



## Letter to Editor

**Acute transient hiccups after supraclavicular brachial plexus block: Is it a matter of concern?**

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Sir,

A 30-year-old male ASA (American Society of Anaesthesiologists) grade I patient was admitted for crush injury right forearm and planned for debridement and reconstruction. Written informed consent was taken, and he was explained about regional anaesthesia, the supraclavicular brachial plexus block, and its complications. He had a baseline heart rate (HR) of 72 bpm (beats per minute); blood pressure (BP) of 122/83 mmHg; oxygen saturation (SpO<sub>2</sub>) of 100% on room air and ECG showing sinus rhythm.

He was premedicated with Inj. fentanyl 50 µg and Inj. midazolam 1 mg intravenously. Under aseptic precautions, with the patient in supine and slight head-up position, an ultrasound-guided (FUJIFILM Sonosite, Bothell, USA) right supraclavicular brachial plexus block was given via an in-plane approach, with 22G Quincke's needle using the linear probe (HFL 38, 13-6 MHz). Bupivacaine (0.5%) 15ml + dexamethasone (8mg) 2 ml was administered for block after visualization of the needle tip and negative aspiration for blood. The block procedure was uneventful, and the patient did not have any haemodynamic abnormality throughout the procedure. Just two minutes after the completion of the block the patient started having hiccups. These hiccups persisted for a few minutes and were

associated with increased BP (195/114 mmHg), initially raised HR of 111 bpm, and then sinus bradycardia (HR 56 bpm) (Figure 1). Oxygen was supplemented through a face mask though there was no fall in oxygen saturation. The patient was observed for any further haemodynamic instability. He was conscious and oriented during this period of the event and oxygen supplementation was continued with a face mask. After 3-5 minutes, the hiccups subsided and vital parameters resumed to normal (HR 72 bpm, BP 136/83 mmHg, SpO<sub>2</sub> 100%) without any treatment. The patient did not complain of any dyspnoea, nausea, or vomiting and did not have any sweating during this period. The regional block was adequate and the surgery continued uneventfully. He did not have any further hiccups perioperatively and was discharged the following day with oral analgesics.

A hiccup is the sudden onset of erratic diaphragmatic and intercostal muscular myoclonus which are followed immediately by laryngeal closure, hence the abrupt air rush into the lungs induces the vocal cords to close leading to a "hic" sound.<sup>1</sup> The afferent pathways of the hiccup reflex arc have vagal, phrenic, and sympathetic (T6-T12) branches as their components and efferent pathways have motor fibers of the phrenic nerve to diaphragm, nerve to the glottis, and accessory nerves to intercostal muscles as their components.<sup>2</sup> Any stimulation or irritation of the hiccup arc triggers a hiccup.

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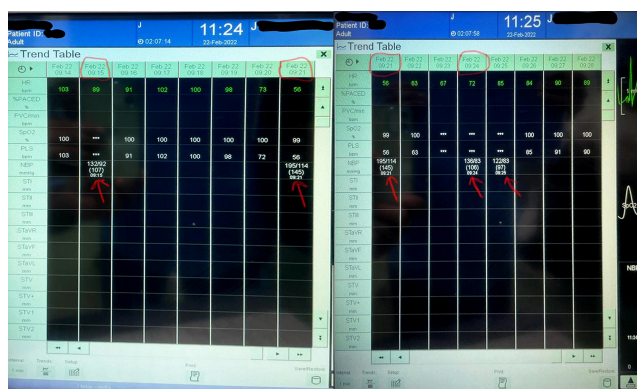


Fig. 1:

Acute hiccups are usually benign and self-limiting requiring no treatment. Persistent and intractable hiccups have several medical, surgical, and drug-induced causes.<sup>3</sup> Intravenous dexamethasone can cause persistent hiccups.<sup>4</sup> Persistent hiccups have even been reported after cervical epidural steroid injection by Abubaker et al.<sup>5</sup>

Hypertension with associated tachycardia in this case may be attributed to the sympathetic component of the hiccup reflex arc.<sup>2</sup> There is very less chance that needle stimulation of the phrenic nerve in ultrasound-guided technique could have caused hiccups, though it might happen in the Interscalene approach. It might not be due to Bupivacaine used in the block, because there were no signs of unilateral phrenic nerve palsy. This was ruled out clinically by absence of dyspnoea or abnormal breathing, ultrasonography of diaphragm showing normal excursion of diaphragm, and a normal postoperative chest X-ray. The other common causes of benign self-limiting hiccups were ruled out.<sup>3</sup> Thus, the hiccups, in this case, might be due to irritation of the phrenic nerve (afferent pathway of hiccup arc) by dexamethasone, which has some continuity with the brachial plexus sheath.<sup>6</sup> Based on a literature search, acute transient hiccups after the supraclavicular brachial plexus block have never been reported, though there is a case report

of persistent hiccups after the Interscalene brachial plexus block.<sup>7</sup>

To conclude, one should be cautious while using dexamethasone as an additive to local anaesthetics for brachial plexus blocks and do vigilant monitoring.

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