**Tongue Necrosis: A Rare Complication of Oral Intubation**

Maggie A Kuhn, MD; Daniel M Zeitler, MD; David J Myssiorek, MD, FACS

Department of Otolaryngology; New York University School of Medicine, New York, NY

**Abstract**

Objectives: (1) Present a unique case of partial necrosis of the dorsal tongue caused by an endotracheal tube; (2) highlight the importance of verifying proper endotracheal tube positioning during cases requiring prolonged intubation. Methods: Case report and literature review. Results: A 50 year-old man underwent total thyroidectomy and bilateral lymphadenectomies for papillary thyroid carcinoma. A nerve monitoring endotracheal tube was used during the case. Postoperatively, the patient reported tongue pain and examination revealed partial necrosis of his dorsal tongue. On follow up, the patient had improved tongue pain and well-healing dorsal tongue. Discussion: We present the a case of tongue ischemia and partial necrosis due to oral endotracheal intubation, specifically with a nerve monitoring endotracheal tube, which has not previously been reported in the English literature. Tongue necrosis due to compression by an endotracheal tube during prolonged intubation is unusual, however surgeons, anesthesiologists and those involved in the care of intubated patients should consider the potential for this complication when orienting and securing endotracheal tubes. Conclusions: This unique case of tongue necrosis underscores the importance of proper endotracheal tube positioning during prolonged intubation.

**Case**

A 50 year-old man with idiopathic unilateral vocal fold paralysis underwent a total thyroidectomy and bilateral lymphadenectomies for papillary thyroid carcinoma. Given his preexisting vocal fold paralysis, a nerve monitoring endotracheal tube was used during the uncomplicated but lengthy eight hour case. The oral endotracheal tube was secured in an unusual position—directed cranially and attached to foam on the patient’s forehead.

Postoperatively, the patient reported tongue pain, and intraoral examination revealed fibrinous, necrotic tissue along the midline of his dorsal tongue [image 1]. His cranial nerve and fiberoptic laryngeal exams were stable. The tongue pain improved with oral analgesics and Carafate syrup. His postoperative course was otherwise uneventful, and he was discharged home on postoperative day 2. One week later during routine follow up, the patient reported improved tongue pain, and examination showed sloughing of necrotic tongue tissue. One month postoperatively, he had a well healing dorsal tongue surface [image 2].

**Methods**

Review of English literature

**Discussion**

- Endotracheal tubes are responsible for laryngeal injury when prolonged or excessive pressure is exerted by an over-inflated cuff or an over-sized endotracheal tube [1].
- Extralaryngeal injuries from endotracheal tubes are less common, though columellar necrosis [2], extreme tongue swelling [3], and full-thickness facial skin avulsion [4] have all resulted from unconventional methods of positioning and securing tubes.
- Lingual necrosis, though uncommon, has been reported in a variety of conditions, most frequently from vasculitides, hypercoagulable states or arterial emboli and thrombi.
- A recent report implicated an intra-aortic balloon pump used during cardiogenic shock in the development of complete oral tongue necrosis. Contributing to the tongue’s susceptibility to ischemia was the presence of an oral endotracheal tube exerting pressure on the hypoperfused tongue [5].
- Our patient suffered partial tongue necrosis due to prolonged, excessive downward pressure from a improperly-positioned endotracheal tube.

**Conclusions**

- Extralaryngeal structures, including the tongue, are susceptible to pressure injury from endotracheal tubes.
- Monitoring of at risk sites, especially during prolonged intubation, may help prevent morbid, painful or disfiguring complications.

**References**