

CRYOABLATION - An Uncommonly Employed Pain Control Modality



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Introduction

Cryoablation is a percutaneous, image-guided technique in which **extreme cold is applied to peripheral nerves to produce reversible nerve blockade through Wallerian degeneration.** By selectively injuring axons while preserving surrounding connective tissue, cryoablation **provides prolonged analgesia** with predictable nerve regeneration and a reduced risk of neuroma formation. It is most commonly used for chronic pain conditions and has been **infrequently described in the acute perioperative pain setting.**

Image

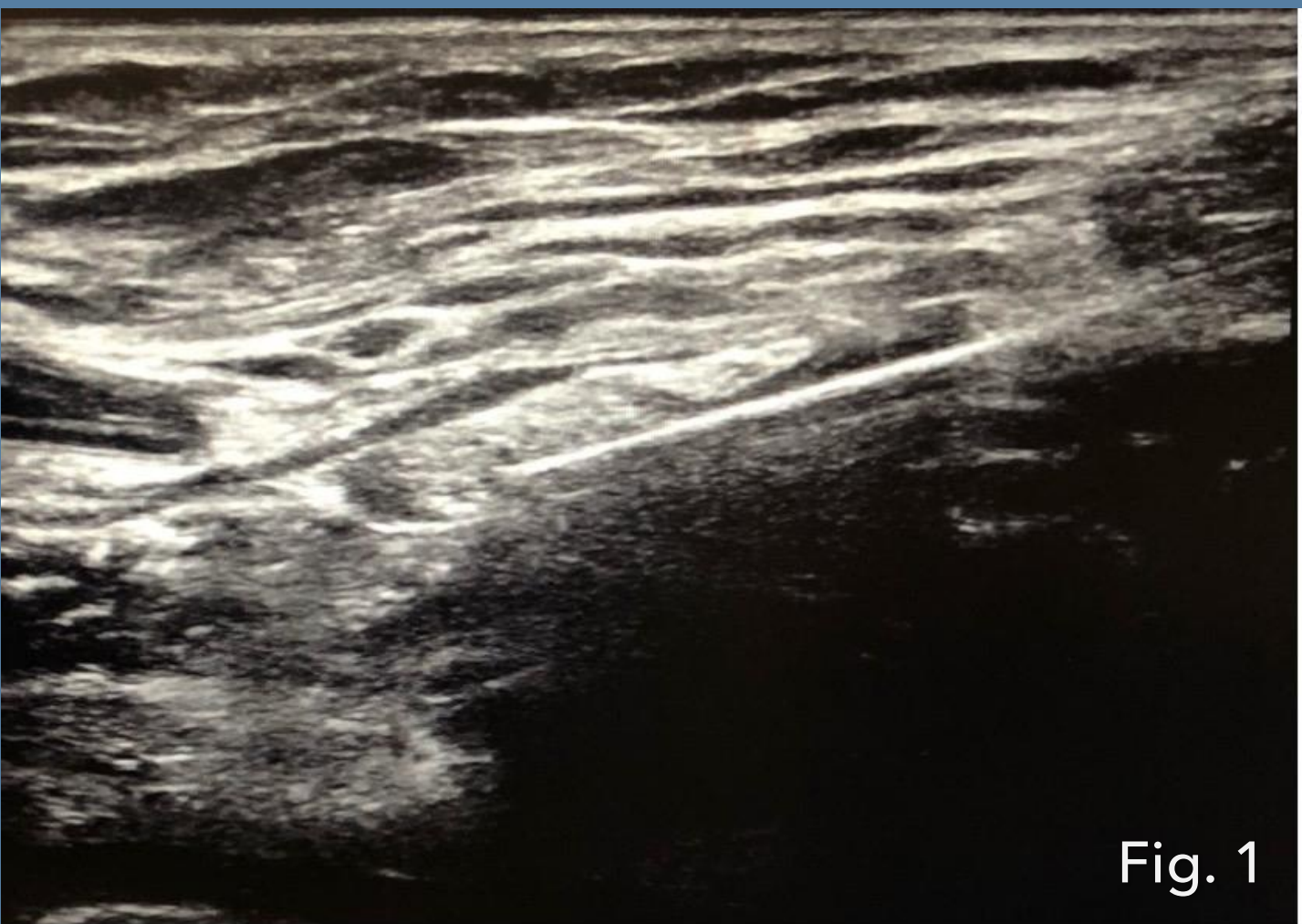


Fig. 1 - US image of femoral nerve block being performed prior to cryoablation procedure.

Fig. 2 - US image of cryoablation procedure with ice ball forming at tip of procedure needle.

Description

A **57-year-old female** presented for **right above-knee amputation** for definitive management of recurrent metastatic osteosarcoma. Her medical history was significant for **retroperitoneal leiomyosarcoma with metastatic disease** requiring multiple prior surgical interventions. Preoperatively, she reported **severe right lower-extremity pain rated 10/10**, significantly **impairing activities of daily living.**

In the preoperative holding area, she received **ultrasound-guided femoral and transgluteal peripheral nerve blocks.** On postoperative day **(POD) 1**, she was able to **ambulate with physical therapy and reported pain scores of 4/10.** Following **block resolution**, however, **pain escalated to 10/10** despite multimodal analgesia with oral and intravenous medications, leading to refusal of physical therapy and **escalating opioid requirements** with associated side effects.

On **POD 2**, the Acute Pain Service was consulted. After a **multidisciplinary discussion** with the patient and her daughter, femoral nerve **cryoablation was pursued.** A **femoral nerve block** with 20 mL of 2% lidocaine with 1:400,000 epinephrine was first performed, **followed by cryoablation** consisting of **three 120-second cycles** (two anterior and one posterior). At discharge, **pain scores were consistently less than 3/10**, and she **actively participated in physical therapy.** At **one-month follow-up**, she reported **minimal baseline pain** with only **rare breakthrough pain** during ambulation.

Conclusion

- **Femoral nerve cryoablation**, traditionally used for chronic neuropathic or post-amputation pain, may also be **effective** for **refractory acute postoperative pain.**
- The technique provides **prolonged analgesia while preserving neural architecture**, which may **reduce the risk of neuroma formation.**
- **Careful patient selection and imaging guidance are essential** due to potential motor impairment, but cryoablation may serve as a **salvage option when conventional analgesic strategies fail.**

References

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