

Clavipectoral Nerve Block For Clavicle Surgery, A Case Series

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Background

Clavicle fractures are a common injury seen in the ED. When surgical repair is performed, the anesthesiologist can be faced with a tough task of providing adequate post operative pain management, **especially when the medial clavicle is involved**.

Traditionally, a combination of superficial cervical plexus (SCP) and interscalene (IS) blocks have been used. Multiple studies have shown significant decrease in post operative opioid consumption when IS/SCP is used compared to general anesthesia (1). This strategy, however, carries the risk of other block side effects such as phrenic nerve paralysis and upper extremity numbness and weakness. **It also has been shown to be less effective for medial fractures**. We investigated the efficacy of the clavipectoral nerve block (CPB) in a case Series of two patients undergoing medial clavicle surgery.

Materials and Methods

- 2 patients undergoing clavicle surgery (one fracture, one Sternoclavicular joint repair) were chosen on day of surgery to be good candidates for CPB.
- Consent for block was obtained and the block was performed in the pre-operative holding.
- Pre- and post-operative pain scores were obtained in pacu and via chart review.
- As the case report is devoid of patient identifiable information, it is exempt from IRB review requirements per MUSC policy.

References

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Case Series

Case Study #1:

- 62yo F presented for Right Clavicle ORIF with a displaced right medial clavicle fracture
- PMHx: PONV, SLE, and DVT
- Pre-op** → pain score was a 9/10.
 - A right sided CPB and SCP were performed with 15cc 0.25% ropivacaine with dexamethasone at each site
 - A high frequency linear ultrasound probe was placed on her anterior clavicle and the needle was advanced to the periosteum at the lateral boarder of the fracture site (Figure 1).
- Intraop** → TIVA with an LMA.
 - 0 MME intraop**
- Post-op** → Her post operative pain scores at 15mins, 2.5 hours, 8 hours, and 12 hours were 5, 4, 6, and 6, respectively
 - 0.8mg hydromorphone during her PACU stay.



Figure 1: Ultrasound imaging of CPB

Case Study #2:

- 52yoF presented with left anterior medial clavicular instability associated with pain for left SC joint reconstruction.
- PMHx: chronic sternal pain, recent COVID infection, GERD, and irritable bowel syndrome.
- Pre-op** → pain score was reported as 7/10.
 - A left sided CBP just lateral to the SC joint was performed with 20cc 0.25% ropivacaine with dexamethasone as well as SCP with 10cc 0.25% ropivacaine with dexamethasone
- Intraop** → GETA was performed without issues
 - 0 MME were required intraoperatively**
- Post-op** → pain score in the PACU was reported as a 7/10.
 - 1.2mg hydromorphone in PACU

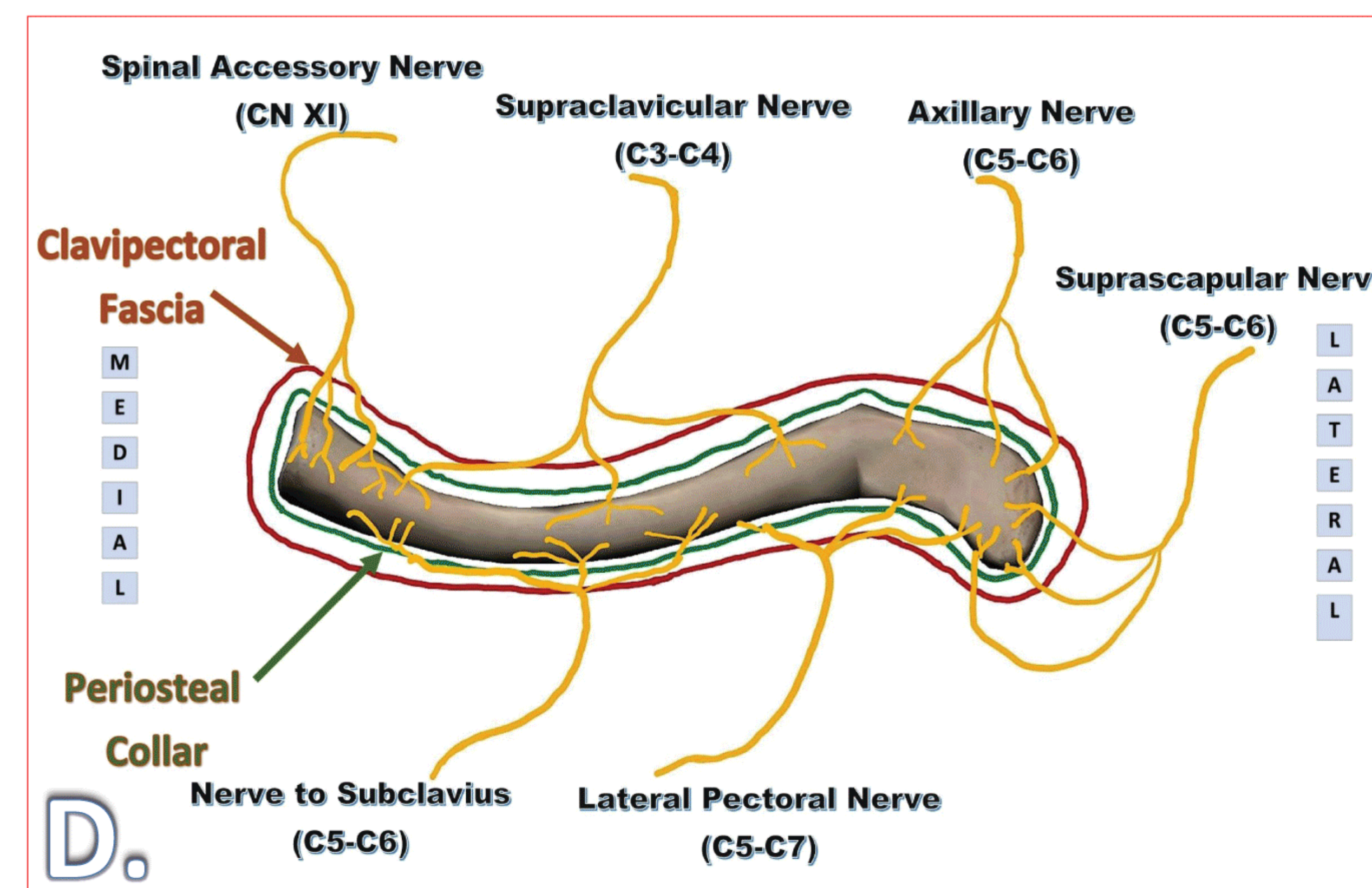


Figure 2: Innervation of clavicle (4)

Discussion

- Some combination of the Spinal Accessory Nerve (CN XI), Supraclavicular Nerve (C3-C4), Axillary Nerve (C5-C6), Suprascapular Nerve (C5-C6), Lateral Pectoral Nerve (C5-C7), and the Nerve to the Subclavius (C5-C6) is the current “best guess” for clavicle innervation (2).
- Current practice of IS/SCP block misses most of the medial clavicle making it less effective. Phrenic nerve involvement can also be of concern for patients with pulmonary disease.
- The clavicle is surrounded by the clavipectoral fascia. A fascial plane block in this field should effectively anesthetize any nerves that pierce the fascia to innervate the bone.
- In our series, the first patient felt immediate relief of pain while the second patient did not have any increase in pain after the procedure showing effectiveness of the block.

Conclusion

The CPB is an underutilized block in clavicle surgery that shows promising results with minimal side effects. In patients with medial fractures or pulmonary co-morbidities, this is a viable alternative to the proven effectiveness of IS/SCP block for clavicle fractures and other clavicle surgery. Larger, randomized controlled trials are needed to fully compare CPB to IS/SCP for medial fractures.