Jurnal Ners Volume 10 Nomor 1 Tahun 2026 Halaman 2369 - 2372
JURNAL NERS
Research & Learning in Nursing Science
http://journal.universitaspahlawan.ac.id/index.php/ners

EFFECTIVENESS OF EPIDURAL STEROID INJECTION FOR PAIN MANAGEMENT IN BUERGER'S DISEASE: A NON-OPERATIVE ALTERNATIVE FOR REFRACTORY PATIENTS

Handra Juanda[1], Ramzi Asrial[2], Indra Jaya[3]

[1]Resident of Surgery Department, Faculty of Medicine Riau University, Arifin Achmad General Hospital, Pekanbaru

[2]Vascular and Endovascular Division of Surgery Department, Faculty of Medicine Riau University, Arifin Achmad General Hospital, Pekanbaru

[3]Urology Division of Surgery Department, Faculty of Medicine Riau University, Arifin Achmad General Hospital, Pekanbaru

mayanda45@gmail.com

Abstrak

Background:

Buerger's disease (thromboangiitis obliterans) is a non-atherosclerotic, segmental vasculitis affecting small to medium-sized arteries and veins, strongly associated with tobacco use. Chronic ischemic pain is often challenging to manage despite pharmacologic and surgical options. Epidural steroid injection (ESI), commonly used for radicular pain, may modulate inflammatory and nociceptive pathways at the spinal level and provide benefit in ischemic pain.

Case Presentation:

A 34-year-old male with Buerger's disease presented with severe refractory ischemic pain of the right lower extremity. CT angiography revealed distal occlusion of the right external iliac artery, stenosis of the left superficial femoral artery, and stenosis of the left anterior tibial artery. Despite treatment with NSAIDs, tramadol, vasodilators, aspirin, and iloprost infusion, pain relief was minimal (VAS 8/10). As the patient declined operative interventions, ESI was performed as a non-operative alternative. Significant improvement had been observed (VAS decreased from 8 to 3 in 1 week) with an improved functional mobility and no complications.

Conclusion:
ESI may be an effective adjunct for refractory ischemic pain in Buerger's disease, particularly in patients who are unwilling or unsuitable for surgical treatment.

Keywords: *Buerger's disease, thromboangiitis obliterans, epidural steroid injection, ischemic pain.*

* Corresponding author :
Address : Fakultas Kedokteran Universitas Riau
Email : mayanda45@gmail.com
Phone : 0821 8666 2976

INTRODUCTION

Buerger's disease, or thromboangiitis obliterans, is a non-atherosclerotic, inflammatory occlusive disease of young male smokers. It manifests with segmental inflammation, thrombosis, and creation of tortuous collateral "corkscrew" vessels affecting small and medium arteries of the distal extremities. Patients frequently present with claudication, rest pain, ischemic ulcers, or digital gangrene.[1] Full cessation of tobacco use continues to be the first line therapy, due to chronic smoking being the strongest risk factor for progression of disease.[1]

Pharmacotherapy—vasodilators, antiplatelet agents, and prostaglandin analogs—has been empirically tested for variable symptomatic benefit. Recent evidence has pointed out the promising role of newer vasodilators and antithrombotic agents in reducing ischemic complications according to the latest data in the field even though the available data is limited.[4] Even optimal medical therapy does not eliminate the risk of chronic ischemic pain.[2]

It often presents a formidable management challenge when chronic ischemic pain cannot be treated.[5] For this reason, invasive therapy, including the application of sympathectomy or revascularization, can be considered but due to anatomical limitations or patient preference, is rarely feasible.[5] Neuromodulation modalities have also garnered considerable attention in the management of refractory ischemic pain and recent work has shown improvements in epidural or spinal modulations of nociceptive pathways.[6],[7] Epidural steroids (ESI), while not a standard treatment modality for Buerger's disease, may decrease ischemic and neuropathic pain through suppression of local inflammation and reduction in dorsal horn hyperexcitability.[8]

Due to the lack of high-quality and rare disease, case reports are even more important as they provide opportunities to expand clinical understandings. It had recently been stressed in the literature that investigating non-operative pain control strategies is important, especially for patients who refused or are not appropriate candidates for surgical approaches.[9],[10]

METHODS

This case report was prepared using a descriptive observational method based on a single-patient clinical encounter. All clinical information—including history, physical examination findings, imaging studies, treatments, and outcomes—was obtained from direct patient evaluation and review of medical records at Arifin Achmad General Hospital. No experimental intervention outside standard clinical practice was performed.

The patient provided informed consent for the clinical procedures conducted and for the use of anonymized clinical data and imaging for publication purposes. Ethical considerations adhered to institutional and national guidelines for case reporting. No external funding or conflicts of interest were involved in the preparation of this report.

CASE PRESENTATION

A 34-year-old male motorcycle mechanic presented with severe right lower extremity pain that had persisted for approximately four months and worsened during the past three weeks. The pain predominantly involved the posterior calf and radiated to the dorsum of the foot, with maximal intensity in the second and third toes. It was described as burning, stabbing, and throbbing (VAS 8/10), most severe at night. Dependent positioning provided partial relief, whereas limb elevation and prolonged walking aggravated the pain. The patient had smoked heavily (about 30 cigarettes/day) for 15 years and quit only one week prior to evaluation. There was no history of diabetes mellitus, hypertension, dyslipidemia, or familial vascular disease.

Physical examination revealed pallor of the right foot at rest and dependent rubor when the limb was lowered. The limb was cool with delayed capillary refill (>3 seconds). Dorsalis pedis and posterior tibial pulses were absent on the right, while popliteal and femoral pulses were weak. Trophic changes (reduced hair growth, dry skin) were present, along with a 0.8-cm superficial ulcer at the tip of the right third toe.

CT angiography demonstrated normal contrast opacification of the abdominal aorta, bilateral common and internal iliac arteries, and the left external iliac artery. However, there was distal one-third occlusion of the right external iliac artery, mid-segment stenosis of the left superficial femoral artery, and proximal stenosis of the left anterior tibial artery, accompanied by collateral formation—findings compatible with non-atherosclerotic distal occlusive disease.

The diagnosis of Buerger's disease (thromboangiitis obliterans) was made based on the patient's presentation and fulfillment of Shionoya's Diagnostic Criteria.[7]

The patient had previously undergone treatment with ibuprofen, tramadol, aspirin, cilostazol, and a six-day iloprost infusion, which yielded minimal improvement. He declined surgical options such as lumbar sympathectomy.

Therefore, **epidural steroid injection (ESI)** was pursued as an adjunct therapy.

An ESI was performed at the L4–L5 interspace using a midline approach with the patient seated. The epidural space was identified using the loss-of-resistance technique. A mixture of 40 mg triamcinolone acetonide and 3 mL of 1% lidocaine (total 5 mL) was injected without complication.

Pain improved significantly within 24 hours (VAS 5/10), further decreasing to 3/10 at one week and stabilizing at 2–3/10 by the second week. Walking distance increased to 200–300 meters without significant pain, sleep quality improved, and the toe ulcer became less painful and drier. No other adverse events, including motor weakness, infection, urinary retention or severe back pain, were reported.

Tabel 1. Shionoya's Diagnostic Criteria

Criterion	Description	Patient Status
History of smoking	Past or current heavy tobacco use	Heavy smoker (15 years, ~30 cigarettes/day)
Onset before age 50	Symptoms typically begin in young adulthood	Onset at age 34
Infrapopliteal arterial occlusions	Distal limb arterial involvement without atherosclerosis	External iliac distal occlusion & tibial arterial involvement on CTA
Upper limb involvement or migratory thrombophlebitis	May be present but not mandatory	Not observed in this case
Absence of atherosclerotic risk factors	No diabetes, hyperlipidemia, or hypertension	No comorbid atherosclerotic disease

Interpretation:
The patient meets **4 out of 5 Shionoya criteria**, sufficient to establish the diagnosis of thromboangiitis obliterans

Figure 1. CT angiography shows was occlusion of the right external iliac artery, mid-segment stenosis of the left superficial femoral artery, and proximal stenosis of the left anterior tibial artery, accompanied by collateral formation

DISCUSSION

Buerger's disease is strongly associated with heavy tobacco exposure, and cessation is essential to halt disease progression.[2] Patients often suffer from a combination of ischemic and neuropathic pain due to impaired tissue perfusion and neural ischemia. This patient demonstrated classical features of the disease, including rest pain, distal arterial occlusion, and minimal atherosclerotic involvement.[4]

Conventional treatments—including vasodilators, anti-platelet agents, or prostaglandin analogs—may not adequately relieve ischemic pain. In refractory cases, lumbar sympathectomy may be indicated; however, some patients decline invasive approaches.

Rationale for ESI in ischemic pain

Although traditionally used for radicular pain, ESI may benefit ischemic limb pain through:[5]

1. **Dorsal horn modulation**, reducing central sensitization and nociceptive transmission.
2. **Anti-inflammatory effects**, suppressing neurogenic inflammation around ischemic nerves.
3. **Sympathetic attenuation**, reducing vasoconstriction and potentially improving microcirculation.

Prior small case series have reported significant analgesic benefit from ESI in ischemic conditions, especially when surgical options are limited. This patient's rapid and sustained improvement is consistent with these reports and indicates that ESI could provide a practical supplementation in the setting of inadequate standard therapy.[6]

Uniqueness of the present case

- Young heavy smoker, with typical Buerger's disease.
- Refractory ischemic pain despite optimal medical management.
- Declined surgical approaches, making ESI a practical alternative.
- Marked improvement after a single ESI session, with enhanced mobility and quality of life.

This case is significant in highlighting the possible involvement ESI has in selected patients with ischemic limb pain from Buerger's as well as an increase in sparse literature focused in this area of involvement..

CONCLUSION

Epidural steroid injection may provide a safe and effective adjunctive strategy for managing refractory ischemic pain in Buerger's disease in patients who have indicated they will not or are not candidates for surgical intervention. ESI was associated with timely, meaningful pain relief and function improvement without complications. Studies on long-term outcomes and patient-selection criteria for each population are needed for long-term outcomes will need further studies.

REFERENCES

Olin JW. Thromboangiitis obliterans (Buerger's disease). N Engl J Med. 2000;343(12):864–9.

Piazza G, Creager MA. Thromboangiitis obliterans. Circulation. 2010;121(14):1858–61.

Fiessinger JN, Schäfer M. Iloprost in the treatment of thromboangiitis obliterans. Circulation. 1990;82(4 Suppl):IV191–6.

Fiessinger JN, Creager MA. Advances in the medical management of thromboangiitis obliterans. Vasc Med. 2020;25(5):469–78.

Alvarez P, Levine JD. Sources of pain in peripheral vascular disease. Curr Opin Anaesthesiol. 2015;28(5):513–9.

Aboyans V, Ricco J-B, Bartelink MEL, et al. Update on peripheral arterial disease management. Eur Heart J. 2021;42(34):3301–8.

Park J, Lee SH. Effects of epidural steroid injection on ischemic limb pain: A case series. Pain Med. 2017;18(6):1228–33.

Manchikanti L, Falco FJE, Diwan S, Hirsch JA, Smith HS. Epidural steroid injections in chronic spinal pain. Pain Physician. 2013;16(2 Suppl):E129–73.

Gupta R, Kumar P, Dey P. Nonoperative neuromodulation approaches for chronic limb ischemia pain: A review of recent evidence. Pain Pract. 2019;19(7):741–50.

Shionoya S. Diagnostic criteria of Buerger's disease. Int J Cardiol. 1998;66(Suppl 1):S243–5.