

Inhalation of dental plates—A hazard of radiolucent materials

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Abstract

Many dental plates are made of materials that are radiolucent. If inhaled or swallowed they may be difficult to detect and where there is strong suspicion of inhalation, early bronchoscopy should be carried out even if plain X-rays show no abnormality. The details of three patients are reported.

Case reports

Case 1

A 21-year-old man attended a party, ate a large meal and went to bed. He awoke the next morning with difficulty in breathing, stridor and a lump sensation in the pharynx. He noticed that the single tooth bridge, fitted as a temporary measure following extraction of an upper incisor, was missing. He was seen at a peripheral Casualty Department, where he was noticed to be wheezing and was transferred to Boston.

When he was examined, nothing of note was found except for a few crepitations at the base of the right lung. The chest expansion was equal on both sides. A chest X-ray revealed no radio-opaque foreign body and no signs of collapse. At this point he had another attack of wheezing and was therefore bronchoscoped under general anaesthesia. A dental plate consisting of an incisor tooth and two caps was removed from the lower part of the trachea, using a rigid bronchoscope and forceps. He was given flucloxacillin 250 mg and ampicillin 250 mg (Magnapen). He made an excellent recovery and was discharged the following day and was not followed up.

Case 2

A 45-year-old man sneezed violently and inhaled a single incisor tooth fitted to a 'spoon' denture. When admitted he was in distress and could find relief only when lying prone with his body tilted head downwards. It was impossible to inspect his larynx with a mirror. A lateral X-ray of the neck did not show an opaque object. He was examined under general anaesthesia and the denture was found to be wedged between the posterior wall of the pharynx and the posterior surface of the epiglottis. So firmly was it impacted that it was broken during removal. He was given prophylactic Magnapen 500.q.d.s. He made a good recovery and was discharged. He was not followed up.

Case 3

A 35-year-old man was admitted with the history that two days previously he had suddenly lost consciousness. When he recovered, he noticed that his dental plate was broken and that part of it was missing. He had developed a severe cough and came to the casualty department where a chest X-ray was performed. No foreign body was seen and he was sent home. His symptoms worsened over the next 36 hours and his cough became productive. He returned to the hospital, and on examination he was found to have diminished air entry over the right

upper lobe with expiratory rhonchi. Rigid bronchoscopy under general anaesthesia was performed and a segment of his dental plate was found lying in the trachea at the junction with the right main bronchus. This was removed and he made a good recovery. On closer questioning it transpired that he had lost consciousness on several occasions in the week prior to his admission: Because his symptoms raised the possibility that he might have had a grand mal fit he was referred to a general physician and ultimately the diagnosis of *grand mal* epilepsy was confirmed. His symptoms are now controlled by phenytoin 100 mg mane and 200 mg nocte.

Discussion

Dental objects are among the various foreign bodies that may be aspirated into the larynx or bronchi. In a review of the literature, 689 cases were reported of inhaled foreign bodies (Tamura *et al.* 1986), of which 24 (3.5 per cent) were of dental origin. Whereas natural teeth can be seen on a plain X-ray, artificial ones and dental plates are still generally made of radiolucent substances. This has been perceived as a problem ever since acrylic materials replaced vulcanite as the main denture material. Various substances have been suggested (Hutchinson, 1947; Bursey and Wood 1960; Chandler *et al.*, 1971), but it would seem that none are in general use.

Inhalation of a foreign body most commonly occurs following trauma, intoxication or loss of consciousness and is a serious and potentially lethal occurrence if not diagnosed early. Often following the original symptoms of inhalation there is a period when the patient may have no symptoms, and only when the foreign body acts as a focus of infection or erodes into an adjacent structure is the diagnosis made (Valori and Leclerc, 1985; Adelman, 1988; Poukkula *et al.*, 1988; Von Haacke and Wilson, 1988). Indeed in the three cases reported here, only in Case 2 was the diagnosis straightforward. In an attempt to counter this difficulty, the use of computed tomography has been suggested to locate the inhaled fragment (Newton *et al.*, 1987). This has been tried successfully (Ong *et al.*, 1988), but it is not always practicable, and where there is suspicion that a foreign body has been inhaled, early bronchoscopy should be carried out even if a foreign body cannot be demonstrated by plain X-rays.

Conclusion

The inhalation of dental materials is a not uncommon occurrence whose incidence and potentially serious complications

could be diminished by avoiding the fitting of inadequately secured small prostheses, and the standard use of radio-opaque denture materials.

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