Split Dose Erector Spinae Plane Blocks with Multimodal Opioid Sparing Anesthesia for Excision and Complex Closure of Large Congenital Nevi

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Figures

Fig 1. Staged photograph showing ultrasound probe position and needle position during erector spinae block.

Fig 2. Staged photograph of patient's back prior to procedure.

Fig 1. Fig 2. Staged photograph of patient's back after procedure.

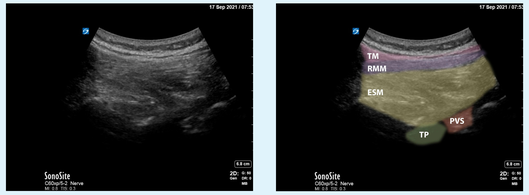

Figure 3: Ultrasound image patient's anatomy prior to erector spinae plane (ESP) block and local anesthetic infiltration: Fig 3a illustrates unedited image, Fig 3b shows false-color overlay.

Introduction

Classification of nevi is arbitrary but widely accepted, with nevi less than 1.5 cm classified as small, 1.5 to 19.9 cm classified as medium, and greater than 20 cm classified as large. Available interventions for large congenital nevi include serial excision, expanded flaps, expanded full-thickness skin grafts, and split-thickness or non expanded full-thickness skin grafts. Malignant transformation is estimated at 2% to 31%, making surgical excision the standard of care.

This case explores a multimodal analgesia regimen aimed at minimizing intraoperative and postoperative utilization of systemic opioids during plastic surgery, evaluates the utility of regional anesthesia techniques in augmenting systemic analgesics in posterior thoracolumbar plastic surgery, and progresses methods for enhancing analgesia without systemic narcotics in patients undergoing posterior thoracolumbar plastic surgery without sacrificing quality of analgesia.

Methods & Results

31 y.o. 65 kg female with multiple posterior thoracolumbar congenital nevi presented for excision with complex closure. Her past medical history consisted of Lupus and Raynaud's syndrome. She expressed a deep concern about postoperative pain management. After extensive discussion, she consented to general anesthesia utilizing a multimodal opioid-sparing regimen in combination with split dose erector spinae plane blocks (ESPB). Preoperatively, she received acetaminophen 975 mg. After 2 mg midazolam, two sets of ESPB were placed under ultrasound guidance in the sitting position using an admixture of bupivacaine 0.25% (15ml)/1.3% liposomal bupivacaine (10 ml): 12.5 mls on the right side at T5 and T10, and 12.5 mls on the left side at L1 and L5 (50 ml total).

Methods & Results (continued)

After skin disinfection, draping was placed over the patient's back and the ultrasound probe was sheathed with a Tegaderm. The block was performed at the right T5 transverse process using a SonoSite X-Porte C60XP (5-2MHz) curvilinear ultrasound probe, which was placed in a parasagittal plane 2 cm from midline. The plane deep to the erector spinae muscle (ESM) was identified, and a 22 G, 3-⅛ in non-insulated needle (Ultraplex 360®, B.Braun, USA) was inserted caudo-cranially in plane between the transverse process and the fascia of the ESM. The correct position was confirmed by visualizing the solution lifting the ESM off the transverse process. Spread of local anesthetic between the right T5 and T6 transverse processes was thereafter visually tracked with the transducer. This was repeated at the right T10 level and then at the L1 and L5 levels on the left side. GETA was induced with Propofol 1.5 mg/kg, ketamine 50 mg, and rocuronium 0.5 mg/kg and the trachea intubated after LTA spray with 4 ml of 4% lidocaine. GETA was maintained with propofol 100 mcg/kg/min and sevoflurane. Additionally, the surgeon administered 15 ml 0.25% bupivacaine with epinephrine to the incision lines for hemostasis. She was extubated in the OR after 2.5 hours of surgery, reported no pain in the PACU and did not require systemic narcotics during her two hour recovery, at which point she was discharged home.

Postop Day	Pain Score	Opioid Consumption	MEQ	Cumulative MEQ
0	0	None	0	0

Discussion

Surgical excision is effective in the removal of nevus cells, which is hypothesized to proportionally reduce the risk of malignant transformation. Surgical excision is widely accepted on extremities, but less common for nevi presented on one's trunk. Given the locations of the large nevi (illustrated in Fig 2), surgical excision and closure was expected to be complex. Consequently, effective analgesia was paramount. Traditional anesthetic plans for large congenital nevi promote the administration of local anesthetic under the area of the nevus and peripheral skin. The utilization of a ESPB permitted minimizing intraoperative and postoperative utilization of systemic opioids.

Acknowledgements & References

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