



Case Report: Optimizing Post-Operative Pain Management After Thoracic Surgery using Paravertebral Blocks and Catheters

Shauna Maty, MD, MPH¹; Aidan Hoie, MD¹; Matthew Lyman, MD¹; Jacob Loyd, MD¹
University of Colorado Anschutz¹

Introduction

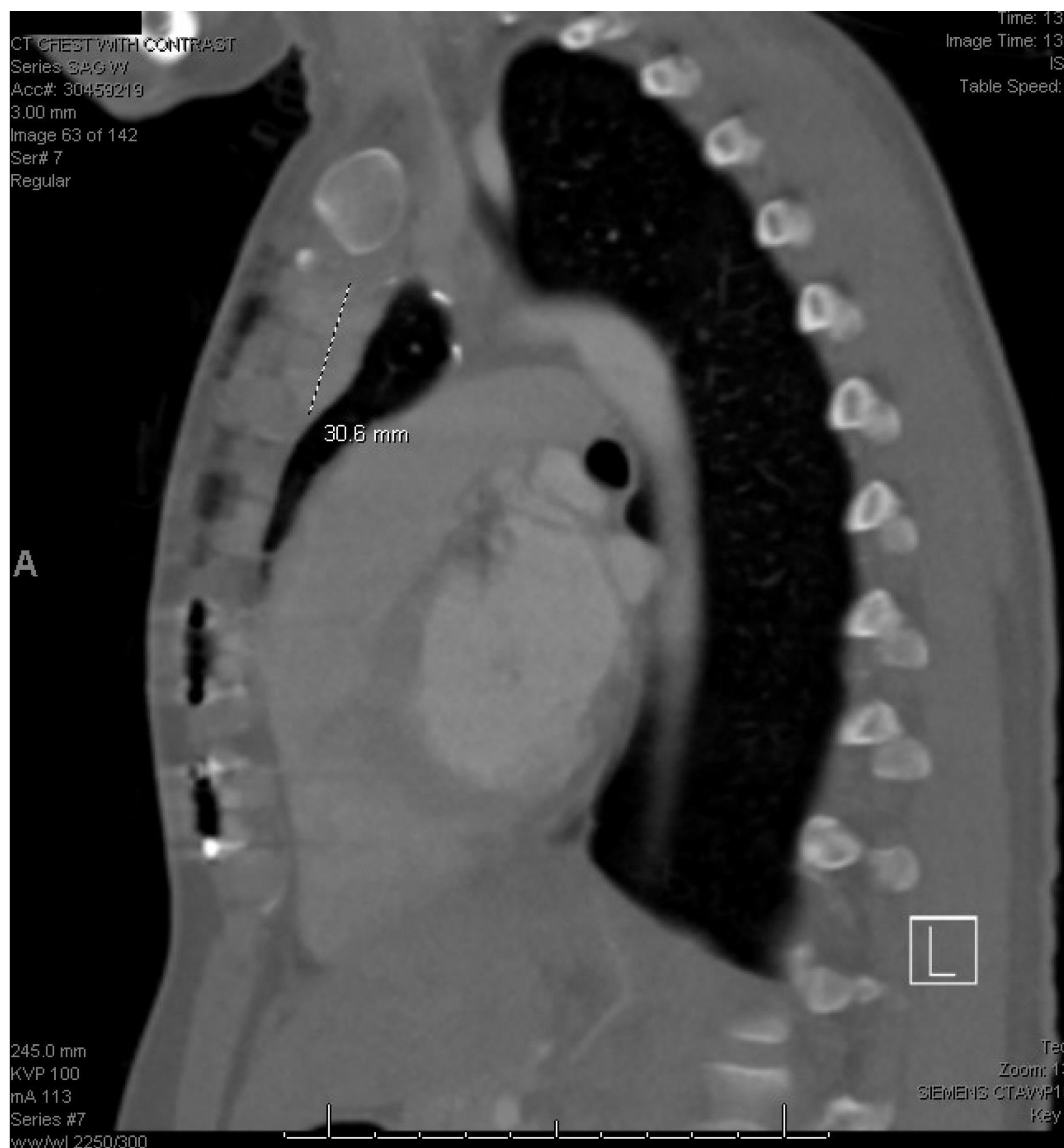
- Paravertebral blocks (PVBs) and paravertebral catheters (PVCs) are gaining attention for pain control in thoracic surgery
- PVBs and PVCs have been shown to provide effective pain control, improve cardiovascular stability, enhance respiratory function, and reduce complications
- This case report further explores the benefits of PVBs/PVCs in a patient undergoing extensive chest wall and mediastinal resection, contributing to the growing body of evidence supporting their use in thoracic surgery

Case Report

- 24-year-old female with a past medical history of asthma, daily marijuana use, and recurrent mediastinal follicular dendritic sarcoma, status post sternotomy and resection presented for surgery to resect a left anterior mediastinal & chest wall mass
- Underwent a partial manubriectomy and sternectomy, partial rib resection, left partial claviclectomy, and reconstruction of the chest wall
- Preop: Acute Pain Service performed bilateral PVBs using 0.25% bupivacaine + 10mg dexamethasone
 - 20cc local on L T2-3. 10 cc local on L T3-4, and 15cc local R T3-4
- POD 1: the PVBs provided excellent initial pain relief but wore off by the afternoon, so a left-sided paravertebral catheter (PVC) was placed at T6-7
 - 20cc bolus of 0.25% bupivacaine followed by a continuous infusion of 0.2% ropivacaine at 8cc/hr
- POD 4: chest tube removed
- POD 6: patient transitioned to oral pain control and PVC was weaned off and removed
- POD 7: patient was discharged on stable oral pain regimen

Main Takeaways

- A case report illustrating **successful paravertebral blocks in conjunction with paravertebral catheter placement** for partial manubriectomy and sternectomy, partial rib resection, left partial claviclectomy, and reconstruction of the chest wall in a 24-year-old patient with recurring follicular dendritic sarcoma
- Literature review highlights strong evidence supporting the **efficacy of PVB/PVC over thoracic epidurals in thoracic surgery**, particularly in terms of fewer complications, shorter hospitalizations, and largely equal pain control profile
- Given the location of the surgery and the very high placement of the PVBs and PVC, there is a **paucity of data involving paravertebral catheter placement in similar cases**



Discussion

- Kalaca & Pribish showed effective pain control with T1 and T2 PVBs followed by T1 PVC after first rib resection
- Elsayed et al. found PVB/PVCs offered better cardiovascular stability, improved respiratory function, less urinary retention, and shorter hospital stays compared to thoracic epidurals
- Vogt et al. demonstrated significant reductions in postoperative pain with single-shot paravertebral blocks
- Improving pain management in similar scenarios with consideration of PVC placement prior to PVB resolution
- This case supports the potential benefits of PVB/PVCs in high thoracic surgery, even in patients with complex pain management needs, such as this young marijuana user

Resources

- Kalava A, Pribish AM. T1 Paravertebral Catheter for Postoperative Pain Management After First Rib Resection for Venous Thoracic Outlet Syndrome: A Case Report. AA Pract. 2018 Jul 1;11(1):1-3. doi: 10.1213/XAA.0000000000000698. PMID: 29634572.
- Elsayed H, McKeivith J, McShane J, Scawn N. Thoracic epidural or paravertebral catheter for analgesia after lung resection: is the outcome different? J Cardiothorac Vasc Anesth. 2012 Feb;26(1):78-82. doi: 10.1053/j.jvca.2011.09.019. Epub 2011 Nov 16. PMID: 22088752.
- Vogt A, Stieger DS, Theurillat C, Curatolo M. Single-injection thoracic paravertebral block for postoperative pain treatment after thoracoscopic surgery. Br J Anaesth. 2005 Dec;95(6):816-21. doi: 10.1093/bja/aei250. Epub 2005 Sep 30. PMID: 16199417.