

A TOTAL SPINAL ANESTHETIC AFTER AN ATTEMPTED INTERSCALENE BLOCK AT AN OUTPATIENT SURGICAL CENTER

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Introduction: The interscalene block (ISB) of the brachial plexus is the peripheral nerve block of choice for providing post-operative analgesia after shoulder surgery.¹ Serious complications of this nerve block include intra-arterial injection, pneumothorax, and epidural or spinal injection.² This case report describes a total spinal anesthetic following an attempted ISB for shoulder surgery at an ambulatory surgery center.

Description: A 54 y/o 95 kg male who presented for outpatient right shoulder arthroscopy and a rotator cuff repair consented to placement of an ISB for post-operative analgesia. After sterile prep and drape, a 50 mm SB insulated needle connected to a nerve stimulator was utilized. Localization of the brachial plexus was difficult and multiple needle passes were made. An ultrasound device was not available to aid in locating the brachial plexus. Ultimately, an appropriate twitch response of the ipsilateral arm was elicited with less than 0.5 mA, at a needle depth of 3 cm. After negative aspiration, a solution of bupivacaine and lidocaine was injected slowly. Before the intended injection was completed, the patient complained of contralateral arm weakness and dyspnea. The injection was immediately aborted after approximately 18 ml of bupivacaine 0.5% and 6 ml of lidocaine 2% had been injected. Assistance was requested, and within minutes the patient progressed to unconsciousness and apnea, requiring intubation (which was difficult). The patient's BP fell to 60/35 mmHg with a HR of 40 BPM. Epinephrine 0.2 mg was given IV, with return to the patient's initial BP and HR. The patient required IV ephedrine and a phenylephrine infusion to maintain an adequate BP. Within 45 minutes the patient awoke and could move his feet, but was unable to move his upper extremities. The patient was sedated and transported via ambulance to a SICU in stable condition, where he was extubated within 4 hrs. He was discharged home with no residual deficits.

Discussion: A total spinal anesthetic often results in apnea, hypotension, and bradycardia. With appropriate airway and cardiovascular management, the effect of a total spinal anesthetic is usually self limited to several hours. Several principles should be followed to avoid the accidental injection of local anesthetic into the dural sleeve during ISB placement. Of primary importance, the needle should not be placed to a depth of more than 2.5 cm and should never be directed anteriorly.¹ This principle was clearly violated in the presented case. Aspiration of the needle and slow injection of the local anesthetic are also recommended. Finally, the use of ultrasound to identify the brachial plexus and visualize the spread of local anesthetic can also increase the certainty of administering the local anesthetic in the desired location.³ Of note, the operator in this case typically utilizes ultrasound guidance for placing interscalene nerve blocks, but an ultrasound machine was not available at this ambulatory surgery center.

References:

1. Hadzic A. et al. (2006) www.nysora.com (Retrieved Dec. 10, 2007)
2. Reginald J et al. (2004) *International Anesthesia Clinic* 2005; 43(3) 167-175.
3. Chan, V. *Regional Anesthesia and Pain medicine* 2003; 28 (4) 340-343.