



Face-mask Ventilation Leading to Neurapraxia of Buccal Branch of the Facial Nerve

Dear Editor,

Perioperative peripheral nerve injuries (PPNIs) are uncommon with the incidence of 0.03% and they can be temporary or permanent.^{1,2} These injuries lead to functional disability, increased morbidity with resultant increased stress, and strain for patients which is over and above the stress of surgery. It results in distress among the medical team and dissatisfaction among patients and their relatives, leading to 16% of all the litigations filed against anesthesiologists.^{3,4} The ulnar nerve, brachial plexus, lumbosacral nerve roots, and spinal cord are most prone to injury during the perioperative period.¹

We report a rare case of postoperative neurapraxia of the buccal branch of the facial nerve in a 43-year-old female weighing 88 kg (body mass index 34.4 kg/m²), a case of Bartholin's cyst for excision in a lithotomy position. Preoperative evaluation revealed a short neck with the pad of fat in the nape of the neck, and airway assessment showed Mallampati class II. On the day of surgery, written informed consent was obtained, and nil per oral status was confirmed. Minimal standard monitoring was instituted. The spinal anesthesia was administered in the sitting position; however, due to the failure of the block, she was taken up under general anesthesia with face-mask ventilation keeping in mind the short duration of the procedure. In view of difficulty in ventilation, the mask was repositioned, a Guedel airway was inserted, and the jaw thrust was maintained. The perioperative period was uneventful. Her total anesthesia time was 15 min. Six hours postoperatively, the patient observed difficulty in holding water in the mouth with evident dribbling from its right side. On examination, the patient could not puff out her cheek with no history of loss of sensation and paresthesias in the perioral region on the right side. Cranial nerve examination, including facial nerve branches, was normal except the buccal branch of the right side. A provisional diagnosis of neurapraxia of the buccal branch of the right facial nerve was made. The patient was given oral prednisolone 60 mg OD for 7 days. She was reassured followed by complete recovery after 3 weeks.

The facial nerve after emerging from the skull enters the parotid gland and lies deep to parotid and superficial to the mandible. Temporal and zygomatic branches turn upward, whereas buccal and marginal mandibular branches turn downward and pass over the mandibular ramus. Buccal branch palsy causes paralysis of the buccalis and orbicularis

oris muscle causing drooling of saliva from oral commissure, which was seen in our patient. The buccal and marginal mandibular branches may lie superficial to the parotid gland or may run low near the angle of the mandible. These anatomical variations place nerves at a precarious position and increase the chances of direct injury either by stretching or by traction.^{1,5}

Ischemia, toxicity of injected solutions, double crush syndrome, mechanical compression, and stretching of the nerves are the various mechanisms resulting in PPNI either alone or in combination. Other factors of PPNIs, such as hypothermia, hypovolemia, hypotension, hypoxia, and electrolyte disturbance, were ruled out in our case.³ The possible mechanism in our case could be a direct neural injury secondary to stretching/compression of the buccal branch over the mandibular ramus by forceful jaw thrust. Majority of them respond to the oral corticosteroids; however, if nerve paralysis persists and is complete paralysis, further evaluation can be done with nerve conduction studies to see if the nerve is regenerating or degenerating. Electromyography can be done to assess the motor endplates. If the nerve does not show any signs of recovery for at least 6 months to 1 year, then dynamic or adynamic rehabilitation can be done by nerve grafts or fascial slings, respectively.

To conclude, neurapraxia/paresis of various branches of the facial nerve is a rare entity and a fully reversible condition, which may occur within a few minutes of mask ventilation or digital traction on the mandible ramus. Therefore, one should be very cautious and avoid very tight application of over-inflated silicone face mask and vigorous jaw thrust in difficult mask ventilation scenarios. The early placement of the supraglottic device may instead improve the ventilation, thereby circumventing the requirement of the mask ventilation even for a shorter duration of surgery.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given her consent for her 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.

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Conflicts of interest

There are no conflicts of interest.

Deepak Dwivedi¹, Saurabh Sud¹, Gunjan Dwivedi²,
Shalendra Singh³

*Departments of ¹Anaesthesia and Critical Care and ²ENT,
Command Hospital (Southern Command), ³Department
of Anaesthesia and Critical Care, Armed Forces Medical
College, Pune, Maharashtra, India*

Corresponding Author: Dr. Deepak Dwivedi,
Department of Anaesthesia and Critical Care, Command
Hospital (Southern Command), Pune - 411 040,
Maharashtra, India.
Tel: 02026026105; Fax: 02026026092.
E-mail: deepakdwivedi739@gmail.com

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