

Opioid-sparing multimodal analgesia for recurrent sciatic pain

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Sciatic pain is often caused by a lumbar herniated disc, degenerative disc disease or spinal stenosis. Typically, pain starts in the buttocks and runs down the back of the leg to the foot. It is often treated with medications (anti-inflammatory drugs, muscle relaxants, opioids, tricyclic antidepressants, or antiepileptic drugs), physical therapy, steroid injections and surgery. Herein we report a case of severe recurrent right sciatic pain in a 71-year-old man referred to our pain clinic. The patient presented persistent pain (numeric rating scale 8/10) originating from the lower back running down into the right thigh and intermittent claudication. His otolaryngologist had prescribed him 20mg oxycodone per day. MRI of the lumbar spine revealed a grade 1 spondylolisthesis at L5-S1, degenerative disc disease at L5-S1 and herniated discs at L3-4, L4-5 and L5-S1. The patient received one caudal epidural steroid injection and was prescribed 10mg oxycodone per day. The patient's pain intensity and life quality improved greatly during a 9 month follow-up period. Physicians may want to consider multimodal analgesia instead of opioids to resolve chronic sciatic pain in patients unwilling or unable to receive surgery.

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Introduction

Sciatic pain, which is a descriptive term rather than a diagnosis, refers to pain that radiates along the sciatic nerve. It is typically felt in the buttocks, down the back of the leg, and possibly to the foot and is often caused by a herniated disc, degenerative disc disease or lumbar spinal stenosis. The term is also used to describe the radiculopathy that occurs when parts of the sciatic nerves are irritated or pinched [1]. The prevalence of

sciatic pain varies from study to study, ranging from 1.2% to 43%. [2] While sciatic pain often improves with time and nonsurgical care, some of its associated symptoms, including progressive weakness, loss of leg sensation and incontinence, may suggest potentially serious sciatic nerve injury warranting surgery [1]. One common way to manage the pain is the administration corticosteroids via caudal, interlaminar, or transforaminal routes into lumbar epidural space [1, 3]. Although caudal epidural corticosteroids injections are reported to be effective,

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safe and simple[4], nowadays ultrasound-guide caudal blocking has become a newer reliable treatment associated with higher rates of success and lower risk of accidental intravascular injection [5]. Multimodal analgesia had become important approach to reduce usage and dosage of opiates.[6] In this case report, we discuss the multimodal analgesic management of a patient with severe recurring sciatic pain previously prescribed oxycodone by an otolaryngologist. Our multimodal approach involved ultrasound-guided caudal epidural block to control the patient's pain and reduce his use of oxycodone.

Case presentation

This case involved a 71-year-old man who had chronic obstruction pulmonary disease (COPD) and had previously received right side neck surgery for buccal tumor in January, 2018. The patient began complaining to his otolaryngologist about persistent generalized pain and soreness, emanating from his lower back to right thigh and leg accompanied with intermittent claudication starting from March, 2018. The pain was assigned a numeric rating scale (NRS) pain intensity score of 7/10 at rest and 8-9/10 in motion. Aggravating factors included walking and body movement. His otolaryngologist prescribed him daily oxycodone (20mg) and referred him to our pain clinic for further treatment.

Under the impression of right sciatic pain, we arranged for him to receive x-ray imaging and magnetic resonance imaging (MRI) studies to assess the condition of his spine and started him on oral tramadol 100mg twice a day (BID) to titrate oxycodone. Tracing back his history, we found that his sciatic pain probably started in 2015 as a result of lumbar spinal stenosis. X-ray (Figure 1A.) revealed spondylosis deformans of thoracolumbar spine and compression fracture at L1. Lumbar MRI

(figure 1B.) revealed grade 1 spondylolisthesis at L5-S1, degenerative disc disease at L5-S1 and herniated discs at L3-4, L4-5 and L5-S1. A neurosurgeon suggested surgical decompression, but the patient refused. To try to treat the patient non-surgically and relieve his pain, we administered a real-time ultrasound-guided caudal epidural steroid injection consisting of triamcinolone 40mg, 2% lidocaine 20mg and normal saline 12 ml, in total 14ml in 2018/4. The patient's right sciatic pain was much relieved. Intermittent claudication was improved with walking distance increased from 20m to 200m and NRS score during walking and rest were reduced from 8-9/10 to 4-5/10, and 7 to 4-5, respectively. One month later, his condition was continuously improved with no claudication. We added 5mg oxycodone Pro re nata (PRN) at his 3rd month follow-up for his daily activity much more increased. His NRS pain intensity score during walking and rest was found to remain at 2/10 and 1/10, respectively at his 9-month follow-up, his NRS time chart as table 1.

Discussion

Initially, sciatic pain is commonly treated with medications and physical therapy. Painkillers (e.g., nonsteroidal anti-inflammatory drugs, and opioids) and other adjuvant medications, including antiepileptic drugs, gabapentin, pregabalin, antidepressant agents (e.g., tricyclic agents), and muscle relaxants, are also commonly used.[1, 7, 8] Because opioids have been associated with many problems, including uncertainties about long-term efficacy and safety for chronic back pain and complications related to overdose), their use is controversial and medicine has looked for ways to avoid or reduce their use.[9] Although patients who have had sciatica for 6 to 12 weeks for which they have received lumbar disk surgery have faster and more pronounced

pain relief than patients treated conservatively [10], there are some patients with lumbar canal stenosis for whom surgical intervention is not indicated. For such patients, caudal epidural injections of glucocorticoids have become an alternative treatment of their pain [11]. One prospective study has reported that multimodal pain management can be used effectively to treat patients with lumbar radiculopathy.[6] Our case had spondylolisthesis related claudication, was not thought to be able to benefit much from surgical intervention, and did not want surgery. Thus, we tried a multimodal analgesia approach to help him relieve his pain and regain functionality while reducing the need for opioid.

Our patient was first prescribed daily oxycodone (20mg) for sciatic pain by his otolaryngologist. Although oxycodone duration can last for 10-12 hours, but the analgesic effect was not achieved. We thus replaced oxycodone with tramadol which was believed to be a relative weak potency opioid. In order to be equianalgesic and enough analgesic coverage time, we thus prescribed oral tramadol 100mg as BID. But the analgesic effect was still ineffective. And caudal epidural steroid injection was then considered. We injected a combination of corticosteroids and lidocaine, because these corticosteroids accumulate at higher local concentrations and have been found to exert a better therapeutic effect on inflamed nerve root when injected into the epidural space than oral or intramuscular injection[4]. Also, our patient had no motor blockade with diluted lidocaine. We chose to use real-time ultrasound-guided caudal epidural steroid injection because it has been found to provide accurate images, have a better success rate, require fewer needle passes, and have fewer complications, compared to non-ultrasound-guide procedure.

We later on replaced tramadol with oxycodone, because patient experienced severe side effect of

constipation. We also prescribed oxcarbazepine 150mg BID but severe dizziness was noted as side effect, therefore we try to prescribe pregabalin to patient but patient was not able to afford the cost. There is still limitation of this multimodal analgesia as analgesic effect was not enough after patient recovery from claudication and his increased daily activity. We achieved analgesic effect by prescribing 5mg oxycodone PRN. The total opioid usage was reduced from 20mg oxycodone to 10mg oxycodone. And the analgesia effect of caudal epidural steroid injection still remain effective at the follow up on 2018/12.

Conclusion

In conclusion, we were able to successfully alleviate sciatic pain and claudication using a multimodal analgesia approach, which included real time ultrasound-guided caudal epidural block with steroid and lidocaine injection and the administration of opioid. We were also able to do this while reducing oral oxycodone dosage. At nine-month follow up, analgesia was found to remain effective. Physicians may want to consider similar multimodal analgesia approaches when treating sciatic pain in patients for whom surgery is not indicated.

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Table 1.

Survey Time	2018/ Mar	2018/ Apr	2018/ May	2018/ Jun	2018/ Jul	2018/ Oct	2018/ Dec
Motion Pain NRS	8-9	7-8	4-5	3	4	3	2
Resting Pain NRS	7	7-8	4-5	3	6	1	1
Analgesic regimen	Oxycodone 10mg BID (from ENT)	Tramadol 100mg BID+ caudal epidural injection	Oxycodone 10mg QD+ Oxcarbazepine 150 mg BID APAP 500mg BID	Oxycodone 10mg QD+ APAP 500mg BID	Oxycodone 10mg QD +PRN oxycodone 5mg	Oxycodone 10mg QD +PRN oxycodone 5mg	Oxycodone 10mg QD +PRN oxycodone 5mg

APAP= Acetaminophen

Figure 1. Lumbar spine image prior to epidural steroid injection

1A). X-ray revealed that Grade 1 spondylolisthesis, L5 on S and spondylolysis on the bilateral at L5. 1B). MRL showed that 1) Disc bulges with thecal sac indentation at L1-2 through L5-S1 2) Neural foraminal encroachments on the bilateral at L2-3 through L5-S1 and 3) Desiccated disc with reduced disc height at L5-S1.

1A)



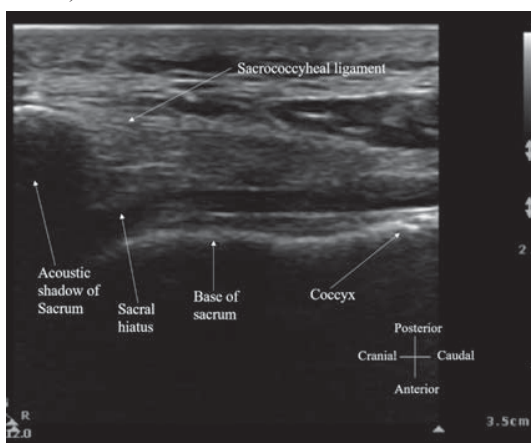
1B)



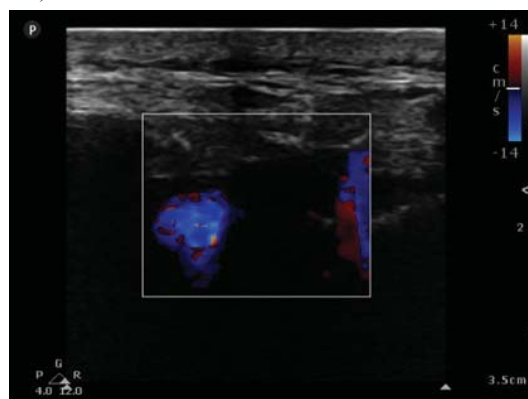
Figure 2. Caudal block under ultrasound guidance.

2A) Ultrasound image of the sacral hiatus in longitudinal view, depicting the sacrococcygeal ligament which needle path have to advance through. 2B) Caudal injection was further confirmed by color Doppler showing the injected mixture flow.

2A).



2B).



復發性坐骨神經痛病患的多模式止痛以減少嗎啡類用量

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坐骨神經痛主要是因為腰椎間盤突出，退化性椎間盤疾病以及腰椎管狹窄症所導致的。典型症狀包含臀部及延伸到腿部的疼痛。建議的治療方法包括藥物治療（抗發炎藥、肌肉鬆弛劑、嗎啡類止痛藥、三環抗憂鬱劑、抗癲癇藥物）、物理治療、類固醇注射以及手術。一位 71 歲的男性病患因為口腔手術後嚴重且反覆發作的坐骨神經痛，由耳鼻喉科醫師轉介過來，他的持續性疼痛達到疼痛分數 8/10，痛覺從後背延伸到大腿，並伴隨著間斷性的跛行。轉介前的用藥是每天 oxycodone 20 毫克。腰部脊椎核磁照影顯示他有腰椎第五節及薦椎第一節間滑脫，同時腰椎第三及第四節、第四及第五節與腰椎第五節及薦椎第一節間都有椎間盤突出。我們為他施打尾椎硬膜外類固醇注射並減少 oxycodone 一半使用量至每天 10 毫克。在之後 9 個月的追蹤上，他的疼痛指數大幅下降，生活品質也有長足進步。我們認為這樣的多模式止痛方案可以用在於減少嗎啡類止痛藥的使用量以及有效改善慢性坐骨神經痛，特別是應用在那些不願意或是無法接受手術的病患們身上。

關鍵字：坐骨神經痛，多模式止痛，硬膜外類固醇注射，嗎啡類止痛藥

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