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A potential hazard for night denture wearers

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Abstract
A rare complication of denture use is presented. The clinical and radiological findings are documented and the optimum method of treatment discussed.

Key words: Dentures; Haematoma; Mouth floor

Introduction

It is possible that dentures were constructed as far back in history as Roman times. Denture use has become widespread in the UK since 1948 when they became available through the NHS. Since then approximately two million sets per year have been provided through the NHS in England and Wales.

Dentures are worn not only to assist in mastication, but also for their cosmetic effect in restoring the normal facial contour, preventing the typical edentulous facial appearance with in drawn cheeks and lips. Because of cosmetic considerations, some individuals wear their dentures even when sleeping.

Case report

A 79-year-old lady presented to the Accident and Emergency Department in the early hours of the morning complaining of discomfort in the throat which commenced after she woke with a fit of uncontrollable coughing that dislodged her old but well-fitting and comfortable dentures. The bottom denture fell out, while the top set repeatedly injured the floor of her mouth. A slight bruise in the floor of the mouth was noticed initially by her son. Over a period of two hours it gradually enlarged to such an extent so as to cause marked discomfort, preventing her from closing her mouth and swallowing.

The lady was asthmatic but did not have a history of a tendency to bleed. Her only medication was Salbutamol inhaler. She did not have a history of atopy or angioneurotic oedema.

On examination she was calm and cooperative. She was apyrexial, normotensive with a mild degree of respiratory distress which caused suprasternal retraction and slight tachycardia.

A nontender, bluish-coloured, swelling was seen in the floor of the mouth. It was diffuse with ill-defined borders, nonfluctuating and covered by an intact mucous membrane. Her tongue was pushed upwards against the palate. The swelling extended into the submental and submandibular regions.

A lateral soft tissue X-ray of the neck was taken (Figure 1). It shows the extent of the swelling with displacement of the tongue upwards and backwards to produce a degree of respiratory obstruction at the level of the oropharynx. Full blood count and coagulation screening were normal, as was a chest X-ray.

The patient was treated conservatively with oxygen, intravenous steroid and prophylactic antibiotic. As she showed a remarkable initial improvement surgical intervention was not considered necessary. Her initial improvement was followed by a sudden deterioration 24 hours after presentation due to a second bout of coughing. This resulted in sudden increase in the floor-of-mouth swelling with increased respiratory difficulty.

The patient was transferred to theatre, where an attempt at awake intubation using a fibreoptic nasopharyngoscope was made by a consultant anaesthetist experienced in the management of obstructive airway problems. It proved impossible to intubate the patient by this method due to the extreme posterior displacement of the tongue. The attempt at intubation resulted in

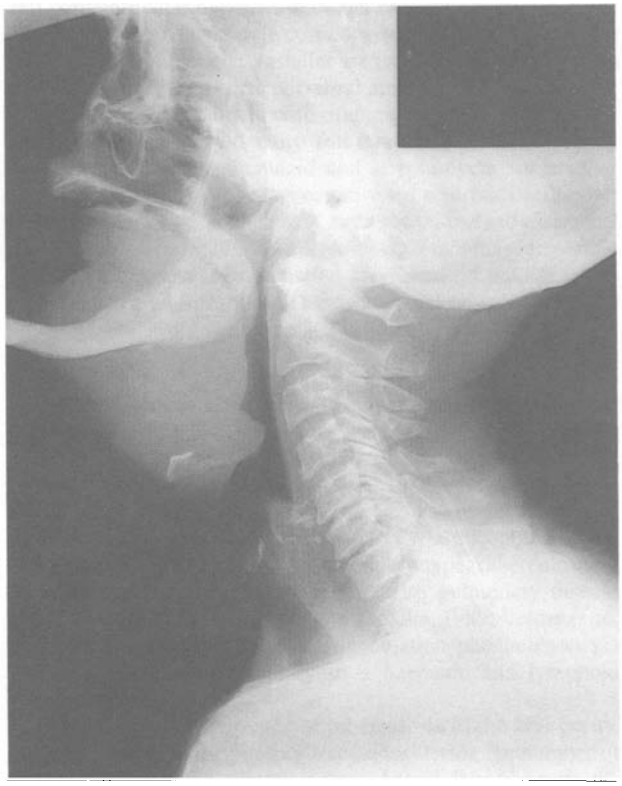

Fig. 1
The lateral soft tissue X-ray of the neck showing the extent of the swelling.

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an increase in the swelling, with loss of the airway. An emergency tracheostomy was required. Once the airway had been secured an attempt was made to drain the haematoma via an incision in the floor of the mouth. However, no localized collection was found. The haematoma was diffusely infiltrating the tongue muscles.

The post-operative recovery was uneventful. The swelling gradually settled and the patient was decannulated after one week.

Discussion

Dentures are among the most widely used and accepted prostheses available. Some of their known complications are allergy to the denture material (Kaaber, 1990), chronic stomatitis (Hand and Whitehill, 1986) and other occasional complications such as blockage of the submandibular duct orifices (Samant and Desciscio, 1991). Partial dentures may be aspirated or swallowed (Nimmo *et al.*, 1988) during an epileptic fit or as the result of a direct trauma, but the size of complete dentures makes such an occurrence extremely unlikely.

Sublingual haematoma with respiratory obstruction has been termed 'pseudo-Ludwig' phenomenon (Lepore, 1976) because of its similarity of Ludwig's angina. Gooder and Henry (1980) have described a floor-of-mouth haematoma occurring spontaneously in a patient taking anticoagulants. Similar haematomas have been reported due to facial trauma in a road accident (Hing *et al.*, 1985) and due to direct trauma to the tongue from a dental drill (Kattan and Sconyder, 1991). This is the first report of such an injury due to trauma from a denture.

Lepore (1976) described visualization of the fauces as being an important indicator as to the need for intervention to secure an airway. In his view if the fauces can be visualized this indicates that the haematoma is localized to the sublingual space. Extension of the haematoma below the mylohyoid into the submandibular space will produce splinting of the tongue to such an extent that the fauces cannot be visualized. In such cases the airway is at risk.

Orotracheal intubation is not an option when there is airway obstruction due to gross floor-of-mouth swelling. The options for securing the airway area awake, blind, nasotracheal intubation under local anaesthetic, awake nasotracheal intubation using the fibreoptic laryngoscope or tracheostomy under local anaesthetic.

Successful nasotracheal intubation has been described in patients with haematoma of the floor of the mouth (Hing *et al.*, 1985; Kattan and Sconyder, 1991) and in Ludwig's angina (Schwartz *et al.*, 1974). However, the distortion of the oropharyngeal anatomy makes attempted intubation hazardous, and a failed attempt at intubation may aggravate the situation resulting in the need for an emergency tracheostomy as occurred in our patient and in two patients of Patterson *et al.* (1982) from a series of 20 patients with Ludwig's angina.

If intubation is attempted it should be performed in the operating theatre with the surgical team standing by. Tracheostomy under local anaesthesia is a less hazardous alternative.

Conclusion

From the study we conclude that a tracheostomy under local anaesthetic is the only suitable option to secure an airway in cases of obstruction due to a haematoma swelling at the level of the tongue base, and early intervention ensures the patient's safety although disappointing to the patient.

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