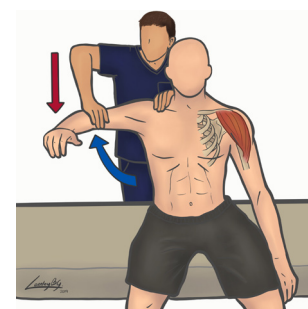


**Figure 1** Cutaneous territories supplied by the supraclavicular and axillary nerves.



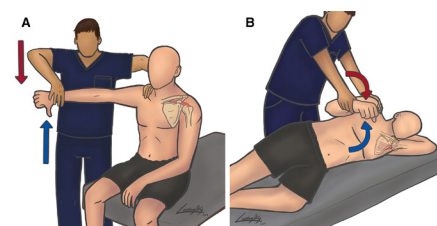
**Figure 2** Motor test of the axillary nerve (deltoid muscle). The blue arrow indicates the direction of the force exerted by the patient; the red arrow indicates the direction of the force exerted by the evaluator.

anesthesia, for ethical reasons, a surrogate sensorimotor scale should be preferentially used. This endeavor may prove to be a complex task: out of the five main nerves supplying the shoulder (supraclavicular, axillary, lateral pectoral, suprascapular and subscapular nerves), only the supraclavicular and axillary nerves display cutaneous innervation (figure 1), thereby permitting sensory testing. Consequently, the suprascapular, subscapular and lateral pectoral nerves need to be assessed with motor function (figures 2–5).

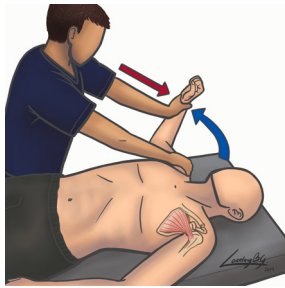
## Assessing surgical anesthesia for shoulder surgery

To the Editor

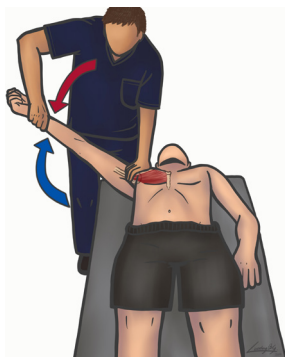
Aside from notable exceptions,<sup>1</sup> most randomized trials have investigated diaphragm-sparing nerve blocks for shoulder surgery in the setting of post-operative analgesia and not surgical anesthesia.<sup>2</sup> However, the care of patients with pulmonary compromise undergoing shoulder surgery mandates the circumvention of interscalene block and parenteral opioids as well as the avoidance of general anesthesia.<sup>3 4</sup> Although elicitation of pain with surgical incision offers a simple method to determine surgical



**Figure 3** (A) Motor test of the suprascapular nerve (supraspinatus muscle). (B) Motor test of the suprascapular nerve (infraspinatus muscle). The blue arrow indicates the direction of the force exerted by the patient; the red arrow indicates the direction of the force exerted by the evaluator.



**Figure 4** Motor test of the subscapular nerve (subscapularis muscle). The blue arrow indicates the direction of the force exerted by the patient; the red arrow indicates the direction of the force exerted by the evaluator.



**Figure 5** Motor test of the lateral pectoral nerve (pectoralis major muscle). The blue arrow indicates the direction of the force exerted by the patient; the red arrow indicates the direction of the force exerted by the evaluator.

To facilitate the investigation of anesthesia for shoulder surgery, we propose a scale based on the sensory functions of the axillary and supraclavicular nerves as well as the motor functions of the axillary, suprascapular, subscapular and lateral pectoral nerves (table 1). We suggest a simple 3-point scoring system both for sensory (0=normal sensation; 1=can feel touch but not cold; 2=cannot feel touch) and motor (0=normal function; 1=can maintain position against gravity, but not external resistance; 2=cannot maintain position against gravity) functions. Admittedly, this scale exhibits redundancy because of the double assessment of the axillary nerve (sensory and motor functions) and suprascapular nerve (motor function of the supraspinatus and infraspinatus muscles). However, such redundancy may be desirable due to their important roles in the innervation of the shoulder joint. The proposed scale carries a maximal score of 14 points (table 1). In keeping with our previous scale for upper limb surgery distal to the elbow joint,<sup>5</sup> we suggest to define surgical anesthesia as a minimal composite score of 12 points, provided that the sensory score is at least 3 points (out of 4 points). We must nonetheless advise further trials to confirm that the minimal 12-point score provides indeed

a reliable surrogate marker for surgical anesthesia of the shoulder.

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**Table 1** Sensorimotor scale

Nerve	Score
Supraclavicular (sensory)	0=normal sensory function 1=can feel touch, but not cold 2=cannot feel touch
Axillary (sensory)	0=normal sensory function 1=can feel touch, but not cold 2=cannot feel touch
Axillary (motor)	0=normal motor function 1=can hold position against gravity, but not external resistance 2=cannot hold position against gravity
Suprascapular (motor) supraspinatus muscle	0=normal motor function 1=can hold position against gravity, but not external resistance 2=cannot hold position against gravity
Suprascapular (motor) infraspinatus muscle	0=normal motor function 1=can hold position against gravity, but not external resistance 2=cannot hold position against gravity
Subscapular (motor)	0=normal motor function 1=can hold position against gravity, but not external resistance 2=cannot hold position against gravity
Lateral pectoral (motor)	0=normal motor function 1=can hold position against gravity, but not external resistance 2=cannot hold position against gravity