

Regional anesthesia for arthroscopic knee repair in patient with HOCM under monitored anesthesia care with dexmedetomidine: A Case Report

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Background

- **Hypertrophic Obstructive Cardiomyopathy (HOCM):**
 - Most common inherited cardiac malformation (1/500 adults).¹
 - Perioperative goals: maintain volume status, systemic vascular resistance, avoid tachycardia, reduce contractility, and select agents with minimal sympathetic effects.¹
- **Regional Anesthesia (RA):**
 - Minimizes hemodynamic fluctuations, avoids intubation, reduces pharmacologic side effects, enhances recovery after surgery, and greater patient satisfaction.²
- **Dexmedetomidine (DEX):**
 - Highly selective alpha-2 adrenergic agonist
 - Indirect and direct cardioprotective effects, minimal respiratory depression, reduced sympathetic response, anxiolysis, sedation, and analgesia.^{3,4}

Case Description

- 15-year-old female with HOCM, mild cognitive delay, seasonal asthma, and obesity came to UAB for a right knee arthroscopy for patellar instability
- Prior echo: moderately hypertrophic and hyperdynamic LV (EF >65%), mild MV systolic anterior motion, and mild MV chordal abnormality with LV outlet obstruction.
- Preoperative TTE POCUS was performed (**Fig. 1**)
- Peripheral nerve blocks with ropivacaine:
 - Right femoral nerve block (20 mL, 0.5%)
 - Right fascia iliaca nerve block (20 mL, 0.2%)
- Surgical time: 166 min

Regional anesthesia with dexmedetomidine infusion under monitored anesthesia care can serve as a prudent and effective option for surgical anesthesia in HOCM patients undergoing elective orthopedic surgery.

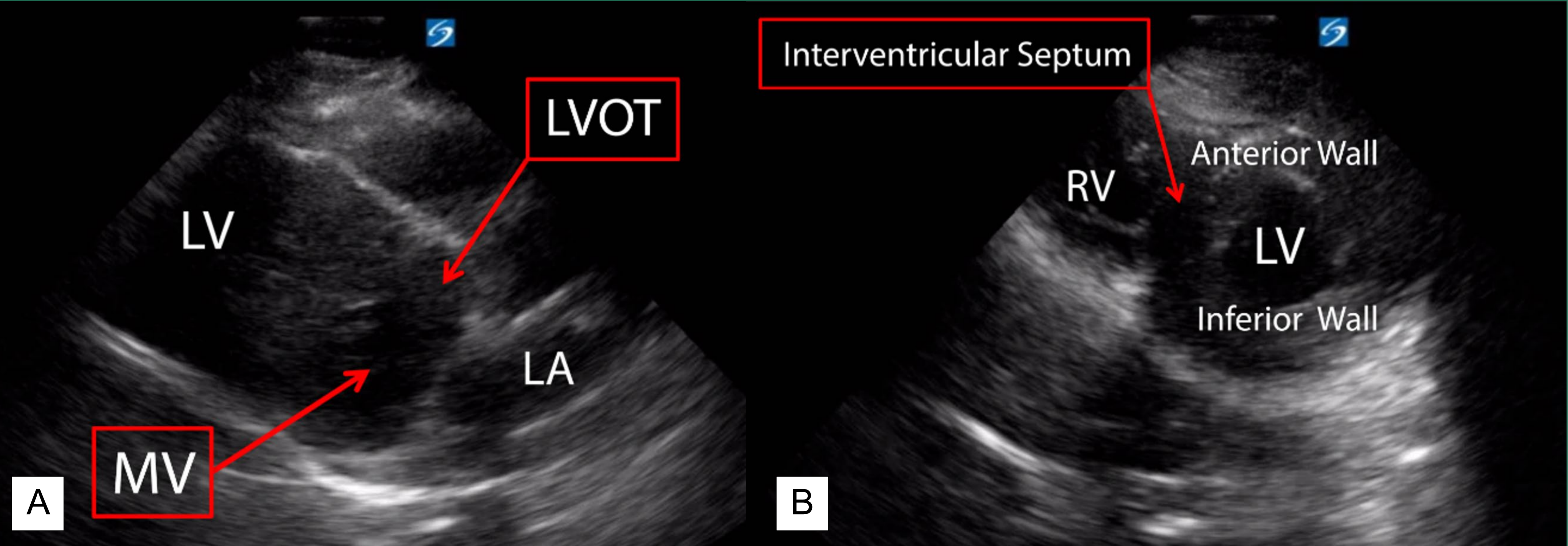


Figure 1: Preoperative transthoracic echocardiogram (TTE) point-of-care ultrasound (POCUS) in long (A) and short (B) axis views revealing moderately hypertrophied LV. LA: left atrium; MV: mitral valve; LV: left ventricle; LVOT: left ventricular outflow tract; RV: right ventricle



Outcome

- Procedure tolerated without hemodynamic compromise and no intraoperative opioid use.
- PACU: no postoperative pain, opiates, or PONV.

Figure 2: Anterior (A) and medial (B) views of the repair prior to closure.

Discussion

- HOCM presents challenges for anesthesiologists due to the potential for hemodynamic instability and cardiac arrhythmias.
- Anesthesiologists should recognize that regional and neuraxial techniques offer practical alternatives to general anesthesia, especially for patients with advanced diseases or critical conditions.

References

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