Propofol-induced macroglossia: a case report

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Abstract

A 78-year-old lady, without prior exposure to propofol, was admitted to the hospital due to recurrent seizures, and respiratory arrest, which required intubation in order to secure her airway. Propofol was used as the initial sedative agent. Two weeks later she required again administration of propofol, time at which she developed acute macroglossia. This subsided after weaning off the propofol. When she was cared by another team and received for the third time propofol, she developed macroglossia again, and similarly subsided when propofol was weaned off. Allergic reactions to propofol are well documented. We believe that an allergic reaction occurred upon the second and third administration of propofol in our patient.

Introduction

Macroglossia is the enlargement of the tongue disproportionate to the jaw and the oral cavity size. It also can be described as a resting tongue that protrudes beyond the teeth or alveolar ridge. (1) Severe enlargement of the tongue can cause cosmetic and functional difficulties in speaking, eating, swallowing, sleeping and even interferes with breathing. We describe a case of acute macroglossia as a reaction to the anesthetic drug, propofol.

Case presentation

A 78-year-old woman with history of cirrhosis presented to the hospital with hepatic impairment complicated by an episode of severe hypoglycemia, with recurrent seizures and respiratory arrest. Her airway was secured and she was sedated with propofol 0.01 mg/kg/min. This was her first exposure to propofol in her life, according to her past medical and surgical history. The intubation was performed without complications and propofol was weaned off after 2 days. The patient continued her care in the hospital, and after 15 days, her serum ammonia level increased again, which led to severe altered mental status once again, and the patient was intubated for airway protection, using propofol as the sedative of choice. At that time, the patient developed acute progressive macroglossia (**Figure 1**). After 36 hours of intubation, the patient became hemodynamically unstable, and propofol was discontinued and changed to midazolam. Her tongue size started to decrease gradually. After several days, the patient became agitated and another team decided to discontinue midazolam and placed her back on propofol. The macroglossia developed again. Propofol was suspected to be the cause of macroglossia, so it was stopped again, and after 48 hours her macroglossia had resolved (**Figure 2**). After full resolution, the patient was successfully extubated.

Discussion

The pathological mechanisms of macroglossia include deposition of abnormal protein/tissue into the tongue, overgrowth/hypertrophy of normal tongue tissue, and inflammation of the tongue due to trauma or allergic reaction/angioedema. (1) The rapid and reversible changes in this case suggests the involvement of a third mechanism. We believe

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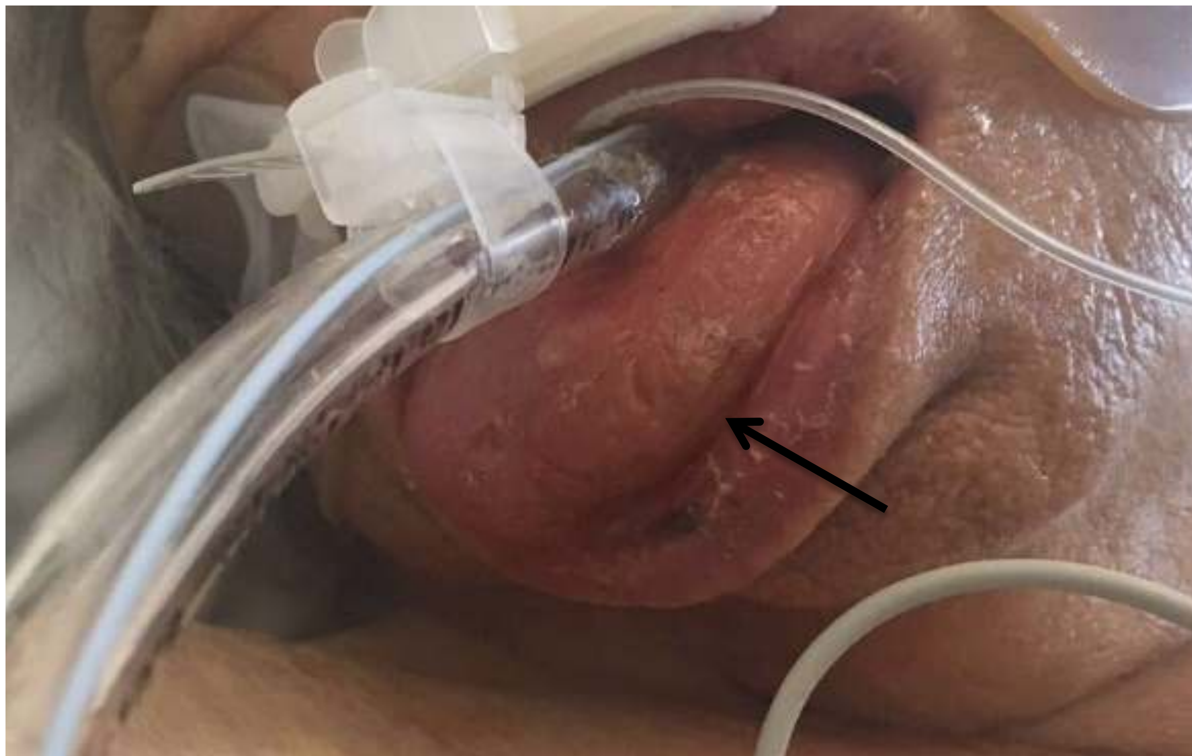
our patient developed an acute allergic reaction to this agent. Propofol (2,6 diisopropyl phenol) has 2 elements: the diisopropyl side chain and phenol. The vehicle that carries the propofol contains highly purified egg phosphatide, extracted from egg yolk. (2) Any of those are potential allergens. Reactions to propofol have been well documented, such as rash, wheals, and anaphylaxis. (2-5)

Acute macroglossia is a rare allergic reaction; it has been documented as a response to food or medications. (6) To our knowledge, macroglossia, as an allergic reaction to propofol, has not been documented to date. In our patient, after the first administration of propofol, no macroglossia developed. However, upon the second administration 15 days later, which is the same time period, the body needs to sensitize against any allergen, macroglossia acutely developed, but subsided after weaning off propofol. The recurrence of macroglossia after the third administration of propofol further implicates this drug as the culprit.

Conclusion

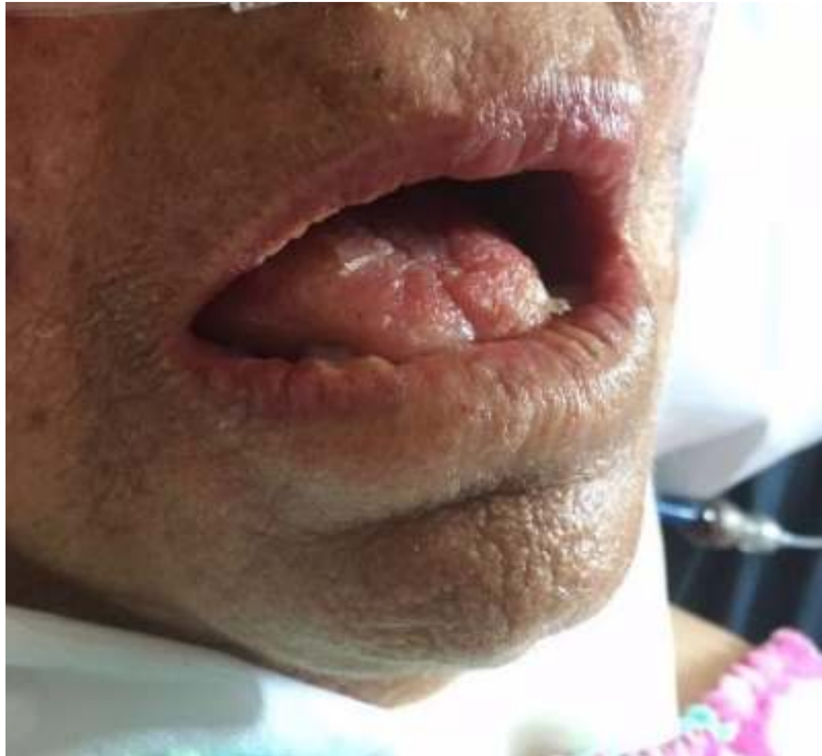
Allergy to propofol is well documented, and one of the dangerous manifestations is acute rapid development of macroglossia, with potential airway obstruction. Before administering propofol, clinicians should inquire about prior allergic reactions and be ready to secure the airway in case acute macroglossia develops.

Figure 1. Development of macroglossia after second administration of propofol



Legend: Arrow indicates macroglossia

Figure 2. Resolution of macroglossia after weaning off propofol for the third time and extubating the patient



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