

Total Spinal Anesthesia Following Brachial-plexus Block

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In 1964 Winnie¹ first described the interscalene approach for perivascular brachial-plexus block. A recent article by Kumar *et al.*² describes high epidural blockade in two patients following this approach. In this paper we report an unusual case in which total spinal anesthesia occurred during performance of this block.

REPORT OF A CASE

A 16-year-old Caucasian boy was admitted to the University Hospital with a supracondylar fracture of the right arm. History and physical examination revealed no other abnormality. He was premedicated with morphine sulfate, 10 mg, and droperidol, 2.5 mg. Upon arrival in the operating room, the patient was drowsy but oriented. Vital signs were normal: blood pressure, 120/70 torr; heart rate, 80 min; respirations, 15/min. The patient was placed in the supine position with his head turned to the left in order to reveal the anatomic landmarks. There was no visible or palpable anatomic abnormality of the area to be injected. The area was cleansed with alcohol and a 22-gauge, 2-inch needle was inserted perpendicular to the skin in the interscalene groove, using the approach described by Winnie.¹ When the needle had been introduced to a depth of approximately an inch, paresthesias in the right arm were noted. At this time, aspiration produced no blood or cerebrospinal fluid. While maintaining the needle in this position, 5 ml of 1.5 per cent lidocaine with epinephrine, 1:200,000, were injected. Shortly thereafter, the patient developed difficulty speaking, could move his jaw only weakly, but was able to move his arms and fingers when requested to do so. The weakness was attributed to the premedication and the injection of drug was continued until 30 ml had been given. At this point, the patient lost consciousness and stopped breathing. The blood pressure dropped to 80/60 torr. The patient's body became generally flaccid. Ventilation by mask with pure oxygen was begun, the trachea was intubated, and ventilation was manually assisted. The foot of the stretcher was elevated and ephedrine, 10 mg, was administered iv. The blood pressure was then noted to be 100/65 torr, at which level it remained until resuscitation was completed. The pupils became maximally dilated and unreactive

to light, and no corneal reflex could be elicited. The pulse was normal, and electrocardiographic monitoring showed normal sinus rhythm, with a rate of 80/min. Diazepam, 10 mg, and scopolamine, 0.43 mg, were given intravenously to ensure amnesia. Manual assistance of ventilation was continued for two hours, after which time the patient opened his eyes and immediately began to move all four extremities. Spontaneous ventilation was found to be adequate. The endotracheal tube was left in place for an additional 15 minutes to insure an adequate and protected airway. Following extubation the patient was monitored in the recovery room for an additional three hours. Repeated neurologic examinations demonstrated no abnormality. The patient was conscious and oriented but had no recall of the events from the time the block was begun.

DISCUSSION

Since aspiration prior to injection of the agent did not reveal blood or cerebrospinal fluid, it may be assumed that the general flaccidity was the result of entry of all or a portion of the lidocaine into the spinal subarachnoid or epidural space. Loss of consciousness and the bilateral absence of pupillary and corneal reflexes would confirm that the drug had entered the cranial subarachnoid space, affecting cranial nerves 2, 3, 5, and 7.

This complication may be avoided by carefully identifying anatomic landmarks and by the use of a short hypodermic needle for injection of the agent. Although total spinal blocks are rare complications, they re-emphasize the importance of having resuscitative equipment available when regional blocks are performed.

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REFERENCES

1. Winnie AP, Collins VJ: The subclavian perivascular technique to brachial plexus anesthesia. *ANESTHESIOLOGY* 25:353-363, 1964
2. Kumar A, Battit GE, Froese AB, et al: Bilateral cervical and thoracic epidural blockade complicating interscalene brachial plexus block: Report of two cases. *ANESTHESIOLOGY* 35: 650-652, 1971

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