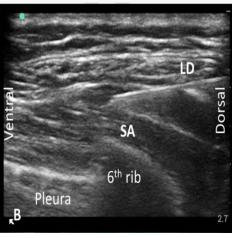
A case series of Serratus Plane Block modified approach-Analgesia for Upper Abdominal Surgeries





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Background... Serratus Plane Block

- designed primarily to denervate thoracic intercostal nerves and provide analgesia to the lateral part of the thorax inclusive of the axillary region
- mainly centered on its use as an analgesic modality for major breast surgeries¹, thoracotomies² and rib fractures³

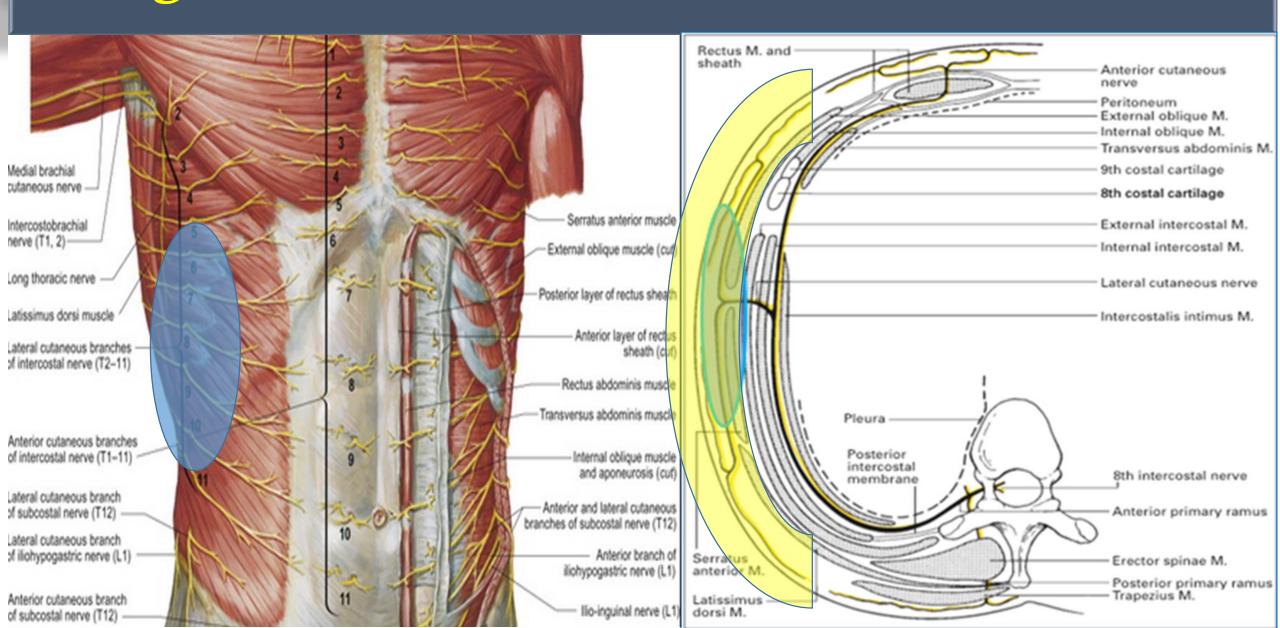
- 1. Blanco R, Parras T, MacDonell JG, Pratz-Galino A. Serratus plane block: a novel ultrasound-guided thoracic wall nerve block. *Anaesthesia 2013*; 68: 1107-1113.
- 2. Madabushi R, Tewari S, Gautam S et al. Serratus Anterior Plane Block: A New Analgesic Technique for Post-Thoracotomy Pain. *Pain Physician* 2015; 18: E421-E424
- 3. Kunhabdulla NP, Agarwal A, Gaur A et al. Serratus Anterior Plane Block for Multiple Rib Fractures. *Pain Physician* 2014; 17: E549-557.

Background... Serratus Plane Block

Origin of thoraco-abdominal nerves

- -anterior rami of T6-T12
- Run anteriorly from beneath their respective ribs within the plane **between innermost** and internal intercostal muscles
- Gives off an anterior branch and a lateral branch.
- Lateral branches emerge through the planes of serratus anterior within the area around mid-axillary line → divide into their anterior and posterior cutaneous branches respectively

Background... Serratus Plane Block



- February May 2017
- *4 patients were counselled and consented for modified Serratus Plane Block (m-SPB) as primary analgesic technique



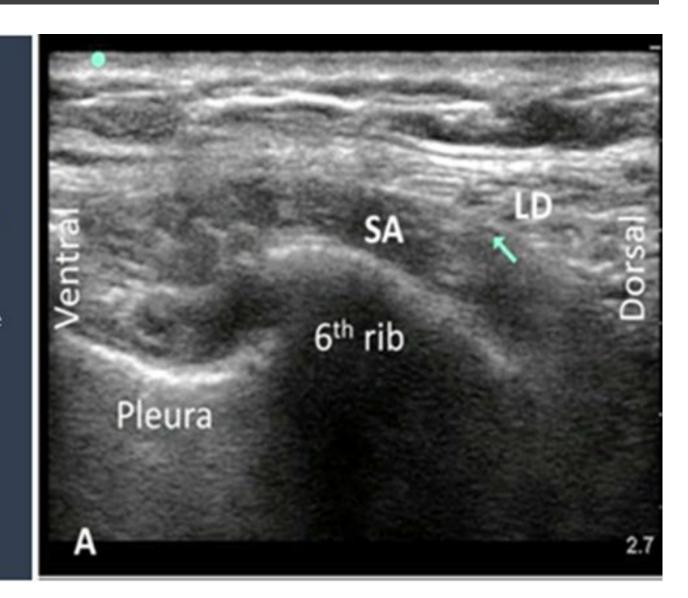
After standard general anesthesia...

- →lateral decubitus
- →high frequency 13-6MHz Sonosite
 M-Turbo 35mm linear transducer
- → placed at mid-axillary area
- → visualize **Serratus** anterior muscle with the overlying latissimus dorsi muscle

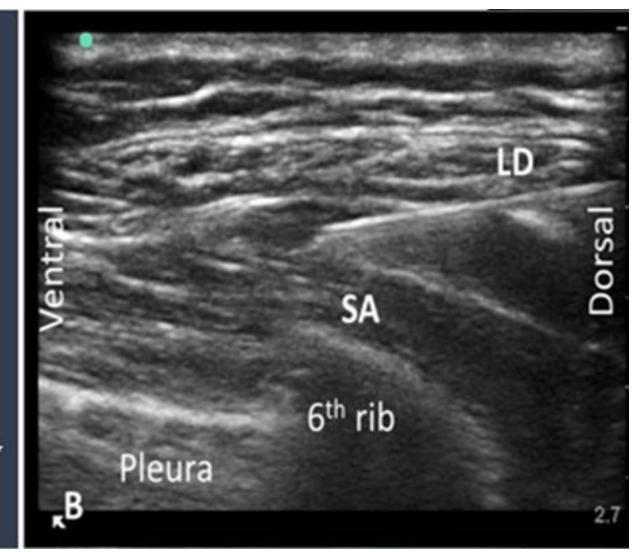


In contrast to Blanco's technique...

we performed this block at the level of 6th rib and below (by rib counting) and used anatomical reference point - xiphisternum level which correlates with 6th intercostal space.



- Introduced In-plane.
- LA volume of 30-40ml 0.375% ropivacaine
- Single shot 22G, 100 mm 'Stimuplex A' needle
- Catheter technique Tuohy 18G 100mm Contiplex (B. Braun, Melsungen, Germany)
- 20G indwelling Catheter was subsequently inserted into this space for infusion of 0.2% ropivacaine.



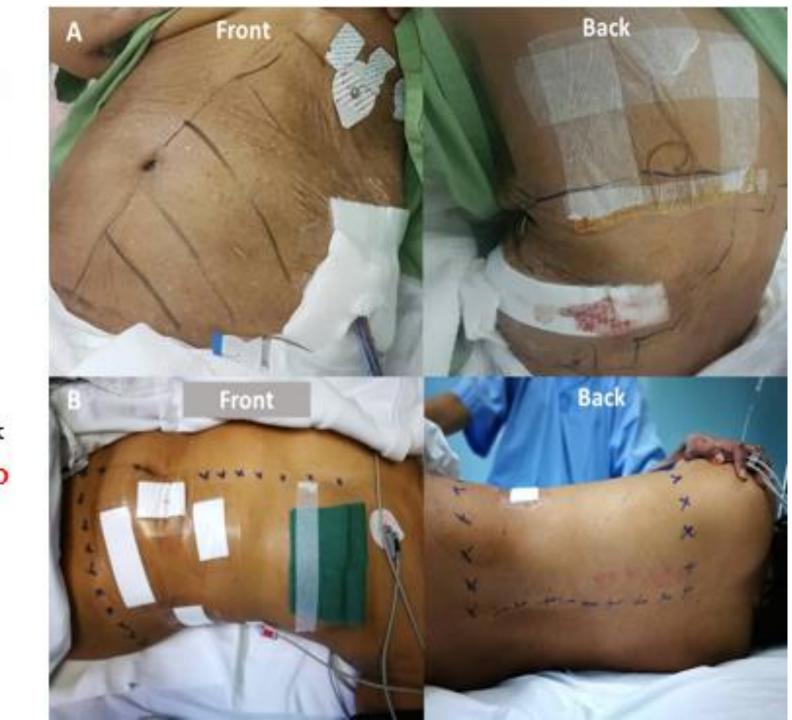
Case	Background	Surgery & Indication	Incision	SPB	Analgesia	Pain score, POD1	Pain score, POD2
1	75 year-old lady, ASA II, BMI 20.5 kg/m ²	Left open nephrectomy for left pyelonephritis with nephrolithiasis	Flank incision	Catheter technique: Bolus 40ml 0.375% ropivacaine. infusion 0.2% ropivacaine @ 8ml/hour reduced to 5ml/hour by POD2	Intraoperative: iv morphine 6mg; postoperative: oral paracetamol 1g 6hourly, oral tramadol 50mg 8hourly	Rest: 0 Dynamic: 1 – 3	Rest: 0 Dynamic: 0
2	67 year-old lady, ASA II, BMI 22.6 kg/m ²	Laparotomy cholecystectomy splenectomy for complex splenic cyst and cholelithiasis	Bilateral subcostal roof top incision	Bilateral single injection. bolus 20ml 0.375% ropivacaine each side	Intraoperative: iv morphine 6mg; postoperative: oral paracetamol 1g 6hourly, oral tramadol 50mg 8hourly plus PCAM; total 24hour postoperative morphine usage: 7mg	Rest: 0 Dynamic: 3	n/a
3	38 year-old man, ASA II, BMI 32 kg/m²	Open cholecystectomy for gall bladder empyema	Kocher incision	Catheter technique: Bolus 30ml 0.375% ropivacaine. infusion 0.2% ropivacaine @10ml/hour	Intraoperative: iv morphine 10mg; postoperative: oral tramadol 50mg 8hourly, received one dose iv parecoxib 40mg on POD1	Rest: 0 – 3 Dynamic: 1 – 4	Rest: 0 Dynamic: 2
4	46 year-old lady, ASA I, BMI 23.6 kg/m ²	Renal transplant for living related donor renal transplant	4 small incision for trocar	single bolus 30ml 0.375% ropivacaine	Intraoperative: iv morphine 6mg; postoperative: oral paracetamol 1g 6hourly, oral tramadol 50mg 8hourly	Rest: 0 Dynamic: 1	n/a
SPB, serratus plane block; POD, postoperative day; ASA, American Society of Anesthesiologists; BMI, body mass index; PCAM, patient controlled analgesia morphine; iv, intravenous; n/a, not							

Table 1. Patient characteristics and pain profile

available

- All patients achieved VAS

 <4 (rest and movement) @ POD1
- Analgesia was achieved with supplemental oral Paracetamol 1g 6hrly and Tramadol 5omg 8hrly once allowed orally.
- All patients had sensory block of between T2-T5 (upper), to T12-L1 (lower) but were variable in distribution.



Our case series showed pain scores <4 at POD1 with low postoperative opioid consumption in those who required PCAM

For upper abdominal surgeries...

- ->Necessary to **block lower thoracic branches**
- -> mSPB is to be **performed** at a lower level (T6 and below)

For Flank incision open nephrectomy...

- -> extra emphasis is being made on denervation of the posterior divisions of the lateral cutaneous branches
- -> ensuring extent of LA spread between these posterior divisions to its origins anteriorly, around the mid-axillary line.

SPB is a **volume-based plane block**

We believe SPB can be a better analgesic option than subcostal TAP block for catheter placement \rightarrow Why?

- -> SPB is at a more proximal site
- -> away from surgical incision
- -> not affected by dressing and distorted anatomy, if the block is to be performed post-operatively

In conclusion...

- Serratus Plane Block *CAN BE* a *promising* component of multimodal analgesic strategy for *VARIOUS OFF-MIDLINE UPPER ABDOMINAL SURGERIES*.
- Further trials are needed to compare the analgesic efficacy of serratus plane block with conventional techniques for such cases.