The Retroclavicular Approach to the PECs (RAP) Block: A Novel Regional Technique for Breast Surgery

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Background and Aims

- Acute and chronic pain after breast surgery is shown to be reduced with implementation of interfascial plane blocks as a part of perioperative analgesia. Several novel interfascial blocks have been described for the control of perioperative breast pain.

Aims:

- To describe a novel Retroclavicular Approach to the PECS (RAP) block allowing for preemptive catheter placement prior to surgical incision (Fig 1 & 2)
- To describe patterns of methylene blue spread after injection into the PECS I and II interfascial planes using a retroclavicular approach in fresh cadavers

Methods

- Institutional approval obtained
- RAP blocks were conducted on 4 fresh human cadavers using methylene blue
- 2 cadavers injected within the interfascial plane between the pectoralis muscles with 10 mL
- 2 cadavers injected within the interfascial plane between the pectoralis minor and serratus anterior muscles using 20 mL (Fig 3 & 4)
- A 20g catheter was placed 3-5 cm beyond the tip of the 18g Tuohy needle in all cadavers
- Cadaveric dissection began 20 mins following dye injection

Fig. 1

Fig. 2

Fig. 3

Fig. 4

(Fig. 1-2) Needle approach ~3 cm posterior to the clavicle.

(Fig. 3 - Injection in PECS II plane) A) PMM cut/reflecting to expose LPN and MPN between pectoralis muscles (no staining); B) PMM cut and reflected showing Tuohy needle (white arrow) and catheter (white asterisk) within interfascial plane between PMM and SAM; C) Intercostal dissection to observe minimal staining of ACB of the intercostal nerve.

(Fig. 4 - Injection in PECS II plane) A) PMM cut/reflecting showing dye within interfascial plane between pectoralis muscles; B) Reflection of PMM showing LPN and MPN with heavy staining; C) PMM cut/reflecting exposing lateral chest wall with heavy staining of LTN and ICBN.

Results

- In both cadavers in which a PECS I block was performed, dye was limited to the medial and lateral pectoral nerves
- Cadavers in which a PECS II (fig 3 & 4) block was performed, dye stained the long thoracic and thoracodorsal nerves, as well as the lateral cutaneous branches of the intercostal nerves (II-VI)
- In cadaver 1 (PECS II; fig 4), dye spread to the PECS I plane to stain the medial and lateral pectoral nerves
- All catheters were situated in their respective interfascial planes

Conclusion

- The PECS II block is a safe and effective alternative for breast analgesia
- This study shows satisfactory staining of nerves relevant to breast analgesia within/adjacent to each respective interfascial PECS plane
- With the potential to place a preoperative PECS catheter, preemptive and preventative analgesia can be achieved while preserving the longevity of the block via continuous LA infusion