



## Serratus Muscle: A Panoramic View!

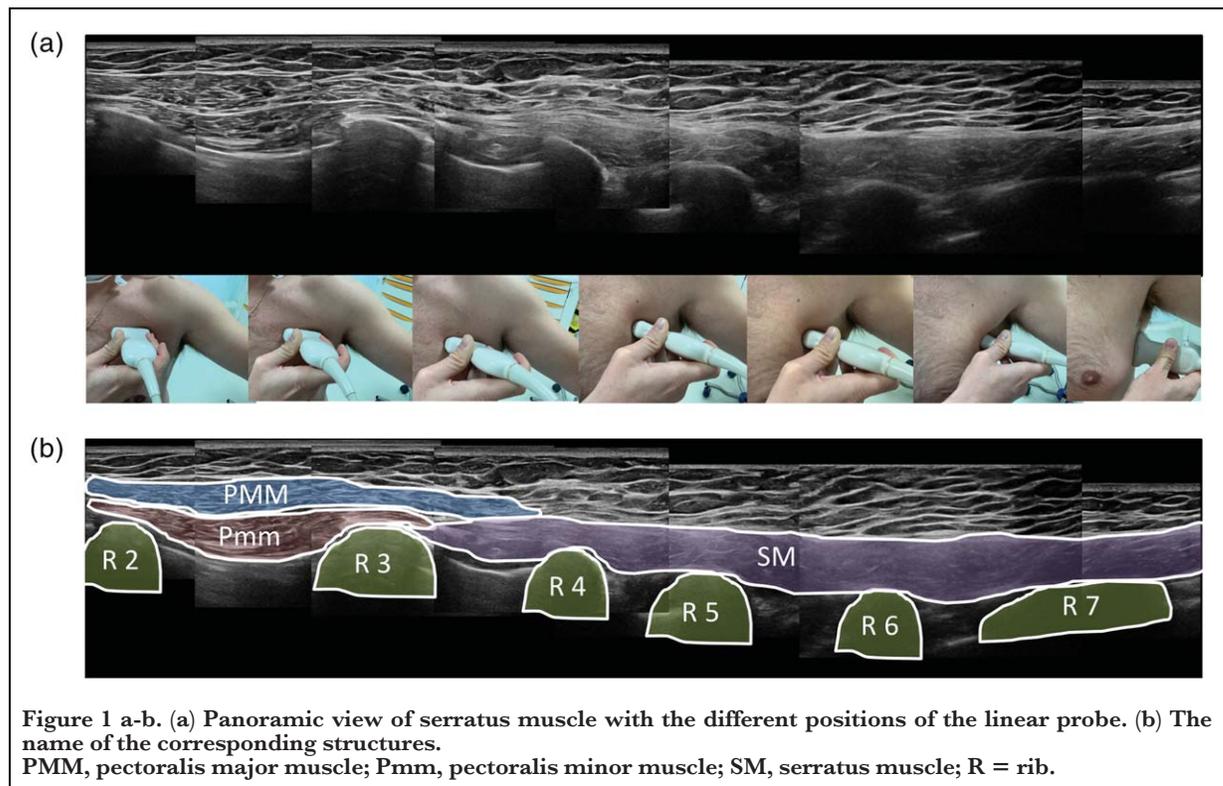
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**Cite this article as:** Fuzier R. Serratus Muscle: A Panoramic View! *Turk J Anaesthesiol Reanim.* 2021; 49(4):342-343.

Within the last decade, a number of different techniques have been described for the injection of local anaesthetic (LA) in relation to the serratus anterior muscle for post-operative analgesia after breast surgery. The Pectoral II (PECS-II) block consists of two injections of LA.<sup>1</sup> The second (deeper) injection is performed between the serratus anterior and pectoralis minor muscles. The serratus plane block also consists of an injection of LA superficial to the serratus muscle, at the level of the fifth rib.<sup>2</sup> Two other techniques have also been described, both deeper to serratus anterior, at the level of the second-third ribs,<sup>3</sup> or fourth-sixth ribs.<sup>4</sup>

Figure 1 represents a panoramic view of the serratus anterior muscle performed during an ultrasound examination in the pectoral and axillary region with a high frequency linear probe. (Written consent was obtained to publish these pictures.) This view helps to visualise the spread of LA in all the aforementioned techniques. During LA injection, in relation to the mid-axillary line, the puncture point can be antero-medial (at the level of the second or third rib) or postero-lateral (level with the fifth rib). In our department, we encourage the use of an injection beneath serratus anterior (we call this an “USB”, for Underneath Serratus Block) to avoid LA injection in the vicinity of the surgery for nodal excision and the long thoracic and thoraco-dorsal nerves.



**Figure 1 a-b.** (a) Panoramic view of serratus muscle with the different positions of the linear probe. (b) The name of the corresponding structures. PMM, pectoralis major muscle; Pmm, pectoralis minor muscle; SM, serratus muscle; R = rib.

As with the Transverse Abdominal Plane (TAP) block, TAP block, the serratus block seems to exert its effect by diffusion within a fascial plane. The panoramic ultrasound view helps us to appreciate that during the second (deeper) injection of the PECs II block, the LA spreads *in the same plane* as the serratus plane block, i.e. superficial to the serratus anterior muscle. For clarity, we propose that all the aforementioned techniques should be renamed as a “serratus plane block” performed with either of two approaches (the puncture point made antero-medial or postero-lateral to the mid-axillary line) and two targets for LA administration (superficial or deep to the muscle).

**Ethics Committee Approval:** N/A

**Informed Consent:** Written consent was obtained from the participants who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - R.F.; Design - R.F.; Supervision - R.F.; Resource - R.F.; Data Collection and/or Processing - R.F.; Literature Search - R.F.; Writing - R.F.

**Acknowledgements:** The author wants to thank Dr Ian Harper, M.D. (Newcastle, UK) for his grammar and syntax reviewing.

**Conflict of Interest:** The authors have no conflicts of interest to declare.

**Financial Disclosure:** The authors declared that this study has received no financial support.

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