Lumbar facet joint syndrome

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Lumbar facet joint syndrome (LFJS) is the cause of low back pain in 15-54% of the patients.

Etiology

Lumbar facet joint syndrome, also known as **facet arthropathy** or **facet joint syndrome**, is caused by degenerative or inflammatory changes affecting the facet joints in the lumbar spine. These joints are responsible for providing stability and facilitating movement between vertebrae, and they can become a significant source of lower back pain when compromised. The etiology of lumbar facet joint syndrome includes:

1. **Degenerative Changes**

1. **Osteoarthritis**: The facet joints are prone to wear and tear over time, leading to cartilage breakdown and osteoarthritic changes. This degeneration can cause joint inflammation and pain.
2. **Aging**: Age-related changes lead to reduced cartilage, joint space narrowing, and facet hypertrophy, all of which contribute to facet joint syndrome.
3. **Disc Degeneration**: As intervertebral discs lose height with age or degeneration, it places more stress on the facet joints, accelerating their wear.

2. **Trauma and Injury**

1. **Acute Injury**: Sudden impacts or accidents, such as falls or car accidents, can damage the facet joints and trigger pain and inflammation.
2. **Repetitive Stress and Microtrauma**: Activities involving repetitive bending, twisting, or heavy lifting can strain the facet joints, leading to inflammation and degeneration over time.

3. **Biomechanical Factors**

1. **Poor Posture**: Chronic poor posture, especially prolonged periods of sitting or standing with an improper spinal alignment, increases stress on the lumbar facet joints.
2. **Altered Spinal Mechanics**: Conditions such as scoliosis, spondylolisthesis, or hyperlordosis (excessive curvature of the lower back) can place uneven stress on the facet joints, accelerating their wear.

4. **Inflammatory Conditions**

1. **Systemic Inflammatory Disorders**: Conditions like rheumatoid arthritis or ankylosing spondylitis can affect the facet joints, causing chronic inflammation, pain, and stiffness.

5. **Genetic Predisposition**

1. **Family History of Arthritis**: Genetic factors may predispose certain individuals to osteoarthritis or other degenerative changes, making them more susceptible to facet joint syndrome.

6. **Lifestyle Factors**

1. **Obesity**: Excess body weight increases the load on the lumbar spine, placing additional stress on the facet joints.
2. **Sedentary Lifestyle**: Lack of exercise can weaken the muscles supporting the spine, leading to increased stress on the facet joints.

Facet joint syndrome is often diagnosed through clinical examination, imaging studies, and sometimes diagnostic facet joint injections to confirm the facet joints as the pain source. Treatment typically involves a combination of physical therapy, anti-inflammatory medications, and, in some cases, minimally invasive procedures such as facet joint injections or radiofrequency ablation to alleviate pain.

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see Lumbar facet joint degeneration.

Case series

2023

Fifty adults with a “LFJ” syndrome were randomized into two groups: in group FS, fluoroscopic-guidance was used to block the medial branch at three lumbar levels (L3-L4, L4-L5 and L5-S1); in group US, same blocks were performed under ultrasound. Needle transverse approach was used with both techniques. Effects of these procedures were assessed with a Visual Analogue Pain Scale (VAPS), the Oswestry Disability Index (ODI) and the Duke's Activity Status Index (DASI) scale, before the treatment, 1 week and 1 month after. Hospital Anxiety and Depression Scale (HADS) score was also collected before the procedure. Analysis of variance, one (for non-inferiority) and two-sided Mann-Whitney tests and Chi-square tests were performed.

LMBB under US-guidance was not inferior to FS-guidance (P = 0.047) in terms of VAPS, ODI and DASI at 1 week and 1 month. Duration of techniques and HADS were similar between groups (=0.34; p = 0.59).

The medial lumbar bundle branch block under ultrasound-guidance is not inferior to the fluoroscopy-guidance procedure in effectively alleviating pain arising from the facet joints. Considering that this ultrasound technique has the benefit of an irradiation-free, real-time procedure, it can be considered as an effective alternative to the fluoroscopy-guided technique [1)]

2016

Forty-six eligible patients with lumbar facet joint syndrome were randomized into group A (intra-articular injection with PRP) and group B (intra-articular injection with LA/corticosteroid). The following contents were evaluated: pain visual analog scale (VAS) at rest and during flexion, and the Roland-Morris Disability Questionnaire (RMQ), Oswestry Disability Index (ODI), and modified MacNab criteria for pain relief and applications of post-treatment drugs. All outcome assessments were performed immediately after and at 1 week, 1 month, 2 months, 3 months, and 6 months after treatment.

No significant difference between groups was observed at baseline. Compared with pretreatment, both group A and group B demonstrated statistical improvements in the pain VAS score at rest or during flexion, the RMQ, and the ODI ($P < 0.01$). And there were significant differences between the 2 groups on the above-mentioned items ($P < 0.05$). For group B, subjective satisfaction based on the modified MacNab criteria and objective success rate were highest (80% and 85%) after 1 month, but only 50% and 20% after 6 months. However, for group A, they increased over time. In addition, there were no treatment-related complications in either group during follow-up.

Both autologous PRP and LA/corticosteroid for intra-articular injection are effective, easy, and safe enough in the treatment of lumbar facet joint syndrome. However, autologous PRP is a superior treatment option for longer duration efficacy [2)].

2013

Sixty subjects with a diagnosis of facet joint syndrome were enrolled in a study and randomized into experimental and control groups. The experimental group was administered with intra-articular injection of 6 lumbar facet joints with triamcinolone hexacetonide; the control group was administered with triamcinolone acetonide intramuscular injection of 6 lumbar paravertebral points. Visits were taken at baseline and at 1, 4, 12, and 24 weeks after interventions. Outcome measures were used: pain visual analogue scale, pain visual analogue scale during extension of the spine, Likert scale, improvement percentage scale, Roland-Morris, 36-Item Short Form Health Survey, and accountability of medications taken.Homogeneity was tested using the Student t, Pearson χ, and Mann-Whitney tests. Analysis of variance was used to analyze differences in the groups over time and the Student t test to analyze differences between groups at each time evaluation.

The groups were similar at baseline. Comparisons between the groups showed, in analysis of variance analysis, an improvement in the experimental group regarding diclofenac intake and quality of life, in the “role physical” profile, assessed by 36-Item Short Form Health Survey.In the analysis at each time point, an improvement in the experimental group was also found in the Roland-Morris questionnaire, in the improvement percentage scale and in the response to treatment, assessed by the Likert scale.

Both treatments were effective, with a slight superiority of the intra-articular injection of steroids over intramuscular injection [3)].

1)

Nisolle ML, Ghoundiwal D, Engelman E, El Founas W, Gouwy J, Guntz E, Kapessidou P, Tuna T. Comparison of the effectiveness of ultrasound-guided versus fluoroscopy-guided medial lumbar bundle branch block on pain related to lumbar facet joints: a multicenter randomized controlled non-inferiority study. BMC Anesthesiol. 2023 Mar 11;23(1):76. doi: 10.1186/s12871-023-02029-9. PMID: 36906521; PMCID: PMC10007783.

2)

Wu J, Zhou J, Liu C, Zhang J, Xiong W, Lv Y, Liu R, Wang R, Du Z, Guizhen Z, Liu Q. A Prospective Study Comparing Platelet-Rich Plasma and LA/Corticosteroid in Intra-Articular Injection for the Treatment of Lumbar Facet Joint Syndrome. Pain Pract. 2016 Dec 18. doi: 10.1111/papr.12544. [Epub ahead of print] PubMed PMID: 27989008.

3)

Ribeiro LH, Furtado RN, Konai MS, Andreo AB, Rosenfeld A, Natour J. Effect of facet joint injection versus systemic steroids in low back pain: a randomized controlled trial. Spine (Phila Pa 1976). 2013 Nov 1;38(23):1995-2002. doi: 10.1097/BRS.0b013e3182a76df1. PubMed PMID: 23921331.