



Regional anesthesia for pectoralis major tendon repair

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Received: 30 May 2014 / Accepted: 30 June 2014 / Published online: 17 July 2014
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To the Editor,

Regional anesthesia is used commonly as a sole means for surgical anesthesia and is also used widely for postoperative analgesia. Occasionally, however, regional anesthesia is used to inhibit motor function following surgery. For a recent case of pectoral tendon repair, our surgical colleagues requested brief motor and prolonged sensory anesthesia in the repaired area to prevent any inadvertent damage from movement immediately following surgery and to manage pain. There is a shortage of literature describing regional anesthesia techniques that address both the overlying cutaneous innervation and the motor innervation of the pectoralis muscle for pectoral tendon repair surgery. Here, with the patient's consent, we present a case of pectoralis major repair in which a regional technique was used for successful management of motor function to reduce the risk of rupture of a freshly repaired tendon due to excessive movement during emergence.

A 52-yr-old male presented with a right pectoralis major rupture requiring open repair of the right pectoralis major tendon. A single-shot ultrasound-guided interscalene block was given. A linear ultrasound probe (HFL38x, M-Turbo®, SonoSite, USA) was placed at the supraclavicular fossa to

locate the subclavian artery and brachial plexus, and the transducer was traced back cephalad until the trunks were seen.¹ A 22G X 50 mm needle (SonoPlex Stim cannula NanoLine® 001185-74, Pajunk®, Germany) was then directed in-plane towards the interscalene groove between the superior and middle trunks.² A mixture of 2% lidocaine 15 mL and 0.5% bupivacaine 5 mL was injected. After interscalene block was performed, general anesthesia was induced, and surgery lasted approximately two hours. Upon emergence, the patient was comfortable with complete motor block on the surgical side. The patient received no other analgesia in the recovery room and was discharged.

For this surgery, adequate surgical analgesia and motor block require that both the pectoral and supraclavicular nerves be blocked. The pectoralis major is innervated by the medial (MPN) and lateral (LPN) pectoral nerves (Figure). Wide anatomical variability regarding the origins and course of these nerves has been described.³ The MPN and LPN also contribute cutaneous branches supplying the skin covering the anterior margin of the deltoid muscle and the anterior thoracic region near the axilla. Branches of the supraclavicular nerve (Figure) innervate the superior pectoral cutaneous area and upper and posterior shoulder. In the case described above, the incision was made along the deltopectoral groove, making it essential for the block to cover the sensory innervation of the shoulder.

Pectoralis major tears are rare and are usually described in athletes as a result of eccentric contraction of the musculotendinous unit.⁴ In this case, the pectoralis tendon rupture followed a relatively minor trauma. Due to the patient's weak tissue integrity, the surgeon was concerned that even slight movement upon emergence could disrupt the repair. The interscalene block provided postoperative analgesia and inhibited movement that could put the freshly repaired lesion at risk.

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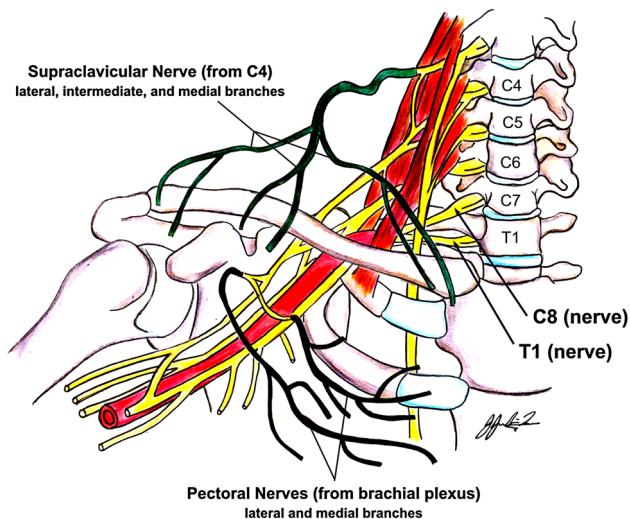


Figure Schematic diagram of the origin and routes of the supraclavicular (green) and pectoral (black) nerves. The supraclavicular nerve arises from C4 and contributes lateral, intermediate, and medial branches. The medial branch supplies the skin from midline to the second rib, while the intermediate branch innervates the skin over pectoralis major and deltoid down to the level of the second rib. The lateral branch supplies the skin of the upper and posterior parts of the shoulder. The lateral and medial pectoral nerves arise from the brachial plexus. The origins and course of these nerves are variable; the lateral branch frequently arises with two branches from the anterior divisions of the upper and middle trunks or as a single root from the lateral cord, while the medial branch usually originates from either the medial cord or the anterior division of the lower trunk

Interscalene block covers both the brachial plexus and supraclavicular nerves. Studies have found that the interscalene approach preferentially targets the caudad nerves of the cervical plexus and the cephalad nerves of the brachial plexus.⁵ This allows coverage of both the pectoral and supraclavicular nerves with a single-shot technique due

to migration of local anesthetic up the interscalene sheath.⁶ In contrast, infraclavicular or supraclavicular approaches would cover the brachial plexus but would spare the supraclavicular nerve. Thus, interscalene block is a suitable regional anesthesia technique for pectoralis major tendon repair, and this procedure enabled us to achieve our anesthetic goal, i.e., to provide muscle paralysis on the surgical side during emergence as well as effective postoperative analgesia.

Acknowledgements The authors thank Jenkin Tsui (Department of Anesthesiology and Pain Medicine, University of Alberta) for granting permission to use the original illustration. Dr. Tsui is supported by a Clinical Scholar Award from the Alberta Heritage Foundation for Medical Research (AHFMR). Dr Tsui's research is supported by the Canadian Anesthesia Research Foundation.

Conflict of interest None declared.

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