online © ML Comm
www.jkns.or.kr http://dx.doi.org/10.3340/jkns.2014.56.3.284
Print ISSN 2005-3711 On-line ISSN 1598-7876
J Korean Neurosurg Soc 56 (3) : 284-285, 2014

Letter to the Editor

Biting of the Tongue in a Patient with a Tracheostomy during Surgery in the Supine Position

Myung-Soo Jang, M.D.,[1] Jong-Man Kang, M.D., Ph.D.[2]
Department of Anesthesiology and Pain Medicine,[1] Kyung Hee University Hospital, Seoul, Korea
Department of Anesthesiology and Pain Medicine,[2] Kyung Hee University Hospital at Gangdong, Seoul, Korea

Biting of the tongue is an unfamiliar perioperative event. However, this complication can occur under some situations such as spinal surgeries with the patient in the prone position[3], epileptic seizures[6], and rarely in accidental trauma. A bitten tongue may lead to various outcomes ranging from simple laceration to upper airway obstruction by macroglossia or necrosis requiring amputation[2].

A 24-year-old female was scheduled for cranioplasty. She was delivered to the operating room with stuporous mentality, but was able to breathe spontaneously through the tracheostomy tube. Routine monitorings including ECG, SPO_2, $EtCO_2$ and blood pressure were carried out. General anesthesia was induced using 80 mg intravenous propofol and 40 mg rocuronium and was maintained with 1.5–2 vol% sevoflurane and 0.05–0.1 mcg/kg/min remifentanil in an O_2-air mixture at a 1 : 1 ratio. The tracheostomy tube was changed for hygienic purposes and connected to a ventilator machine after endotracheal and intraoral cavity suction.

The operation lasted about four hours and was uneventful. All the anesthetics were stopped and muscle relaxation was reversed with the administration of glycopyrrolate and pyridostigmine. Her mouth was open less than 1 cm and her tongue was not protruded. She responded gradually upon exposure to verbal and tactile stimuli with the recovery of spontaneous breathing. Suddenly, she bit the anterior third of her tongue and continued to do so more violently as time passed; cyanotic and edematous changes were noted (Fig. 1). At first, we thought she would quit biting her tongue as she would recover from anesthesia further. Then, we decided to withhold giving any anesthetics or neuromuscular blocking agents. Though we attempted to open her mouth manually as safely as possible, the mandible could not be pulled down and we were unable to retract the tongue from her teeth. Further complicating matter was our inability to communicate with this mentally altered patient. There was no space in which to put fingers or a tongue compressor into her mouth. Unfortunately, she continued to bite her tongue harder and marked color changes and bleeding were observed. Although we began to increase the sevofluorane concentration, her jaw muscle did not relax sufficiently to allow us to gain access to her oral cavity, and finally we injected 50 mg succinylcholine intravenously about 3 minutes later. Seconds later, her chin relaxed and her

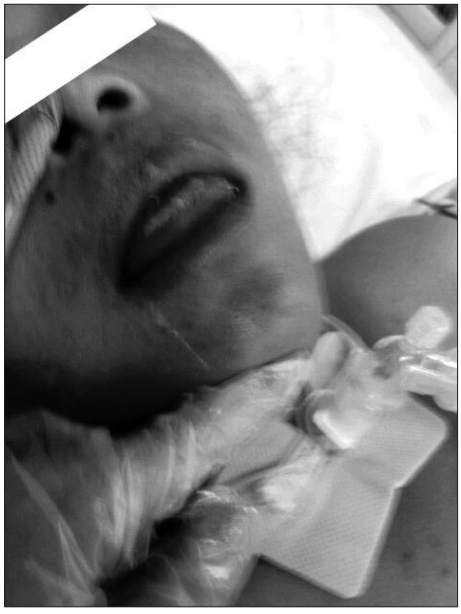

Fig. 1. Self-biting injury to the anterior third of tongue during recovery of anesthesia.

• Received : December 12, 2013 • Revised : November 19, 2013 • Accepted : April 15, 2014
• Address for reprints : Jong-Man Kang, M.D.
Department of Anesthesiology, Kyung Hee University Hospital at Gangdong, 892 Dongnam-ro, Gangdong-gu, Seoul 134-090, Korea
Tel : +82-2-440-6193, Fax : +82-2-440-7808, E-mail : kjm@khnmc.or.kr

tongue retracted. The color of her tongue gradually returned to normal. After confirming that there was no active bleeding, saline irrigation and wet gauze were applied to the wound. An oral airway was inserted and fixed with tape to ensure it would not be spit out unconsciously. She transferred to recovery room, no other events were observed. Several hours later, the tape and oral airway were removed.

Tracheostomy is the most common procedure for patients with pulmonary problems or those requiring respiratory support in the neurosurgical field[4]. Biting of the tongue is a rare complication under general anesthesia, especially in patients with a tracheostomy. However, several cases have been reported in association with the prone position during surgery without a bite blocker[1], prolonged re-insertion of dentures in patients without teeth[5]. and eclamptic seizures.

Our case indicates that a patient can bite their tongue even when in a supine position without orotracheal intubation, particularly in patients with brain damage. Although we did not figure out using airway opening instruments such as screw-type or Heister mouth gag in the event, those seem to be a good method of choice worth to be tried in suitable cases. Furthermore, clinicians should seriously consider the routine use of an oral airway in patients with a tracheostomy. One thing that we should keep in mind is that manual attempts to open the mouth carelessly can bring about injuries to the practitioner as well as the patient. Neurosurgeons and anesthesiologists should be aware of the possibility of tongue protrusion and subsequent biting in patients with a tracheostomy.

References

1. Deiner SG, Osborn IP : Prevention of airway injury during spine surgery : rethinking bite blocks. **J Neurosurg Anesthesiol 21** : 68-69, 2009
2. Lam AM, Vavilala MS : Macroglossia : compartment syndrome of the tongue? **Anesthesiology 92** : 1832-1835, 2000
3. Miura Y, Mimatsu K, Iwata H : Massive tongue swelling as a complication after spinal surgery. **J Spinal Disord 9** : 339-341, 1996
4. Seung WB, Lee HY, Park YS : Successful treatment of tracheoinnominate artery fistula following tracheostomy in a patient with cerebrovascular disease. **J Korean Neurosurg Soc 52** : 547-550, 2012
5. Tan WK, Liu EH, Thean HP : A clinical report about an unusual occurrence of post-anesthetic tongue swelling. **J Prosthodont 10** : 105-107, 2001
6. Ulrich J, Maxeiner H : [Tongue bite injuries--a diagnostic criterium for death in epileptic seizure?] **Arch Kriminol 212** : 19-29, 2003