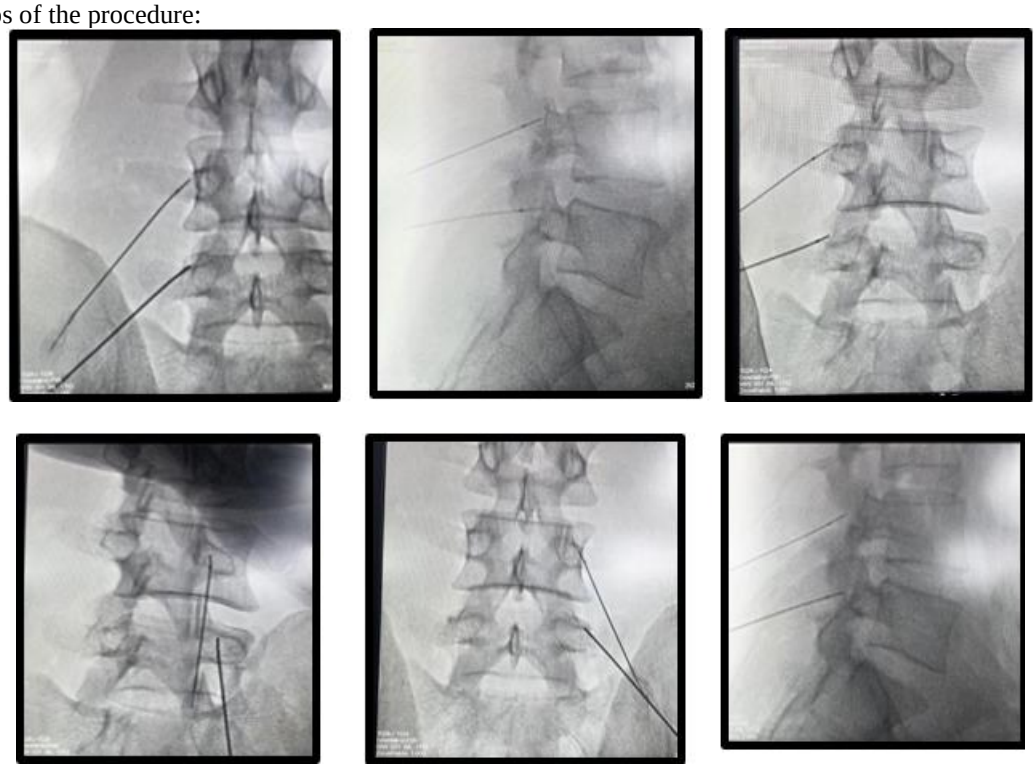


Figure 1: MRI Images at presentation

Important steps of the procedure:



3. Discussion

Facet joints are an important contributor of back pain, and its prevalence increases with age [2, 3]. All the structures of facet joint and surrounding areas are richly supplied with nerves, and they may become source of pain either due to physical injury or due to release of inflammatory mediators. Disc degeneration or repetitive strain injuries of facet joints are responsible for the facetal pain [4, 5]. Numerous other causes like rheumatoid arthritis, ankylosing spondylitis and capsular tears, asymmetrical facet joints (facet joint tropism) have also been described as causes of facet joint pain [1].

Facet arthropathy in lumbar area causes low back pain with radiation to the buttock and posterior - lateral thigh (rarely below knee) on the affected side [6 - 8]. Pain is exacerbated by extension and side bending (twisting) on affected side and decreases on flexion. Very frequently, pain is referred to the groin, buttocks and hip. Pain due to facet involvement is often described as a "deep, dull ache" and maybe either unilateral or bilateral. Radicular symptoms are not commonly seen with facet arthropathy. However, osteophytes, synovial cysts and occasionally facet hypertrophy may manifest as radicular pain.

Diagnosis is mostly clinical as anatomical changes due to degeneration seen on x - rays, CT or MRI do not correlate well with symptoms [9, 10].

Each facet joint is innervated by nerve branches arising from posterior primary rami and known as medial branches. Two branches of medial nerve supply one facet joint, one nerve arising from same level and one from a level above it [9].

Electrical stimulation of the medial branch may also assist in identifying referral pain patterns. Facet joint as a source of pain can be diagnosed by injection of local anesthetic either

into facet joint (intra articular injection) or by medial branch blocks. Radiofrequency ablation of the medial branches is an effective strategy to treat this condition.

References

[1] Allegri M, Montella S, Salici F, Valente A, Marchesini M, Compagnone C, Baciarello M, Manferdini ME, Fanelli G. Mechanisms of low back pain: a guide for diagnosis and therapy. F1000Research.2016; 5
[2] Binder DS, Nampiaparampil DE (2009) The provocative lumbar facet joint. Curr Rev Musculoskelet Med 2: 15 - 24
[3] Cohen SP, Raja SN (2007) Pathogenesis, diagnosis, and treatment of lumbar zygapophysial (facet) joint pain. Anesthesiology 106: 591 - 614
[4] Kirkaldy - Willis WH, Farfan HF (1982) Instability of the lumbar spine. Clin Orthop Relat Res 165: 110 - 123
[5] Farfan HF (1969) Effects of torsion on the intervertebral joints. Can J Surg 12: 336 - 341
[6] Bogduk N (2012) Clinical and radiological anatomy of the lumbar spine and sacrum (5th edn.) Elsevier, Churchill, Livingston
[7] Schwarzer AC, Aprill CN, Derby R, Fortin J, Kine G, et al. (1994) Clinical features of patients with pain stemming from the lumbar zygapophysial joints: Is the lumbar facet syndrome a clinical entity? Spine 19: 1132– 1137
[8] Badgley CE (1941) The articular facets in relation to low back pain and sciatic radiation. J Bone Joint Surg 23: 481–496
[9] Jackson RP, Jacobs RR, Montesano PX (1988) 1988 Volvo award in clinical sciences. Facet joint injection in low - back pain. A prospective statistical study. Spine 13: 966 - 971
[10] Binder DS, Nampiaparampil DE (2009) The provocative lumbar facet joint. Curr Rev Musculoskelet Med 2: 15 - 24