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Laryngeal chondrosarcoma—an unusual presentation

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Abstract
Laryngeal chondrosarcoma is an uncommon tumour, approximately 200 cases having been reported in the world literature. We report a case which was noted by chance in a patient undergoing general anaesthesia for an unrelated procedure.

Introduction

Chondrosarcoma is the commonest laryngeal sarcoma (Nicolai *et al.*, 1990). It is nevertheless a rare tumour, comprising less than one per cent of all laryngeal neoplasms. Only seven chondrosarcomata were diagnosed out of a total of 3100 laryngeal cancers seen at the Mayo Clinic between 1949 and 1974 (Goranstein *et al.*, 1980). Similarly only eight were diagnosed out of 5000 primary laryngeal tumours at the Massachusett's Eye and Ear Infirmary (Huzenga and Balogh, 1970).

Chondrosarcomata comprise 20 per cent of all bone tumours. The first report of a laryngeal chondrosarcoma was by New in 1935. The case below presents nearly all the classical features of this tumour but is unusual in its presentation. These tumours are slow growing (Mishell *et al.*, 1990) and appear to be less aggressive in the larynx than elsewhere (Nicolai *et al.*, 1990). Symptoms have been reported between six months to eight years prior to diagnosis. (Goranstein *et al.*, 1980).

Case report

A 68-year-old female was noted on intubation while undergoing induction of general anaesthesia for an elective cholecystectomy to have a smooth rounded swelling of her posterior larynx.

She underwent coronary artery by-pass surgery four years previously. Subsequent to this procedure she developed hoarseness and was noted to have a left vocal cord palsy. Not unreasonably, surgical trauma to the left recurrent laryngeal nerve was implicated. There was no previous history of difficulty with breathing or swallowing. She was a non-smoker.

Plain lateral X-ray of the neck revealed a smooth radio-opaque mass in the post cricoid region compressing the trachea and impinging on the oesophagus posteriorly. A CT scan confirmed the presence of a tumour of irregular density with central calcification in the posterior aspect of the larynx. Chest X-ray, barium swallow and bone scan were normal.

Direct laryngoscopy confirmed the presence of a large smooth firm swelling deep to intact mucosa in the region of the left interarytenoid space which impinged on the posterior laryngeal aperture with fixation of the left vocal cord; the right vocal cord was mobile. No masses were palpable in the neck. Biopsy revealed a low grade chondrosarcoma. Biopsy of the hard calcified mass is difficult endoscopically; a sickle knife to penetrate themass, followed by punch forceps were most effective in obtaining a deep biopsy.

It was felt that the only acceptable definitive treatment was total laryngectomy. The patient was totally asymptomatic, and the tumour apparently slow growing and the patient was reluctant to undergo surgery. She eventually developed progressive upper airway obstruction over a period of several weeks and a tracheostomy was performed seven months after making the initial diagnosis. Repeat biopsies were taken at the time of tracheostomy and once the histological diagnosis was confirmed, total laryngectomy was performed. As there was extensive involvement of the cricoid ring a less radical operation was not deemed feasible.

The perioperative course was uneventful and the patient has remained well for the past eight months since the operation.

Pathological findings

Dissection of the laryngectomy specimen revealed complete excision of a well circumscribed cartilaginous tumour, 3 × 2.5 × 3.5 cm, with origin from the posterior cricoid lamina, which displaced but did not infiltrate adjacent soft tissue, skele-

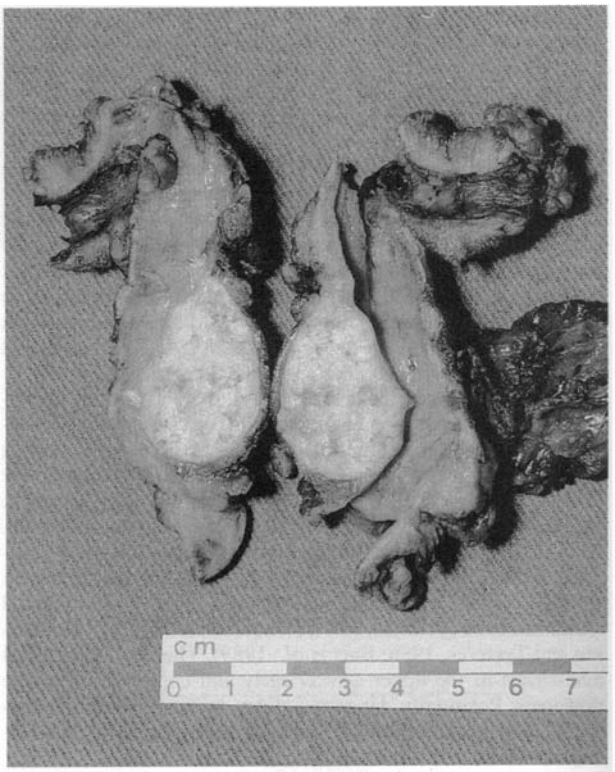

FIG. 1
Laryngectomy specimen in longitudinal section showing well circumscribed cartilaginous tumour.

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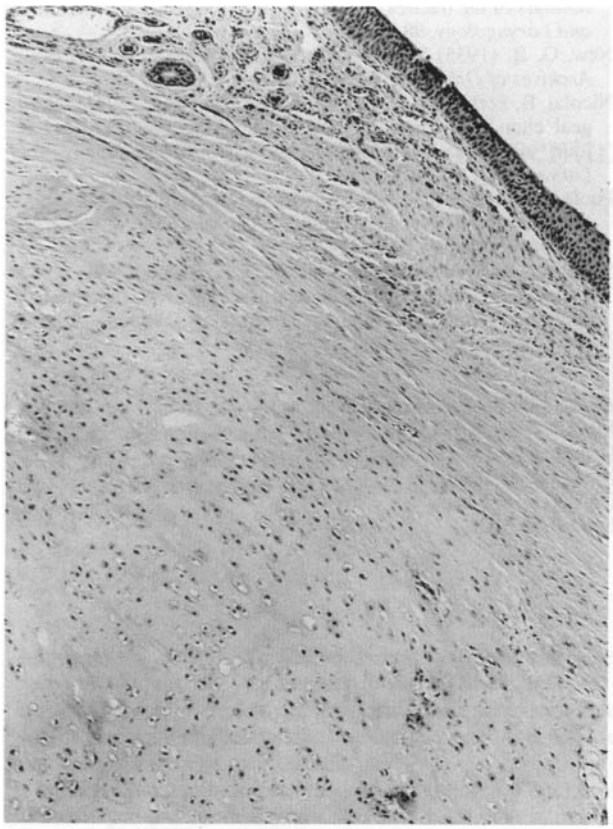

FIG. 2

Low power microscopic view showing cartilagenous neoplasm extending beneath the stratified squamous epithelium of the vocal cord (haematoxylin and eosin stain, magnification ×100).

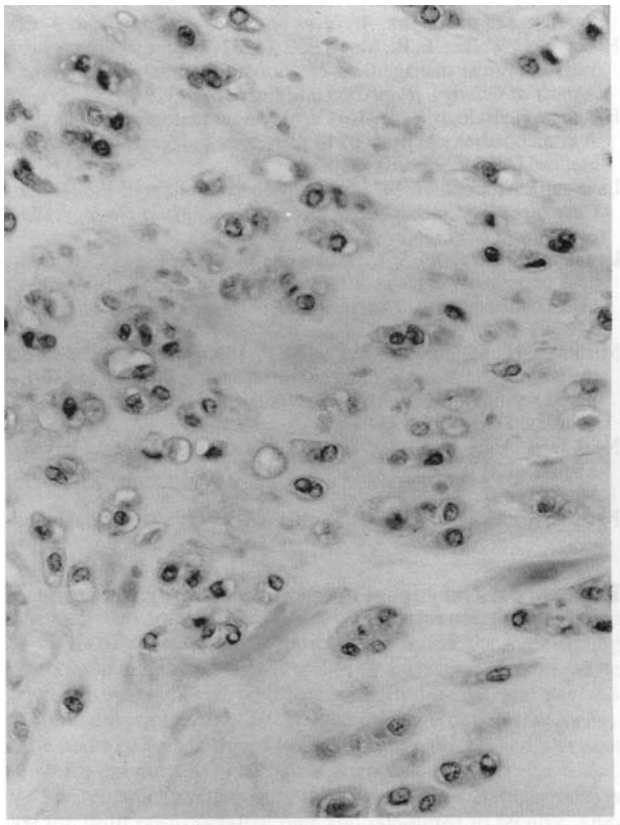

FIG. 3

High power microscopic view showing crowding of chondrocytes which exhibit nuclear pleomorphism, andoccasional binucleate cells (haematoxylin and eosin stain, magnification ×400).

tal muscle or bony structures. No epithelial ulceration was present (Fig. 1).

Microscopic features were of a low-grade chondrosarcoma showing chondrocytic crowding within a hyaline ground substance, occasional binucleate cells, mild nuclear polymorphism and sparse mitotic activity (Figs. 2 & 3).

Discussion

The cricoid cartilage is the site of the origin in 75 per cent of laryngeal chondrosarcomata mainly from the posterior lamina (Nicolai *et al.*, 1990). The tumour mainly presents in the sixth to seventh decade but with an age range of 30–90 years. The male:female sex incidence is 3:1 to 4:1 (Ferlito *et al.*, 1984; Neis *et al.*, 1989).

Presentation is related to the size and site of the tumour. The commonest symptoms are non-specific hoarseness, sore throat, dypsnoea and occasionally dysphagia (Poole and Hall, 1986). Airway obstruction may be acute, necessitating emergency tracheostomy (Cantrell *et al.*, 1980; Lavertu and Tucker, 1984) but is usually more slowly progressive as was noted in our case. Vocal cord mobility is impaired in 50 per cent of cases due either to involvement of the recurrent laryngeal nerve or fixation of the cricoarytenoid joint (Neel and Unni, 1982). Cases presenting with vocal cord palsy in which the diagnosis of chondrosarcoma was made subsquently, have been described previously (Leonetti *et al.*, 1987; Nicolai *et al.*, 1990) and the early cord palsy in our case may have been due to tumour. An external neck mass has also been reported (Cantrell *et al.*, 1980).

At endoscopy the tumour is seen bulging beneath the laryngeal mucosa which is usually intact but may be ulcerated in advanced cases (Ferlito *et al.*, 1984). Deep biopsy is necessary as the tumour may be very hard and difficult to penetrate (Poole and Hall,1986).

CT scanning is the established radiological modality of choice for investigation of these tumours (Shearer *et al.*, 1988). Mottled calcification and trabeculation are pathognomic for cartilagenous tumours and are found 75 per cent of patients (Lavertu and Tucker, 1984; Batsakis and Raymond, 1988). These may be visible with conventional radiology but the incidence of calcifications on CT is higher than that on plain X-ray. Magnetic resonance imaging confers the added advantage of superior contrast resolution of the tumour and paralaryngeal tissues, and with its three dimensional capacity may well prove it to be superior to CT (Mishell *et al.*, 1990).

Surgery is the only accepted treatment of these tumours and this should be conservative if possible (Neel and Unni, 1982; Lavertu and Tucker, 1984). Total laryngectomy is required for lesions where excision would entail removal of more than half of the cricoid ring leading to an unstable larynx as in our case (Hicks *et al.*, 1982) though reconstruction of the larynx in such instances has been described (Cantrell *et al.*, 1980; Neis *et al.*, 1989).

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