

Retro-clavicular Approach to the Infraclavicular Region (RAPTIR) for Patient with Limited Shoulder Mobility

Joshua Pyant DO, Jeremy R. Armbruster MD, Stuart A. Grant MB ChB

Department of Anesthesiology, University of North Carolina-Chapel Hill, Chapel Hill, North Carolina 27599-7010 USA

INTRODUCTION

Retro-clavicular Approach to the Infraclavicular Region (RAPTIR) provides regional anesthesia to the upper extremity. It is a single injection technique suitable for patients with limited mobility of the shoulder who are unable to assume the position necessary for a traditional infraclavicular nerve block. Additionally, needle visualization is improved with the RAPTIR block. Traditional Infraclavicular block requires inserting the needle just below the clavicle which requires a steep trajectory. This results in the ultrasound beam reflecting off the needle at an acute angle thereby providing poor needle visualization. By performing the RAPTIR block the needle approaches posterior to the clavicle thereby creating a plane perpendicular to the ultrasound beam yielding improved visualization (1).

CASE REPORT

46-year-old male with a past medical history of ESRD, HTN, T2DM and GERD presented to the University of North Carolina Hospitals for a left radio-cephalic fistula placement in preparation for hemodialysis. Given that the surgical procedure was being performed on the distal aspect of the arm, our team initially offered an axillary nerve block for surgical anesthesia. However, this patient was in the custody of the department of corrections. When explaining to the officers that this procedure required unshackling of the handcuffs for abduction of the arm we were met with resistance. The officers were instructed that under no conditions were they able to release the patient from handcuffs. Given the inability to abduct the arm, we opted to perform the RAPTIR block. This technique allowed us to perform the procedure under less-than-optimal conditions with the patient’s hands remaining cuffed. The patient underwent successful surgical anesthesia of the arm with a native airway and propofol infusion.



PROCEDURE

- A shoulder roll was placed under the scapula to improve procedural space.
- Head was elevated and the patient was instructed to turn head to the contralateral side.
- Arm was placed in adduction by instructing the patient to reach for his knee.
- Probe was placed in the parasagittal position medial to the coracoid process. The appropriate anatomy of the axillary artery and the cords of the brachial plexus were identified on the ultrasound image.
- 2cc of 2% lidocaine was administered with a 27G needle posterior to the probe.
- 21G Pajunk needle was directed 2cm posterior to the ultrasound and advanced parallel to the floor.
- Needle was continuously advanced until it surpassed the clavicular acoustic shadow and proceeded to the 6’ o’clock position of the axillary artery.
- 20cc of ropivacaine and 10cc of mepivacaine was administered.

DISCUSSION

Limited data exist regarding the use of the RAPTIR block with most of the literature being applied to patients in the emergency department. While many anesthesiologists are comfortable performing the traditional infraclavicular block, the RAPTIR is frequently underutilized. With improved needle visualization and the parallel trajectory of the needle this technique avoids the cephalic vein, thoraco-acromial artery, and the lateral cord; all of which are structures at risk of injury with the traditional infraclavicular block (2). The ability to perform the RAPTIR with limited mobility of the arm proves this technique to be a useful skill in the toolbox of regional anesthesiologist. Furthermore, this scenario emphasizes the importance of being an adaptable physician and tailoring regional techniques to the individual patient and the situation that arises.

REFERENCES

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- 2) Uppal V, Kalagara HKP, Sondekoppam RV. Tips and tricks to improve the safety of the retroclavicular brachial plexus block. Am J Emerg Med. 2018 Jun;36(6):1107-1108. doi: 10.1016/j.ajem.2017.09.056. Epub 2017 Sep 29. PMID: 28978400.