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Figure 1: Suprascapular block



Figure 2: Infraclavicular block

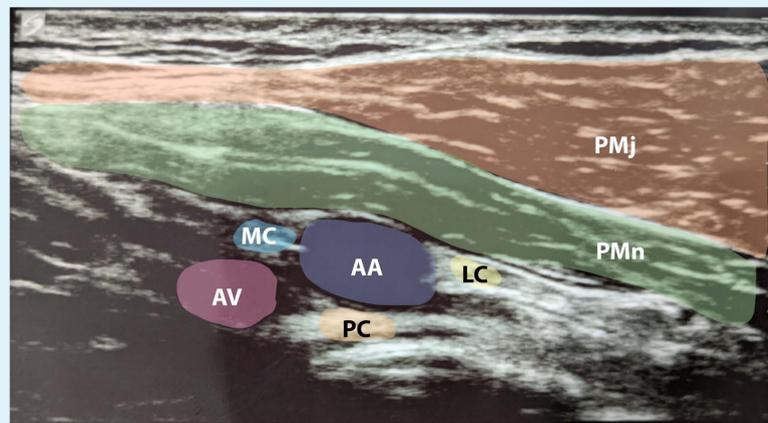
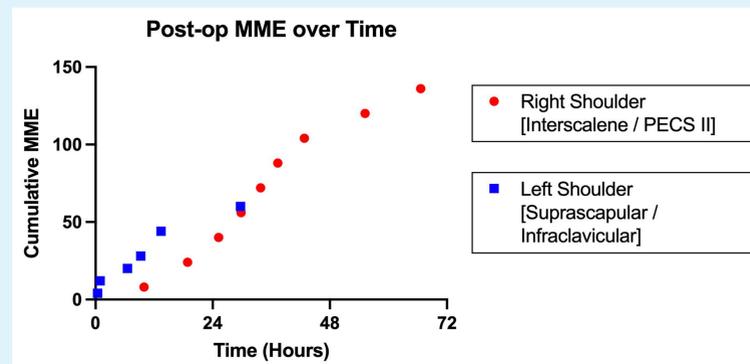


Figure 2: Pecs block



## Introduction

Total shoulder arthroplasty is a major surgical procedure with the potential for severe postoperative pain. The interscalene brachial plexus block is considered the optimal regional anesthetic for postoperative analgesia after shoulder surgery, sometimes coupled with a pectoralis (PECS II) block in case of performance of a biceps tenodesis. However, the major disadvantage of the interscalene block is the risk of ipsilateral phrenic nerve paralysis, which can significantly decrease respiratory function in patients with poor respiratory reserve. In this case report, we describe an unusual case where a high-risk patient received an suprascapular/infraclavicular block for a left total shoulder arthroplasty due to severe respiratory decompensation after a prior right total shoulder arthroplasty performed with a combined interscalene/PECS II block. Written consent for publication of non-identifying medical information and Health Insurance Portability and Accountability Act authorization was obtained from the patient.

## Case Description

An 62-year-old, 90.5 kg man with a past medical history of atrial fibrillation, diabetes, and obesity presented for left total shoulder arthroplasty. A suprascapular and infraclavicular block was planned and discussed with the patient in order to minimize postoperative pain and optimize respiratory function. Of note, the combination suprascapular/infraclavicular block was performed due to robust respiratory depression that the patient sustained after receiving an interscalene / PECS II block several months prior.

## Case Description (continued)

After appropriate monitoring and sedation, the ultrasound-guided infraclavicular block was performed via paracoracoid approach by visualizing the neurovascular bundle in a parasagittal plane just medial and inferior to the coracoid process. A 21-gauge, 100-mm insulated needle was advanced in-plane in a cephalad-to-caudad trajectory under direct visualization, with the needle tip positioned cephaloposteriorly to the axillary artery. A single injection of 15 mL of 0.5% bupivacaine was administered, evaluating for a U-shaped spread, defined as local anesthetic distribution in a cephalad, posterior, and caudad position to the axillary artery.

Subsequently, an ultrasound-guided suprascapular nerve block was performed by advancing the needle beneath the transverse scapular ligament into the suprascapular notch within the vicinity of the suprascapular nerve. A single injection of 10 mL of 0.5% bupivacaine was administered.

The patient underwent the procedure supported, uneventfully, with general anesthesia and received a total of 200 mcg fentanyl all intravenously. After completion of the surgery, the patients were taken to the postanesthesia care unit (PACU). The patient had an uneventful recovery and was discharged home on postoperative day 3.

Procedure	Block	Procedure Date	Total Intraoperative Fentanyl (mcg)	Cumulative Opioid Consumption in MME at 24h, 48h, 72h
Right Shoulder Replacement	Interscalene/ PEC II	7/29/2021	200	24, 104, 136
Left Shoulder Replacement	Suprascapular/ Infraclavicular	12/9/2021	200	44, 60, 60

## Discussion

The main findings of the current case report demonstrate that suprascapular/infraclavicular blocks can be used successfully to provide good postoperative pain control in patients with poor pulmonary reserve.

It is also interesting to note that although the patient in question had minimal formal documentation of pulmonary compromise except for truncal obesity, the patient's postoperative course revealed evidence of decreased respiratory function with decreases in forced vital capacity, forced vital expiratory volume in 1 section, and peak expiratory flow rates, likely secondary to hemidiaphragmatic paralysis secondary to ipsilateral phrenic nerve involvement.

In the future, this may lead the independent practitioner to use a lower threshold to select a diaphragm-sparing nerve block technique for ambulatory patients undergoing shoulder surgery. Further research is warranted.

## References

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