

A difficult intubation—Fatal respiratory arrest secondary to an oral epulis

ROY W. R. FARRELL, F.R.C.S.I.,* DEIRDRE M. MCKENNA, M.R.C.PATH.,† DESMOND BREEN F.C.ANAES,**
ANDREW J. PARKER, F.R.C.S.* (Sheffield)

Abstract

We report an unusual case of cardio-respiratory arrest and eventual death secondary to a benign tumour of the oral cavity obstructing the oropharynx. We review the literature of similar occurrences causing difficulty with respiration and intubation, and highlight the importance of early diagnosis and treatment.

Introduction

Benign tumours of the oral cavity are not uncommon. It is widely appreciated that there is a tendency towards both late presentation and a delay in diagnosis (Guggenheimer *et al.*, 1989). From previous publications (Kunter *et al.*, 1958) it is clear that patients are not usually aware of the significance of their diagnosis and that this is apparently due to the lesion mimicking a more common form of oral pathology. It is unusual for such a tumour to attain a size capable of causing respiratory arrest by obstructing the oropharynx in a 'ball valve' manner. Other entities such as cysts of the larynx (Ogura and Biller, 1973), hypopharynx and epiglottis (Henderson *et al.*, 1985) or polyps of the larynx (Kloss and Petty, 1975) and oesophagus (Cochet *et al.*, 1980; Gilman *et al.*, 1982) are well recognized causes of acute laryngeal obstruction. These are usually pedicled allowing sufficient mobility to cause the obstruction. The tumours that have obstructed the laryngeal inlet include haemangioendotheliomas, angiosarcomas, pseudosarcomas, granular cell tumours, and squamous papillomas.

Case history

A 69-year-old lady was referred to a District General Hospital with a two-month history of increasing dyspnoea, weight gain, lethargy, and voice change. A diagnosis of respiratory failure was made but no cause was immediately apparent. Arrangements were made to move the patient to this hospital for further investigation. On the morning of her transfer she had a cardio-respiratory arrest but was successfully resuscitated. A large pedunculated oral tumour was noted at the arrest. Subsequently, the patient had a series of apnoeic attacks which were attributed to the tumour obstructing the oropharynx in a 'ball valve' manner. An oral airway was inserted to prevent the lesion causing any further obstruction during the transfer. On arrival at this hospital she was conscious and breathing spontaneously, centrally cyanosed, systolic BP of 70 mmHg, a pulse of 100 beats/min, and a raised jugular venous pressure. Examination of the chest revealed poor respiratory effort and bi-basal crepitations on auscultation. Arterial blood gas analysis showed the patient to be hypoxic on 50 per cent oxygen with a P_{O_2} of 6.0 kPa, pH of 7.35, and a P_{CO_2} of 8.4 kPa. The working diagnosis was respiratory failure with subsequent respiratory and cardiac arrest secondary to an obstructing oral tumour and perhaps complicated by an underlying metabolic disease as she had certain characteristics to suggest hypothyroidism. She was transferred to the Intensive Care Unit for artificial ventilation.

Careful consideration was given to the method of securing the airway. Because of the patient's critical condition and the mobility of the tumour it was possible to use oral intubation with a standard rapid sequence technique under general anaesthesia. After induction of anaesthesia direct inspection revealed a large pedunculated tumour. This was displaced laterally into the right cheek using a Magill's forceps. Intubation of the trachea in a standard manner was then possible. The lesion was then fully examined and found to arise from the upper right alveolus on a long pedicle thus allowing it to obstruct the oropharynx. It was simply excised the same day in ITU.

Following admission she developed acute renal failure secondary to her prolonged hypotensive episode during her arrest. This was resistant to diuretic therapy and eventually required haemodialysis. After three days of artificial ventilation it was possible to reduce the sedation and commence weaning from respiratory support, she was extubated on the following day. By the eighth day she was fit to be transferred to an open ward. Hypothyroidism was confirmed on biochemical testing, T4 51 nmol/l (60–145 nmol/l) and T3 0.4 nmol/l (0.8–2.7 nmol). TSH 0.19 mIU/l (0.3–3.8 mIU/l).

She subsequently developed bilateral bronchopneumonia resistant to antibiotic therapy and a right femoral vein thrombosis secondary to the haemodialysis cannula which had become infected. This resulted in septicaemia and hypotension which was resistant to aggressive therapy and she died 30 days after admission.

Discussion

This unique case highlights several important clinical points from the importance of a careful history and examination to an awareness of the many complications that may occur from the simplest of lesions.

Oral lesions are known for their late presentation, but it is very rare for them to present with respiratory failure and arrest (no previous case was found on a review of the literature). The classical symptom of increasing alteration in voice was noted but its significance was not fully appreciated at the initial presentation. This lesion was pedunculated, measured 10 cm in diameter, and was composed of disordered bundles of collagen with a mild inflammatory infiltrate and focal calcification covered by oral squamous mucosa (Fig. 1). The features are of a fibrous epulis or a peripheral ossifying fibroma, which may occur at any age, typically enlarges slowly, tends to be solitary and originates in the

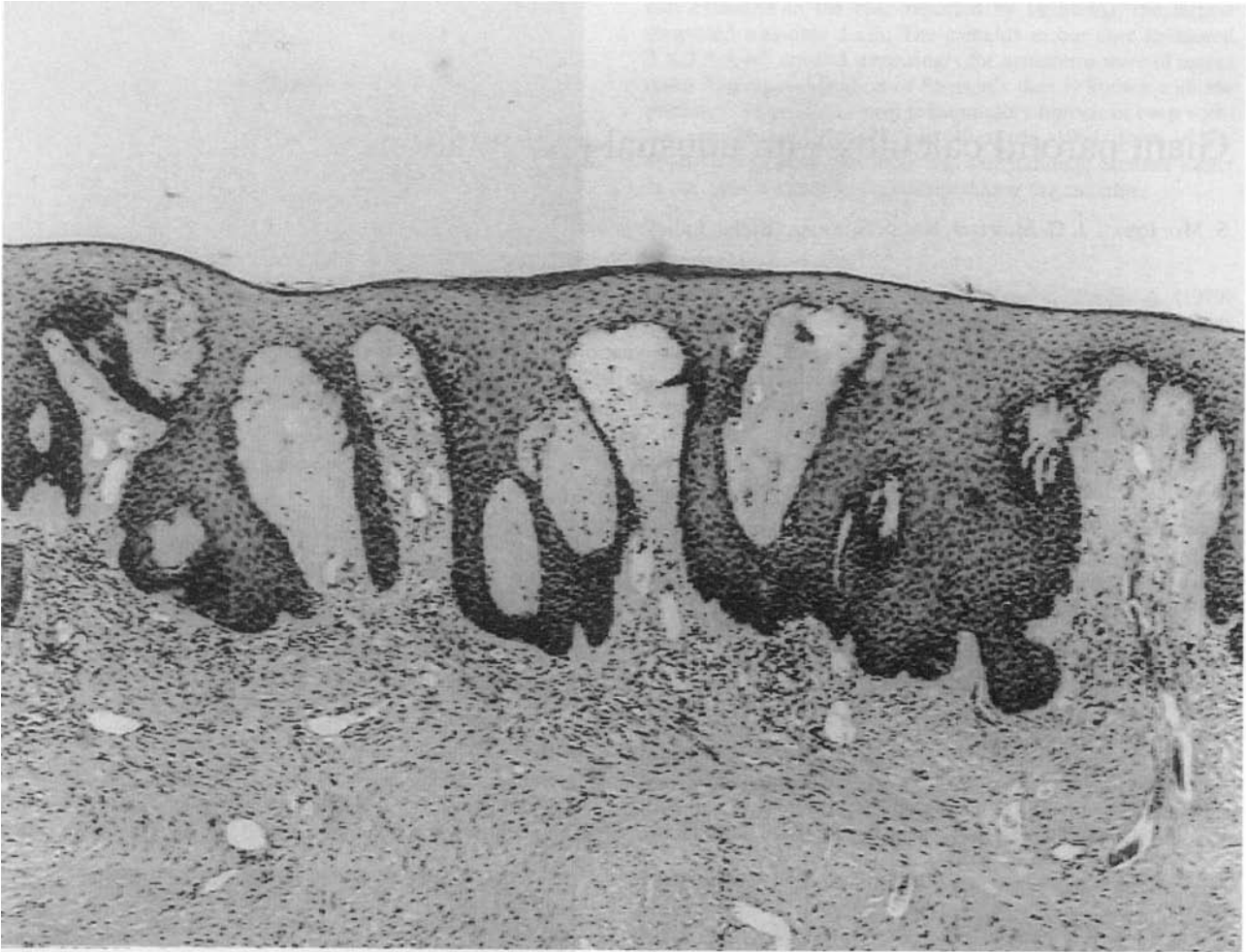


FIG. 1

majority of cases from the interdental papilla, sometimes associated with ill-fitting dentures (Shafer *et al.*, 1983; Lucas, 1984).

Difficult intubation is defined as inadequate visualization of the glottis (Samsoon and Young, 1987; Editorial, *Lancet*, 1987). Tumours of the oropharynx and upper respiratory tract are well renowned for causing problems with endotracheal intubation (Sigurbjornsson, 1968). Rapid intubation of the trachea was necessary in this case to prevent the airway from further obstruction and to provide artificial ventilation for her respiratory failure. After careful assessment of the size and mobility of the tumour, and following consideration of both an emergency tracheostomy under local anaesthesia, or nasal or oral intubation, oral endotracheal intubation was performed with minimal difficulty after displacement of the tumour laterally.

Our patient unfortunately died following the development of multiple complications. However, this case serves as a dramatic example of how dangerous simple oral pathology can be and of the importance of full examination, especially of the oral cavity as patients tend not to readily volunteer this information.

References

- Cochet, B., Hohl, P., Sans, M., Cox, J. N. (1980) Asphyxia caused by laryngeal impaction of an oesophageal polyp. *Archives of Otolaryngology*, **106**: 176–178.
- Editorial. Difficult intubation (1987) *The Lancet*, Oct 3, 778.
- Gilman, R. H., Karmody, C. S., Fried, M., Speth, R. (1982) Giant obstructing laryngeal polyps. *Journal of Laryngology and Otolaryngology*, **96**: 167–172.

- Guggenheimer, J., Verbin, R. S., Johnson, J. T., Horkowitz, C. A., Myers, E. N. (1989) Factors delaying the diagnosis of oral and oropharyngeal carcinoma. *Cancer*, **64**: 932–935.
- Henderson, L. T., Dennessy, J. C., Teichgraber, J. (1985) Airway obstructing epiglottic cyst. *Annals of Otolaryngology, Rhinology and Laryngology*, **94**: 473–476.
- Kloss, J., Petty, C. (1975) Obstruction of endotracheal intubation by a mobile pedunculated polyp. *Anesthesiology*, **43** (3), 380.
- Kunter, B., Makover, H. B., Oppenheim, A. (1958) Delay in diagnosis and treatment of cancer. A critical analysis of the literature. *Journal of Chronic Diseases*, **7**: 95–120.
- Lucas, R. B. (1984) *Pathology of tumours of the oral tissues*. 4th edn. Churchill Livingstone: Edinburgh, p. 151–157.
- Ogura, J. H., Biller, H. F. (1973) Cysts and tumours of the larynx. *Otolaryngology*. M. M. Paparella and D. A. Shumrick (eds.) W. B. Saunders Co.: Philadelphia.
- Samsoon, G. L. T., Young, J. R. B. (1987) Difficult tracheal intubation: a retrospective study. *Anaesthesia*, **42**: 487–490.
- Shafer, W. G., Maynard, K. H., Barnet, M. L. (1983) *A textbook of oral pathology*, 5th edn., W. B. Saunders: Philadelphia, p. 141–142.
- Sigurbjornsson, G. (1968) Tumours of the upper respiratory tract as complications during endotracheal anaesthesia. *Der Anaesthetist*, **17**: 361–362.

Address for correspondence:
Mr Roy W. R. Farrell, F.R.C.S.I.,
Department of ENT,
Royal Hallamshire Hospital,
Sheffield, S10 2JF.

Key words: Intubation, endotracheal; Epulis, giant cell; Respiratory failure.