

Ultrasound-guided regional blockade – Is it always safe?

Sir,

The ultrasound-guided (USG) supraclavicular brachial plexus block is clinically useful for accurate nerve localization and to minimize the number of needle attempts.^[1] It also increases the proportion of successful blocks, decreases block execution time, and reduces the incidence of complications such as pneumothorax and neuropathy.^[2] However, complications such as Horner's syndrome (10%) and asymptomatic phrenic nerve palsies (60%) have been described.^[3] We describe a patient who developed acute aphonia after administration of USG supraclavicular brachial plexus blockade that resolved on conservative management.

A 70 kg, 30-year-old ASA I lady was scheduled for excision and biopsy of swelling in the right forearm. No other systemic abnormality was documented on history and examination. Blood investigations were normal. Informed consent was taken and patient was premedicated with oral diazepam 10 mg 1 h prior to the surgery. In the operating room, an intravenous catheter was cited in the left forearm and baseline monitors (pulse oximeter, non-invasive blood pressure, and electrocardiogram) were established. USG imaging using high-frequency (7.5 MHz) probe was used to identify the brachial plexus before the block. The block needle was guided to reach target nerves, and the pattern of local anesthetic spread visualized. Blockade was performed using incremental dose of 20 ml of 0.375% bupivacaine and 10 ml

of 1.5% lignocaine with 1:200 000 epinephrine after negative aspiration over 3-5 min once wrist or hand motion had been elicited with the neuro-stimulator delivering a current of <0.6. Ten minutes later, she complained of difficulty in speaking and progressed to aphonia in 20 min. On examination, she was able to understand and followed commands, but could not vocalize. Vital signs, chest radiogram, electrocardiogram were all within normal limits. Cranial nerve examination was normal. She could move other limbs with normal sensorium (GCS: 15/15). Patient was reassured. Her breathing was adequate to maintain vital signs. Oxygen was supplemented with Hudson mask at 5L/min. The duration of surgery was 60 min. At the end of surgery, she was observed in the recovery room until she started to vocalize. Approximately 6 h after the initial onset of aphonia she started to vocalize words, and by the eighth hour, full function of speech returned. She had an uneventful stay in the postoperative period.

Brachial plexus nerve blockade has many potential benefits, including optimal pain control, reduced use of opioids, and improved range of motion after joint surgery, and facilitation of early discharge after ambulatory procedures.^[4] The use of ultrasound for nerve block was first reported by La Grange and colleagues in 1978, who performed supraclavicular brachial plexus blocks with the help of a Doppler ultrasound blood-flow detector.^[5] The acute onset of aphonia following supraclavicular nerve block is a troublesome rare event, and differential diagnosis includes intravascular injection of LA, and paralysis of the laryngeal nerves, rarely caused by local anesthetic injection.^[6] Neurological complications following intravascular injection of LA usually presents with features of drowsiness, altered sensorium, dyspnea, and convulsions. We performed the block after negative aspiration with 30 ml of local anesthetic, and by in-plane technique using USG. There were no signs and symptoms other than aphonia which ruled out the possibility of systemic toxicity. The aphonia presented immediately following plexus block and the resolution occurred within the expected duration of the bupivacaine block, and there was absence of obvious neurologic findings during diagnostic work-up. Diffusion of the local anesthetic bolus to the laryngeal nerve was possibly the underlying mechanism of laryngeal nerve paralysis.

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