

MASSIVE TONGUE EDEMA FROM AN ALLERGIC REACTION TO AN ANTIBIOTIC: EPINEPHRINE MAY AVERT NEED FOR ENDOTRACHEAL INTUBATION

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Abstract—Massive tongue edema from allergic reaction to medications raises a serious concern for maintaining adequate respiration as well as establishing endotracheal intubation. The necessity for airway intervention depends on the extent of airway edema, particularly the involvement to the laryngeal areas. Administration of subcutaneous epinephrine may rapidly decrease swelling of the tongue and may avert complications of airway intervention.

INTRODUCTION

Massive tongue edema can develop as anaphylactic reaction to various medications such as an antibiotic and an angiotensin-converting-enzyme (ACE) inhibitor. A swollen tongue may render both respiration and endotracheal intubation difficult, if not impossible. In one case of massive tongue edema from Azathioprine administration, the patient sustained cardiac arrest after failed intubation and underwent emergency tracheotomy [1]. Fortunately, it is often possible to maintain the airway without intubation if the airway edema is confined to the tongue. The following case report describes successful management of a patient with severe tongue edema from an antibiotic without endotracheal intubation and with administration of epinephrine. A written patient consent has been obtained.

CASE REPORT

A 61 year old female developed massive tongue edema following intravenous administration of Zosyn. Her PMH was significant for HTN, ESRD on HD, and NIDDM. Vital Signs: SpO₂ 100 % (on a non-rebreathing face mask), R 27, P 120, BP 170/95. Despite intravenous diphenhydramine and hydrocortisone, the swollen tongue filled up the mouth and protruded. (Figure 1)

Epinephrine was not given due to the concern for her cardiac co-morbidity. Nasal fiberoptic bronchoscope intubation and cricothyrotomy were prepared as emergency management. Glycopyrrolate 0.2 mg IV was given to retard salivation. A lidocaine nebulizer was applied to anesthetize the airway.

Without any sedation nasal fiberoptic intubation was attempted, but the

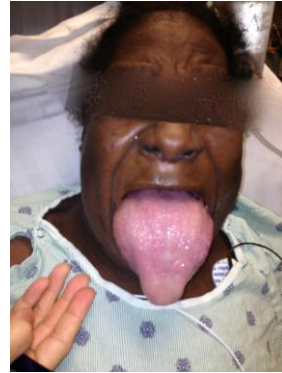


Figure 1

patient could not tolerate the procedure. Meanwhile, no stridor or sternal retraction was present. The lungs were clear to auscultation. She remained lucid and completely responsive.

Epinephrine (0.3 mg) was administered subcutaneously. Within few minutes the tongue swelling decreased visibly. The respiratory effort also subsided significantly. Vital Signs: SpO₂ 100%, R20, PR100, BP120/80. Flexible bronchoscopy revealed no vocal cord or laryngeal edema. The patient eventually recovered from allergic reaction without any airway intervention.

DISCUSSION

The decision to intubate the patient should not be based on the size of the tongue alone but the adequacy of gas exchange with time. The foremost concern with the swollen tongue is the potential progression to laryngeal edema leading to complete airway obstruction. If the edema is limited to the tongue, however, the gas exchange through the nasal passage could be preserved with medical treatment. In most patients with angioedema, swelling is conventionally

treated with epinephrine, antihistamines and/or steroids.[2] In case of allergic reaction to Haloperidol, patient's tongue swelling decreased within minutes after treatment with the medications including subcutaneous epinephrine.[3] Kaufman reported several cases of tongue edema caused by ACE inhibitors rapidly reversing with subcutaneous injection of epinephrine and without airway intervention.[4]

The risk for airway intervention correlates with the extent of the areas affected by airway edema. Ishoo, et al reviewed 93 cases of angioedema from 1985 to 1993 and found intubation or tracheostomy was necessary only in 9 cases (9.7%). Those who required ICU admission and airway intervention manifested the signs and symptoms of laryngeal edema including stridor, dyspnea and hoarseness.[5] In another review study Sondhi, et al reviewed 40 cases of angioedema from ACE inhibitors; all developed tongue edema, but only 5 patients required intubation after developing stridor and the respiratory failure.[6]

Awake intubation using a fiberoptic bronchoscope has been the preferred method for managing difficult airways. However, it poses some challenges in case of severe tongue edema. As the patient could breathe only through the nose, the nasal approach interferes with the breathing effort. Also, topicalization of the airway is often inadequate due to the limited access by the tongue. Furthermore, any nasal bleeding would obscure the view during the intubation attempt. As the patient could neither easily swallow nor expel secretions by mouth, aspiration risk with vomiting is high. As a result, it has become an

indispensable alternative to manage such difficult airways with the use of a video laryngoscope. In fact, a retrospective study on 30 patients requiring airway intervention for angioedema concluded video laryngoscopy could be performed more quickly than fiberoptic bronchoscopy in establishing successful intubation and without any increased adverse events.[7]

In this case the patient's lucid and calm mental status supported presence of adequate oxygenation and ventilation. Lack of stridor or sternal retraction signified patency of the laryngeal airway. Her respiratory effort remained steady with time. All signs indicated further medical treatment could be made before airway intervention. Epinephrine rapidly reversed the tongue edema as in other reported cases. There was no adverse cardiac event from administration of epinephrine. Therefore, a concern for adverse hemodynamic impact of epinephrine should not prevent from administering to avert the further airway obstruction and difficult intubation. Sufficient medical intervention should be made first to limit or reverse tongue edema before intubation attempts.

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