

Unintended Medial Cord Block Following PECS I and II Nerve Blocks: A Case Report Highlighting Anatomical Considerations and Technique Optimization

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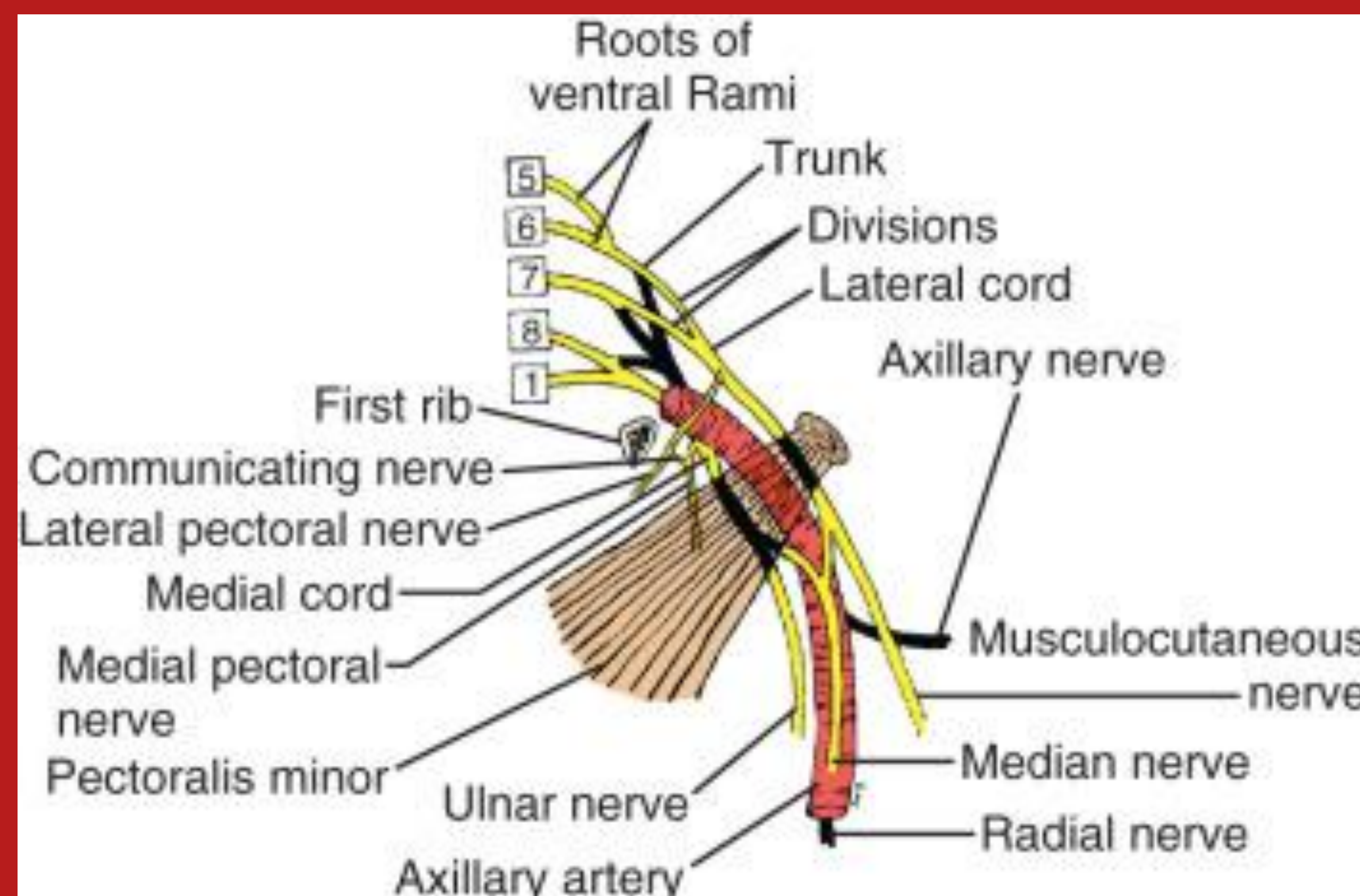


Introduction

- PECS I and II nerve blocks target the pectoral nerves and thoracic intercostal nerves, providing anesthesia to the pectoralis major and minor muscles as well as adjacent thoracic wall structures.
- Despite their superficial approach and clearly defined ultrasound landmarks, complications can arise from the unintended spread of local anesthetic to nearby structures.
- This report presents a rare case of medial cord block following a PECS I and II procedure.

Case 1

- A 35-year-old female underwent an augmentation mammoplasty under general anesthesia with endotracheal intubation without intraoperative complications. Her prior surgical and medical histories were unremarkable.
- Post operatively, she received an ultrasound guided bilateral PECS I and II nerve block
- Block technique and medication:
 - 15 ml of local anesthetic solution comprised of 20 ml Liposomal Bupivacaine (Exparel™) + 20 ml of bupivacaine 0.25% + 20 ml of normal saline, was injected between the pectoralis major and minor muscles.
 - The PECS II block involved an additional 15 ml of the local anesthetic solution noted above to be injected between the pectoralis minor and serratus anterior muscles.



Bland KI, Copeland III EM, Klimberg VS. Anatomy of the breast, axilla, chest wall, and related metastatic sites. In: The breast 2018 Jan 1 (pp. 20-36). Elsevier.

- **The PEC II block deposits local anesthetic between the pectoralis minor and serratus anterior muscles at the level of the second to fourth ribs, near the axillary sheath. The medial cord is more susceptible to anesthetic as it is more inferiorly and medially within the axillary region.**
- **Additionally, the medial cord gives rise to the medial pectoral nerve, which is targeted by the PEC I block, further increasing the likelihood of its involvement.**

Case 1 (Continuation)

- Several hours after block administration, the patient reported paresthesia in the right arm. Physical examination revealed motor weakness and sensory deficits areas innervated by the medial cord of the brachial plexus.
- There was a degree of patchiness with regards to symptoms distribution, though overall symptoms were localized to the C8 and T1 dermatomes but were not strictly defined by of the median, ulnar, median cutaneous nerve distributions.
- The patient was discharged home with telephone follow-ups. She was advised to elevate the upper extremity. The nerve block gradually wore off over several days and fully resolved by day five.

Conclusion

- This report illustrates a rare complication of medial cord block following PECS I and II procedures.
- While these techniques are generally regarded as safe and effective, their anatomical proximity to the brachial plexus highlights the necessity for precise technique and judicious volume management.

References

1. Bland KI, Copeland III EM, Klimberg VS. Anatomy of the breast, axilla, chest wall, and related metastatic sites. In: The breast 2018 Jan 1 (pp. 20-36). Elsevier.
2. Antonucci S, Fusco P, Di Carlo C, Rizzi M, Marinanageli F. Unexpectdly lateral and medial cord block after PECS 1 and serratus plane block for wide local excision of breast node: the importance of knowledge of anatomy. Minerva Anesthesiol. 2021 Feb;87(2):242-243. doi: 10.23736/S0375-9393.20.14959-9. Epub 2020 Sep 22. PMID: 32959638.