

## Transection of the Medial Branches Performed Endoscopically for Chronic, Axial Low Back Pain: A Case Report

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### Abstract

**Background:** Chronic, axial lower back pain is most commonly caused by either inflammation of the lumbar facet joints or arthritic changes at the joints. Chronic low back pain is the number one cause of missed work and disability in the working population. The scientific literature demonstrates that when the medial branches are targeted for treatment, patients typically exhibit positive results. Radio frequency ablations of the spine have been utilized for many years with mixed results which vary due to operator dependence. We present a case report on the surgical intervention of a patient treated by transection of the medial branches visualized endoscopically.

**Methods:** Transection of the medial branches of an adult male with facet hypertrophy confirmed at L5-S1 under magnetic resonance imaging following successful medial branch blocks of the L4 medial branch and L5 primary dorsal ramus.

**Results:** Following transection of the medial branches, the patient's pain decreased in severity and quality at 1 week follow-up. He was no longer utilizing oral analgesics and noted that his persistent morning pain and stiffness had ceased causing him pain. We conclude that compared to radio frequency ablation, the patient did not exhibit post-operative discomfort and pain and demonstrated accelerated recovery and return to work status.

**Keywords:** Lower back pain; Magnetic resonance imaging; Physical therapy

### Introduction

A 35 year old male patient was seen in consultation in my clinic regarding his chronic, axial lower back pain. He had been suffering with back pain for the last 5 years. His initial presentation at its onset was described by the patient as radicular pain down the left leg down to his foot. He had an MRI of the lumbar spine performed at that time which demonstrated a disc herniation at L5-S1. He denied any weakness in his extremity. He was treated conservatively with oral analgesics, a medrol dose pack and physical therapy. After two months of conservative care his radicular pain diminished and he returned to his daily activities with no restrictions by his physician at the time.

Two years after this onset, he started to feel significant stiffness in his lower back that was worse in the morning. The quality of his discomfort progressively worsened and his stiffness developed to pain that was constant and achy in nature. This pain, over time, significantly impaired his ability to function, perform his ADLs and socialize with family and friends.

At the consultation, his examination was positive for paraspinal tenderness in the lower lumbar paraspinal musculature bilaterally with pain exacerbated only by extension and not necessarily rotation. Decision was made to start Meloxicam 15 mg by mouth taken daily. At a follow-up visit he denied any adverse reactions to the medications and appreciated moderate relief with his lower back.

Three months from the last follow-up he returned complaining of continued lower back pain. He developed some gastrointestinal distress and discontinued the meloxicam on his own. He wanted to advance his care to the next step by minimizing the use of medications. Repeat MRI of the lumbar spine was ordered. There was no evidence of a disc herniation. He had moderate facet hypertrophy and arthropathy at the level of L5-S1. We discussed medial branch blocks of the corresponding facet joints to confirm that his pain was transmitted by these extradural nerve branches.

### Materials and Methods

Medial branch blocks were performed in an ambulatory surgical center by a skilled interventional physiatrist under fluoroscopy. The initial nerve block consisted of 0.3 cc of Bupivacaine 0.5% injected at the L4 medial branch and L5 primary dorsal ramus bilaterally. No additional dexamethasone was utilized to potentiate the block. The nerve block was found to be successful in completely alleviating his back pain at the end of the procedure. He was re-evaluated in the clinic at 1 week. He obtained ongoing continued therapeutic benefit and was recommended to monitor his level of pain relief.

Transection of the medial branches was performed in an outpatient ambulatory surgery center under moderate conscious sedation. Intermittent fluoroscopy was initially utilized to accurately determine entry to the transverse processes and sacral ala of the lumbosacral spine. A 1.5 cm incision was made after a guide wire was placed. Blunt dissection was performed to allow entry of the dilator and working channel. The medial branches were directly visualized secondary to a Richard WOLF rigid endoscope and the branches were transected with

a Bi-Tip flex probe. The working channel was removed and one suture was placed over each initial incision.

## Results

Directly after this operation the patient only complained of minor incisional pain. He followed up in clinic 1 week after the surgery for evaluation and suture removal. He stated that his chronic low back pain was eliminated that he experienced every morning. He had some mild discomfort on twisting which he related to the sutures at that time. He returned to work 2 days after the operation with no limitations.

## Discussion

Chronic, axial lower back pain is most commonly due to lumbar spondylosis or facet joint inflammation. Conservative care consists of physical therapy and oral analgesics (Naproxen, Ibuprofen and Meloxicam). Patients refractive to this initial treatment are typically scheduled for medial branch blocks of the lumbar spine to effectively block the corresponding facet joints. Within 15 minutes of the procedure, the patient should exhibit significant pain reduction (80%) in their lumbar spine. Pain with extension and rotation is also typically reduced. Typically two sets of medial branch blocks are performed at different dates with different concentrations of anesthetic to rule out an initial false positive.

Radio frequency ablations of the spine have been performed for patients suffering with axial back pain. Treatment of chronic low back pain has yielded mixed results and the substantial economic and health impact has raised concerns among the physicians and policy-makers.

In recent years, understanding lumbar facet joint pain, not only with pathophysiology, but with diagnostic and treatment strategies, has expanded with numerous publications [1-3]. Hancock et al. [3] systematically assessed tests to identify the structures in the low back responsible for chronic pain, including facet joints. It was clear that their results demonstrated the lack of diagnostic accuracy for various tests. Thus, controlled diagnostic blocks seem to be the only viable and appropriate diagnostic method, despite discussions about the precision and accuracy of these techniques [1,4]. Although the majority of systematic reviews demonstrate the accuracy of controlled diagnostic

blocks when performed by interventional pain physicians [1,4] others failed to demonstrate accuracy [5].

Cohen et al. [6] analyzed the efficacy of radiofrequency neurotomy with a 3 month follow-up with either no diagnostic blocks, single diagnostic block, or dual diagnostic blocks. The results were superior in patients selected after dual diagnostic blocks. Patients without a diagnostic block, the response rate were 33% and in the group with a single diagnostic block, the response rate was 39%.

Transection of the lumbar medial branches is safe, effective, and provides long-term benefit up to 5 years post-procedure [7]. The endoscopic approach demonstrates clinically superior longevity when compared to published results of radiofrequency ablation secondary to direct visualization of the medial branches. Additional studies are warranted for further evaluation and comparison to traditional radio frequency ablations.

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