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CORRESPONDENCE

Life-threatening lingual artery hemorrhage after cardiac surgery

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To the Editor,

We present a case of life-threatening lingual artery hemorrhage and airway obstruction that occurred 21 days following an emergency aortic valve and ascending aorta hemi-arch replacement for type A aortic dissection in a patient with Marfan syndrome. The patient gave consent for this report.

The operative report described a single, elective, video laryngoscope intubation with a baton stylet, an operating time of 720 min, and placement of a 13-mm transesophageal echocardiography (TEE) probe. The patient was extubated on postoperative day (POD) 1 and required further intubation ten hours later because of agitation. Records indicated two attempts at direct laryngoscopy followed by rescue video laryngoscope intubation. No trauma to the oropharynx, manipulation of the airway, or use of airway adjuncts were noted.

Severe bilateral tongue swelling was noted on POD 2. Intravenous corticosteroid, antihistamines, and an otolaryngology consultation were initiated. Prophylactic dalteparin had been initiated on POD 1, then transitioned to coumadin for an international normalized ratio > 2.0 on POD 3. The patient was successfully extubated on POD 5 with no signs of airway obstruction, although the tongue remained visibly swollen. Nasopharyngoscopy performed on POD 10 revealed firmness of the right tongue, bilateral pressure necrosis (greater on the right side than on the left), an eschar of the right lingual tonsil, and mild swelling of the vocal cords.

On POD 21, the patient experienced gross hemoptysis of large volumes of bright red blood. Direct visualization was difficult because of the brisk, active bleeding, the source of which was suspected to be an artery at the tongue base. The bleeding was temporized with direct digital pressure, anticoagulation was fully reversed, and emergent operative management was arranged. Intubation was achieved with a fibreoptic bronchoscope on the second attempt using an external view of the light source through the cricothyroid membrane.

After the airway was secured, an 8 cm long $\times$ 1 cm deep laceration was seen to extend from the right mid-tongue to the tongue base, at the level of the epiglottis. Necrotic muscle was débrided, and multiple briskly bleeding branches of lingual artery were cauterized.

The cause of the laceration is unknown. The use of video laryngoscopy after multiple direct laryngoscopy applications is not without risk.[1] The baton stylet used with the GlideScope video laryngoscope has been implicated in oropharyngeal trauma but, to our knowledge, has not been described as causing delayed lingual artery hemorrhage.[2] Similarly, tongue necrosis and lingual artery hemorrhage is an uncommon complication of prolonged intubation or the use of esophageal echocardiography probes.[3] A prolonged cardiac bypass time and mechanical compression have been implicated in ischemic injury of the esophagus but have not been clearly supported in the literature. Previous reports of tongue necrosis have proposed glossal compression leading to

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venous congestion as the pathophysiological origin of subsequent tongue necrosis.[4]

It is unclear if the patient's history of Marfan's syndrome put him at risk of this complication. No published case reports or studies were found that would support this explanation. It is plausible that the weakness of the extracellular matrix and defective microfibrils associated with Marfan's syndrome coupled with the nadir of tensile strength in healing wounds that occurs at two to three weeks could have contributed to the timing of the presentation.

Our case highlights the multifactorial process of the development of tongue necrosis and airway hemorrhage in a high-risk patient. Contributing factors included traumatic intubation, TEE probe use, prolonged intubation, and anticoagulation. It is possible that such oropharyngeal trauma could have been avoided had nasopharyngoscopy and early tracheostomy been performed following the reintubation. We suggest that early tracheostomy be considered in patients on full anticoagulation or in those with a connective tissue disorder who present with tongue swelling. Traumatic intubation in any patient should facilitate regular oral assessment and early multidisciplinary involvement.

Conflicts of interest None declared.

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