
Chin necrosis after prone positioning: A consequence of trans-cranial motor evoked potential monitoring during spine surgery

Sir,

A 40-year-old male patient, belonging to American Society of Anesthesiologists (ASA) physical status class I, diagnosed with D5–D7 spinal cord astrocytoma, was posted for laminectomy and excision of the lesion. General physical, systemic, and airway examination along with the laboratory investigations were within normal limits. He was not on any long-term medication and had no history suggestive of any bleeding or coagulation disorder.

On the day of surgery, after attaching standard monitors including pulse oximetry, electrocardiography, non-invasive blood pressure and capnography, general anaesthesia was induced with fentanyl 1.5 µg/kg intravenous (IV), propofol 2 mg/kg IV, and vecuronium 0.1 mg/kg IV, and the trachea was intubated with an 8.0-mm oral reinforced tube, and anaesthesia was maintained with oxygen, air, and sevoflurane. He was then turned prone with the pelvis and chest supported

by soft gel bolsters. The head and neck were kept in neutral position on a soft prone head rest to avoid any undue or unequal pressure on facial structures. Pressure points were padded, and a bite block was placed. Motor evoked potential (MEP) and somatosensory evoked potential monitoring was planned in view of intramedullary location of the lesion. All the electrodes were placed accordingly, including subdermal scalp electrodes for transcranial MEP monitoring (Tc-MEP). MEP recordings were obtained 12 times during the procedure. In order to get an accurate MEP signal, subsequent neuromuscular blocking agents were avoided during periods of monitoring and total IV anaesthetic consisting of propofol (100–200 µg/kg/min) and intermittent IV fentanyl was used.

The surgery lasted for about 6 h. Intraoperative period was uneventful with blood loss of 300 ml. There was no episode of hypotension or hypo-perfusion during the surgery. Serial blood gas evaluations revealed no metabolic derangements. After completion of surgery, the patient was positioned supine. A slight redness was observed over the left chin along with swelling over the left angle of the mandible. In the post-anaesthesia care unit, patient complained of paresthesia and numbness over the left chin. All other neurological examination was normal. On post-operative day (POD) one, the red patch over the chin turned black in colour and subsequently became necrotic [Figure 1]. Following treatment with injection dexamethasone 4 mg IV



Figure 1: Lesion on post-operative day 1

8 hourly, tablet chymotrypsin, and nano-silver colloid ointment for local application the paresthesia and numbness improved gradually and recovered by the third POD. After 2 weeks, the necrosis healed with scar formation [Figure 2]. He was referred to plastic surgery for possible cosmetic correction.

Tc-MEP monitoring is emerging as an important tool for monitoring cortico-spinal tract function during surgery. Though its use has many advantages, it is also associated with potential adverse effects, such as tongue laceration, tooth fracture, mandible fracture, and seizure activity.^[1,2] Tc-MEP stimulation via scalp electrode can cause jaw clenching by activation of either cortico-bulbar tract or trigeminal nerve motor fibers or direct temporalis and masseter muscle stimulation^[3] and may lead to displacement and malpositioning of the chin.

In the current case, the surgery was carried out over a period of 6 h. We believe that the possible cause of chin necrosis in this patient was likely from Tc-MEP-induced repeated jaw contractions and displacement of the chin from its original position, which was not noticeable despite intermittent visual inspection of the face and head. Malpositioning and unequal pressure distribution for prolonged periods can result in impaired regional tissue blood flow leading to necrosis.

Some of the preventive measures to avoid such complications include use of a transparent operating table with a foam-cushion face mask, careful selection of an appropriate head rest, a polyurethane foam head



Figure 2: Healed lesion after 2 weeks

rest within a protected helmet system, identification of high-risk patients, careful selection of appropriate support devices and regular monitoring for signs of pressure injuries incorporating frequent turning.^[4,5]

Prolonged surgeries in prone position warrant meticulous planning before the start of surgery, optimal patient positioning and vigilant monitoring during surgery for pressure-related complications, especially during the use of Tc-MEP monitoring. Maintaining stable haemodynamics, adequate precautions during positioning and good coordination with surgical team will contribute to better peri-operative outcomes and avoid inadvertent complications.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

**Priyanka Gupta, Amiya K Barik, Vamshi Krishna,
Mridul Dhar**

Department of Anaesthesiology and Critical Care, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India

Address for correspondence:

Dr. Amiya K Barik,
 Department of Anaesthesiology and Critical Care, All India Institute of
 Medical Sciences, Rishikesh, Uttarakhand, India.
 E-mail: amiyabarik.scb@gmail.com

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Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/ija.IJA_759_18

How to cite this article: Gupta P, Barik AK, Krishna V, Dhar M. Chin necrosis after prone positioning: A consequence of trans-cranial motor evoked potential monitoring during spine surgery. *Indian J Anaesth* 2019;63:246-8.

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