

Perioperative Regional Anesthesia Considerations in a Patient With Hereditary Angioedema Undergoing Orthopedic Surgery

Alyce R Phillips, MD & Dan Olix, MD

Introduction

Hereditary angioedema (HAE) due to C1 esterase inhibitor deficiency presents significant perioperative challenges, particularly related to:

1. airway management,
2. surgical stress, and
3. medication selection

Acute attack triggers:

TRAUMA (surgery)

Evidence guiding perioperative management is limited, making case reports valuable for informing best practices.

Methods

Anesthetic Approach

Goal: minimize airway manipulation while maintaining effective analgesia

Ultrasound-guided adductor canal catheter placed preoperatively under sterile technique

Continuous infusion via programmable CADD pump

Neuraxial anesthesia: combined spinal–epidural (CSE)

Perioperative Medications

Multimodal analgesia: acetaminophen, celecoxib

Anxiolysis/procedural analgesia: midazolam, fentanyl

HAE prophylaxis: plasma-derived C1 esterase inhibitor (Berinert)

Spinal anesthesia: intrathecal mepivacaine

Intraoperative sedation: propofol

Postoperative analgesia: fentanyl, methocarbamol, low-dose oxycodone

Case Description

Patient

- 43F with HAE (C1 inhibitor deficiency)
- Right ACL reconstruction
- No prior airway edema / prior anesthesia tolerated

Management

Multidisciplinary planning

Lanadelumab day before surgery

Berinert ~30 min pre-incision

Multimodal analgesia + adductor canal catheter

Combined spinal–epidural + low-dose sedation

Avoided airway manipulation

Outcome

Uncomplicated course

Discharged with rescue icatibant

Future Plan

Berinert 15–30 IU/kg preop

Rescue meds available

Schedule 1–2 days after lanadelumab

Consider overnight monitoring

Ensure icatibant access at discharge

Discussion

Perioperative HAE Principles

- **Individualized planning** — even if no airway history
- **Team coordination** — anesthesia + surgery + allergy
- **Regional anesthesia preferred** when feasible to limit airway manipulation
- **Prophylaxis** — C1 inhibitor + timed biologic therapy
- **Rescue readiness** — emergency meds & clear response plan

Conclusions

Key Points

- Patients with HAE can safely undergo surgery with proper planning
- Requires prophylaxis + multidisciplinary coordination
- Highlights practical guidance for anesthetic and regional technique decisions

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