

INTRODUCTION

A brachial plexus block (BPB) is used for effective perioperative analgesia in a wide range of procedures involving the upper extremities and can be performed through four approaches: interscalene, supraclavicular, infraclavicular, and axillary.

Currently, the ultrasound (US)-guided method is the most used when performing BPBs and is superior to methods such as the landmark and nerve stimulation in terms of an improved success rate, a shorter time for peak effect, and a lower incidence of vascular puncture.

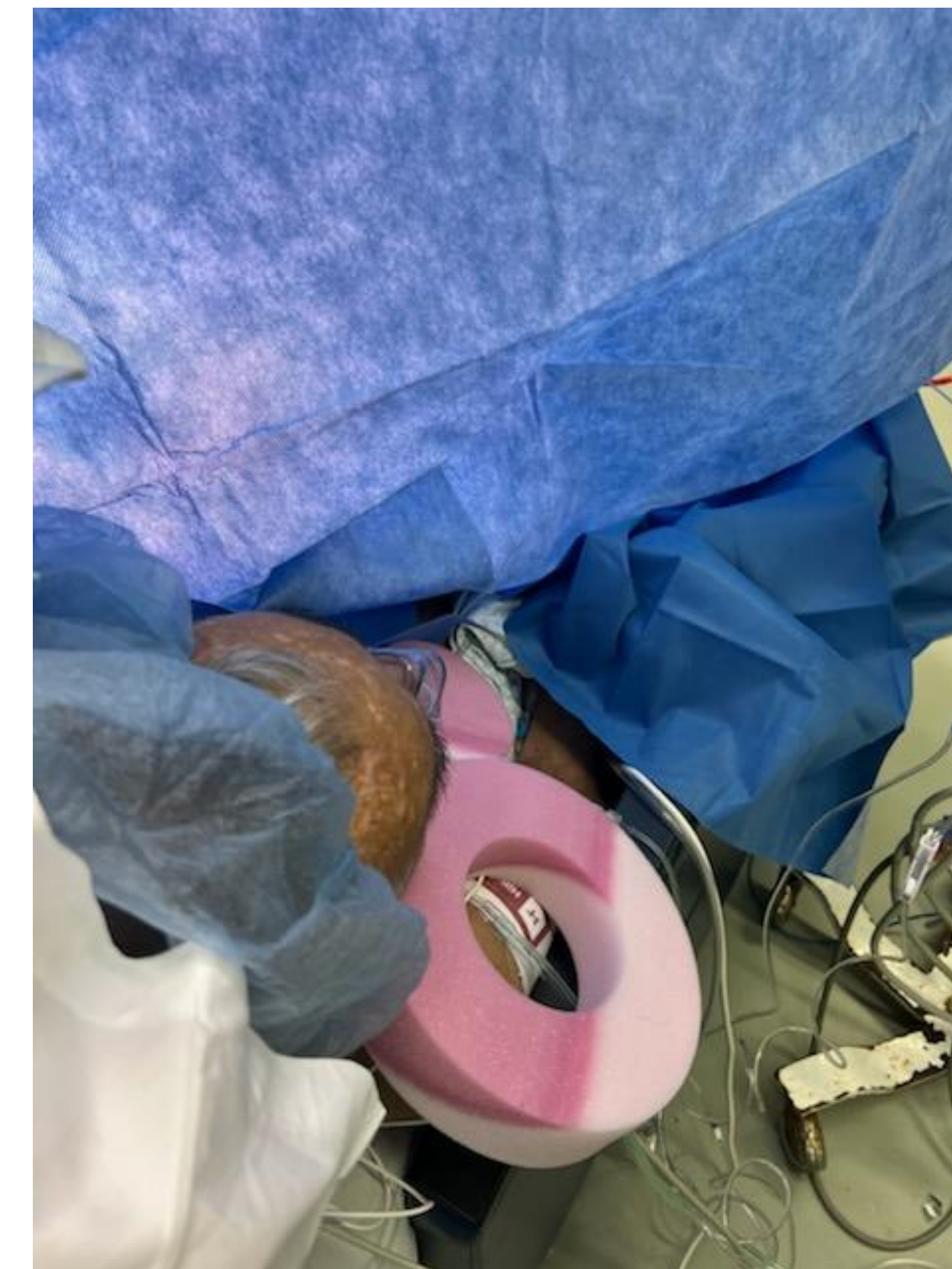
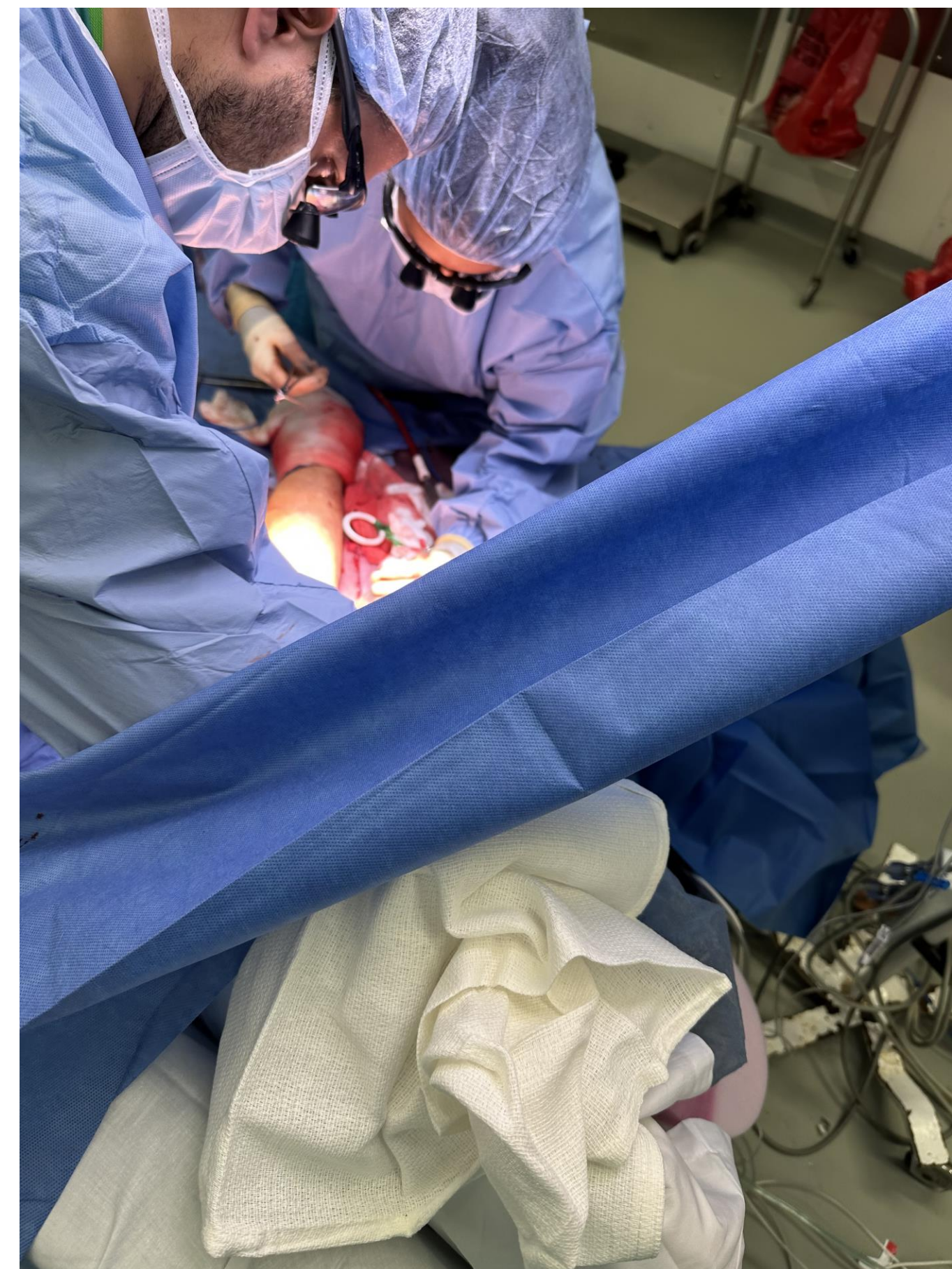
Among the four approaches, the axillary block is considered the safest and with fewer adverse events compared to the interscalene and supraclavicular. Interscalene blocks risk phrenic nerve block, spinal cord, or vertebral artery puncture, while supraclavicular also risks pneumothorax. In our case, we demonstrate the use of axillary block for an uncooperative and unstable patient in respiratory failure.

METHODS

- The case report is devoid of patient identifiable information; it is exempt from IRB review requirements as per Maimonides Medical Center Policy.
- The medical record was reviewed in preparation for the case report.
- All imaging was de-identified.

Perioperative Course

- 62yoM hx of CAD w/ Bare Metal Stent x1 in 2017, HFrEF (EF 26-30%), COPD on 4L NC baseline at home, tracheal stenosis with tracheal dilatation x3 in the past with known difficult airway, Morbid Obesity with BMI 40.6, ESRD on dialysis via LUE fistula, last dialysis day prior to procedure, anemia, GERD, unknown psychiatric history, current 1/2ppd smoker with 20+ pack years, ECG showing 1st degree heart block presented to hospital for AMS/acute respiratory failure secondary to fluid overload. He was placed on BiPAP and treated for both CHF and COPD exacerbation.
- Pt refusing BiPAP and dialysis during hospital stay, psychiatry evaluated and determined pt does not have capacity to make medical decisions/sign out AMA.
- Vascular surgery consulted for AVF ulceration and aneurysm, recommended revision d/t high risk of ulcer erosion and bleeding.
- Pt brought to OR with 4L NC, on stretcher on which block was to be performed, after flattening stretcher slightly to perform block patient became dyspneic with increased WOB, desaturation to spO2 of 80s.
- Pt could not tolerate <45 degree without drop in saturation and respiratory distress. Pt refused BiPAP with mask.
- Due to urgency of procedure, axillary block was performed with patient sitting upright on stretcher using 30mL of 0.5% bupivacaine. Pt was transferred to chair to maintain upright position, 4L NC, midazolam 2mg, fentanyl 50mcg, Dexmedetomidine gtt at 0.2 administered. AV Fistula revision performed successfully.



DISCUSSION

At our institution, we typically would consider a supraclavicular regional block for this case. On assessment, this patient had a reduced neck range of motion which led to difficulty with anatomical landmark visualization. Infraclavicular block was attempted, however there was aspiration of the axillary artery. Finally, an axillary block was performed with 30mL of 0.5% bupivacaine. The axillary block was effective, with supplemental lidocaine provided by the surgical team for the intercostobrachial nerve distribution.

Due to the patient's acute respiratory failure, he was maintained in the upright position with 4L NC, and light sedation as needed. Airway assessment was critical due to his morbid obesity, BMI >40, enlarged neck circumference and history of tracheal stenosis s/p tracheal dilation x3.

Regional anesthesia with conscious sedation was the preferred anesthetic. Dexmedetomidine provided adequate sedation through the case. There were no significant hemodynamic changes with the slow induction of dexmedetomidine drip. A successful AV Fistula repair was performed. Of note US-guided axillary block has shown to increase AV Fistula blood flow significantly more than local anesthetic infiltration.

Additionally, in the case of this patient in severe heart failure and COPD exacerbation, an axillary nerve block may have been preferred to reduce the risk of pleural injury and pneumothorax. This case demonstrates an effective regional block performed for AV-fistula repair in an unstable patient with severe co-morbidities.

REFERENCES

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