

Introduction

- Brachial plexus blocks for shoulder surgery are commonly performed, notably the interscalene block (ISB).
- An ISB causes phrenic nerve paralysis >70% of the time, making it an unsuitable block for patients with compromised pulmonary function.
The superior trunk of the brachial plexus can be blocked selectively and also targets the C5 and C6 nerve roots but only affects the phrenic nerve in around 5% of cases when using 15cc volume.

There is a scarcity of case reports on the effective use of a low volume superior trunk block (STB) as a primary anesthetic for shoulder surgery in high-risk patients.

Works Cited

1. Amaral, Sara et al. "Superior Trunk Block Is an Effective Phrenic-Sparing Alternative to Interscalene Block for Shoulder Arthroscopy: A Systematic Review and Meta-Analysis." Cureus vol. 15,11 e48217. 3 Nov. 2023, doi:10.7759/cureus.48217
2. Kim, David H et al. "Superior Trunk Block: A Phrenic-sparing Alternative to the Interscalene Block: A Randomized Controlled Trial." Anesthesiology vol. 131,3 (2019): 521-533. doi:10.1097/ALN.0000000000002841

A Superior Trunk Block can be used as an effective anesthetic block in select shoulder surgeries for high-risk patients with respiratory compromise, who require phrenic nerve sparing techniques.

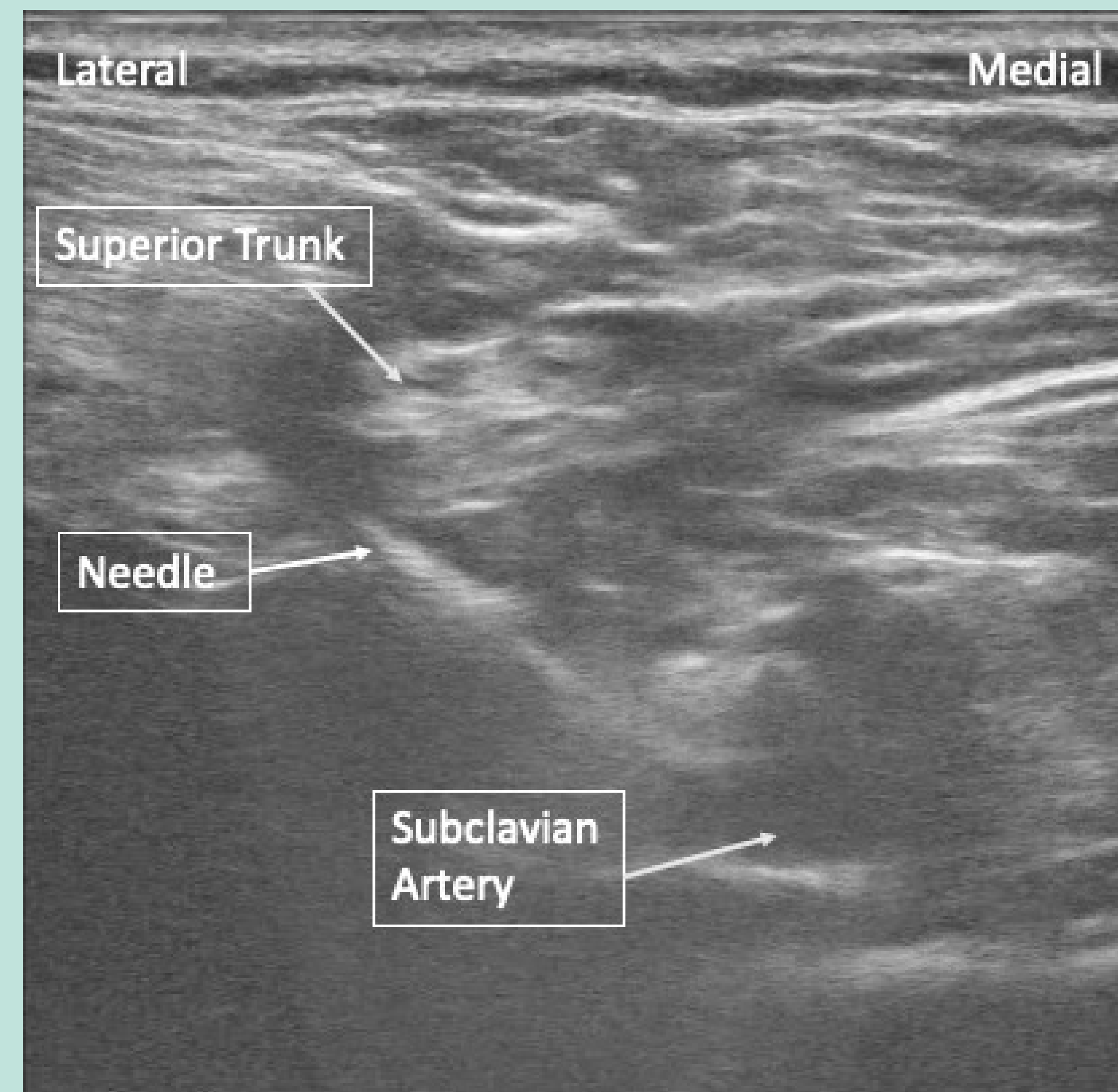


Figure 1: Superior Trunk Block US Image

- STB reliably blocks the C5 and C6 nerve roots of the brachial plexus, providing anesthesia and analgesia to the shoulder joint and proximal humerus, with a sensory distribution similar to the traditional ISB.
- In this case, the low volume (10cc) STB was successful in providing adequate analgesia for a challenging closed shoulder reduction while simultaneously preserving respiratory function. We opted to use chlorprocaine as our local anesthetic due to its short acting nature.

Case Description

42-year-old male with a complex PMH of morbid obesity, OSA on CPAP, Asthma/COPD, HFpEF (EF 65%), GERD, He presented to the ED for symptoms of cellulitis and was found to be hypoxemic and in heart failure with severe volume overload, notably with a BMI of 83.

During his ED stay, he fell and suffered an anterior shoulder dislocation. He required surgical intervention for a challenging closed shoulder reduction. He was meanwhile still being treated for heart failure and significant volume overload.

Once in the OR, a STB was performed. A curvilinear ultrasound probe was used to obtain image of the brachial plexus, starting with an interscalene view and sliding caudally to find **the superior trunk**. Once the image was obtained, skin anesthesia was provided with 1–2 mL of 1% lidocaine, a **10 cm, echogenic, 21 G block needle** was advanced in plane in a lateral-to-medial direction. **7mL of 3% Chloroprocaine** was deposited around the superior trunk with good LA spread. The needle was then retracted and redirected more lateral and **below the belly of the omohyoid where 3mL of 3% Chloroprocaine was deposited around the suprascapular nerve**. Patient then underwent his shoulder reduction procedure with the STB as his only anesthetic due to his high risk respiratory and cardiac compromise. During the procedure, a HFNC was used, and quickly went to a regular NC while the procedure was completed.

He was then seen in PACU with **minimal pain and without compromise of respiratory function** as he remained on NC, which he had been requiring prior to his OR. He did not require analgesic medications during his PACU recovery.