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Case Study

Angioedema of the Tongue Secondary to Allergic Reaction

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Abstract

Introduction: Tongue swelling is a potentially life-threatening manifestation of allergic reactions, often due to angioedema. Prompt recognition and airway preparedness are essential to prevent airway obstruction. **Case Presentation:** It reports the case of an 88-year-old Chinese male who developed acute tongue swelling two hours after consuming food. He had a prior history of tongue swelling following ingestion of cough syrup. On arrival at the emergency department, he was ambulatory with stable vital signs and a normal arterial blood gas. There was no associated rash, wheeze, or hypotension. Intravenous hydrocortisone, chlorpheniramine, and ranitidine were initiated, with immediate airway precautions and standby anaesthesia and otolaryngology teams. As the swelling persisted, intravenous dexamethasone was administered at two hours. At six hours, due to unresolved swelling, intramuscular adrenaline 0.5 mg was given. The patient was subsequently admitted for further monitoring. **Conclusion:** This case highlights the importance of early recognition of tongue swelling as a potential airway emergency, especially in elderly patients. Timely pharmacological intervention and airway preparedness are crucial to ensure favourable outcomes in allergic reactions presenting with angioedema.

Keywords: *Airway Obstruction; Allergic Reaction; Angioedema; Emergency Management; Tongue Swelling*

Introduction

Tongue swelling is an uncommon but clinically significant presentation in allergic reactions and is most frequently associated with angioedema. Although it occurs less commonly than other manifestations of allergic responses, swelling of the tongue can pose a serious and potentially life-threatening risk because of its proximity to the upper airway. Even moderate enlargement of the tongue can compromise the oropharyngeal space and may rapidly progress to airway obstruction if not recognized and treated promptly.

Angioedema refers to localized swelling of the deeper layers of the skin and mucosal tissues resulting from increased vascular permeability. In allergic reactions, this process is typically mediated by histamine release following exposure to an allergen. The tongue, lips, face, and upper airway structures are among the most commonly affected areas. The clinical presentation may vary in severity, ranging from mild swelling to extensive enlargement that threatens airway patency (Simons *et al.*, 2011).

Several etiologies can lead to angioedema involving the tongue. Common causes include food-related allergic reactions, drug-induced hypersensitivity, hereditary angioedema, and idiopathic angioedema in which no clear trigger can be identified. Among these, food and medication allergies are the most frequently encountered causes in emergency settings. Because the onset of symptoms can occur

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rapidly after exposure to a triggering agent, careful history taking is essential in identifying potential allergens (Long *et al.*, 2019).

The primary clinical concern associated with tongue swelling is the risk of rapid airway compromise, which may occur unexpectedly even in patients who initially appear stable. Early recognition of this condition is therefore essential in the emergency department. Physicians must remain vigilant and prepared to initiate immediate management, including pharmacological treatment and airway protection when necessary.

Case reports play an important role in improving clinical understanding of rare but potentially dangerous presentations such as tongue angioedema. They provide valuable insight into diagnostic considerations, management strategies, and the importance of early airway preparedness. In this report, it describe a case of acute tongue swelling secondary to an allergic reaction in an elderly patient, highlighting the clinical presentation, emergency management, and the importance of timely intervention to prevent airway complications.

Case Description

An 88-year-old Chinese male presented to the emergency department at 10:00 pm with acute tongue swelling, which developed approximately two hours after consuming dinner that included fish balls and a pear. He reported a prior episode of tongue swelling several years earlier after ingestion of cough syrup.

On arrival, the patient was able to ambulate independently. His vital signs were stable, with BP: 169/84, PR: 60, SpO2: 96% under room air. Arterial blood gas analysis was normal with pH: 7.411, pCO2 38.9, pO2 84.5, Bicarbonate: 24.5 mmol/L. There was no associated rash, wheeze, or hypotension. Examination revealed marked swelling of the anterior two-thirds of the tongue, without lip involvement and patient unable to retract his tongue (Figure 1).

Figure 1: Marked Swelling of the Anterior Two-Thirds of the Tongue on Presentation

Given his clinical stability, he was started on intravenous hydrocortisone 200mg, intravenous chlorpheniramine 10mg, and intravenous ranitidine 50mg at 10:30 pm. Immediate airway precautions were undertaken, with anesthesia and otolaryngology teams placed on standby.

Otolaryngology teams found vallecula was mildly edematous, epiglottis was clear, aryepiglottic fold was edematous, bilateral arytenoid was edematous, bilateral lateral pharyngeal wall to preform fossa was edematous, bilateral vocal cord mobile (Figure 2 and Figure 3).

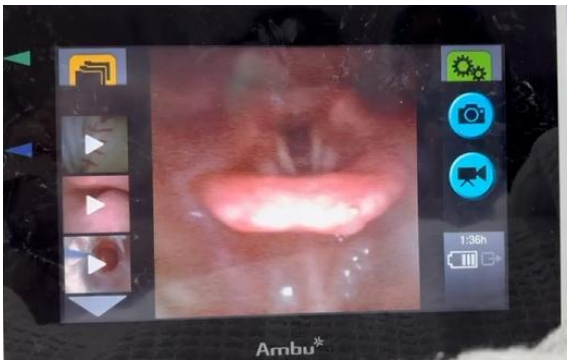

Figure 2: Endoscopic View Showing Edema of the Vallecula and Aryepiglottic Folds

Figure 3: Endoscopic View Showing Edema of the Lateral Pharyngeal Walls and Arytenoids with Mobile Vocal Cords

At 12:30 am, as the swelling showed no improvement, intravenous dexamethasone was administered. By 3:00 am, persistent tongue swelling prompted administration of intramuscular adrenaline 0.5 mg. After giving intramuscular adrenaline 0.5mg, patients claimed symptoms were improved as patient able to retract his tongue.

The patient was subsequently admitted to the ward for further monitoring and management. After admission for few days patient was discharged (Figure 4).

Figure 4: Reduction of Tongue Swelling after Administration of Intramuscular Adrenaline

Discussion

Tongue swelling in the emergency setting poses a critical threat due to the risk of airway obstruction. In this case, the temporal relationship to food ingestion and the patient's history of drug-related tongue swelling suggest an allergic mechanism.

International guidelines recommend intramuscular adrenaline as first-line treatment for airway-threatening allergic reactions. Although the patients initially received corticosteroids and antihistamines, significant improvement was observed only after administration of intramuscular adrenaline. This reinforces the need for early adrenaline use, even in the absence of systemic anaphylaxis features such as hypotension or urticaria (Resuscitation Council UK, 2021).

Elderly patients represent a high-risk group, as comorbidities and altered physiology may complicate both diagnosis and treatment. Close observation, early multidisciplinary involvement, and readiness for airway intervention remain essential components of management.

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Conclusion

Tongue swelling due to allergic reaction should always be regarded as a potential airway emergency. This case highlights the importance of early recognition, adherence to guideline-based pharmacological management with intramuscular adrenaline, and preparedness for airway intervention to ensure patient safety.

Conflict of Interest

The authors declare that they have no conflicts of interest.

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