

MANAGEMENT OF A PATIENT WITH VENTRICULAR ASSIST DEVICE (VAD) USING REGIONAL BLOCK:

AN ADJUNCT FOR SHOULDER REPLACEMENT SURGERY

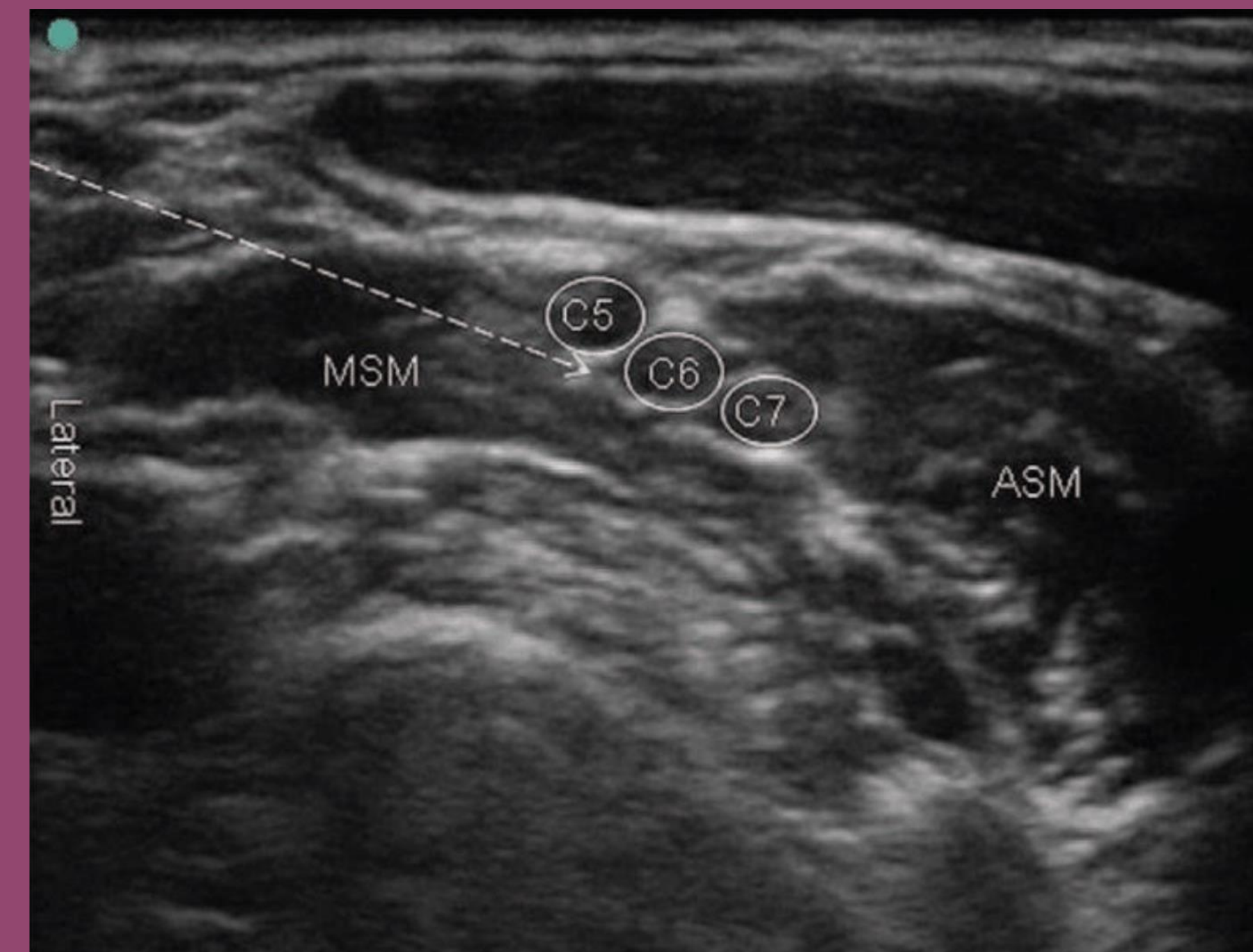
INTRODUCTION:

- VAD patients present unique anesthetic challenges due to non-pulsatile flow, preload dependence, and hemodynamic instability.
- Managing these patients perioperatively requires a multidisciplinary approach to optimize outcomes.
- Regional anesthesia may help stabilize hemodynamics, reduce intraoperative opioid use, and improve overall perioperative care.

CASE REPORT:

- A 63-year-old male with CAD, CHF with LVAD, VFIB with ICD, and a remote history of GI bleed (not on anticoagulation), undergoing left total shoulder arthroplasty
- General anesthesia (GA) + ultrasound-guided interscalene block (15 mL 0.5% ropivacaine + 2 mg dexamethasone)
- KEY PERIOPERATIVE STRATEGIES and EVENTS:
 - Arterial line, BIS monitor, device interrogation, and perfusionist support
 - Blood loss management and minimal pressor requirements following period of blood loss
 - Minimal intraoperative opioids/successful block
 - Multimodal post-operative pain management
- The patient was discharged home on postop day two without complications.

Regional anesthesia
improved hemodynamic
stability and **reduced**
intraoperative opioid use in
a **VAD** patient undergoing
non-cardiac surgery.



Ultrasound image of interscalene brachial plexus block with conventional approach. (MSM: Middle scalene muscle, ASM: Anterior scalene muscle).

DISCUSSION:

→ VAD FUNDAMENTALS :

- Non-pulsatile flow
- Preload dependent
- Afterload sensitive
- BP management

→ CHALLENGES:

- Hemodynamic fluctuations under GA
- Maintaining pump flow
- Patient positioning (compromised preload)
- Single-shot block vs. catheter

→ WHY REGIONAL?

- Blunted sympathetic response, preventing tachycardia and hypertension.
- Reduced opioid use, mitigating preload reduction effects.
- Lowered volatile anesthetic requirement, limiting vasodilation and preserving pump flow.

TAKEAWAY:

- Regional techniques may play a key role in optimizing perioperative management of VAD patients undergoing non-cardiac surgery.

1. Falland R, Allen SJ. Perioperative management of patients with a ventricular assist device undergoing non-cardiac surgery. *BJA Educ.* 2023 Oct;23(10):406-413. doi: 10.1016/j.bjae.2023.06.003. Epub 2023 Aug 12. PMID: 37720560; PMCID: PMC10501881.
2. Min JJ, Cho YH, Lee SM, Lee JH. Anesthetic management for non-cardiac surgery in patients with left ventricular assist devices. *Korean J Anesthesiol.* 2024;77(2):175-184. doi:10.4097/kja.23169



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