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Pathology in Focus

Squamous cell carcinoma of the maxillary antrum metastatic to the heart and skin

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Abstract
A case of squamous cell carcinoma of the maxillary antrum is presented in which autopsy examination revealed widespread disseminated disease including metastatic deposits in the unusual sites of the myocardium and skin. Apart from the skin deposit the metastases were clinically unsuspected. This case demonstrates the role of the autopsy in the study of malignancy and the possible effects of local disease control on the natural history of the disease process.

Key words: Maxillary sinus neoplasms; Carcinoma, squamous cell; Neoplasm metastasis; Autopsy

Introduction

Squamous cell carcinoma of the maxillary antrum is an uncommon tumour accounting for less than 0.15 per cent of deaths from all human malignancies (Friedmann and Bennett, 1986). Advanced local disease is a frequent occurrence (Batsakis *et al.*, 1980) and regional lymph node involvement occurs in over 50 per cent of cases (Kondo *et al.*, 1984; Shibuya *et al.*, 1985). Distant metastases are less common and tend to involve the lung, liver, kidney or bone (Shibuya *et al.*, 1985).

Case report

A 59-year old male presented with a two-month history of pain, numbness and swelling over the left side of the face. Clinical examination demonstrated a sensory deficit in the distribution of the maxillary division of the left trigeminal nerve, and a swelling involving the left upper alveolus and gingivo-labial sulcus. A computerized tomographical (CT) scan indicated a tumour in the left maxillary antrum which proved to be an invasive squamous cell carcinoma on biopsy examination. Maxillectomy was followed by adjuvant radiotherapy and insertion of an obturator prosthesis. Histological examination of the resected tumour confirmed a squamous cell carcinoma arising from the lining of the maxillary antrum and infiltrating the marrow spaces of the maxilla (Figure 1). One month following surgery a hard nodule was noted in the subcutaneous tissue of the right flank. A fine needle aspirate yielded keratinized malignant cells consistent with metastatic squamous cell carcinoma. Four months later the patient developed recurrent local disease. His condition deteriorated and he died six months from the time of initial presentation.

Postmortem examination revealed an extremely emaciated Caucasian male. There was a 5 cm triangular defect, with firm indurated margins, in the skin and soft tissues of the left cheek. This defect opened into the maxillectomy cavity which contained an extensive ulcerated tumour located primarily on the inferior surface of the greater wing of the right sphenoid bone and on the remaining hard palate. There was no evidence of tumour extension into the cranial cavity. On general system examination multiple hard white nodules were observed in the lungs, kidneys, liver and right adrenal gland. There was a single nodule in the myocardium of the left ventricle, and an ulcerated nodule in the subcutaneous tissue and skin of the right flank. There was no evidence of cervical or mediastinal lymph node involvement by the tumour. Histological examination of the nodules showed an invasive squamous cell carcinoma, morphologically identical to the original tumour (Figure 2).

Discussion

Squamous cell carcinoma of the maxillary antrum has traditionally been regarded as a locally aggressive tumour leading to early death from direct intracranial tumour extension. In recent decades new treatment modalities have led to improved local disease control and prolonged survival times. In parallel with this there has been an increase in the incidence of distant metastases noted at autopsy (Shibuya *et al.*, 1985) most probably because the extended survival time allows small metastatic seedlings to reach a size at which they are macroscopically detectable, although not always clinically apparent.

Pulmonary metastases constitute a recognized complication of squamous cell carcinoma of the maxillary antrum. Metastasis to the myocardium has only been recorded on one previous occasion (Kondo *et al.*, 1984). This may be because of inadequate examination of the heart at autopsy (Willis, 1973). Alternatively it may reflect a general paucity of published postmortem findings in patients with advanced malignant disease (Weiss, 1992). Cardiac metastases tend to occur in association with, and most probably originate from, coexistent pulmonary metastases, tumour emboli reaching the heart through the pulmonary veins and gaining direct access to the myocardium via the coronary arteries (Weiss, 1992).

There have been only two reported cases of antral tumours metastatic to skin and in neither case was the histological type

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FIG. 1

Photomicrograph of squamous cell carcinoma of the maxillary antrum infiltrating the marrow spaces of the maxilla. (H & E; × 43).

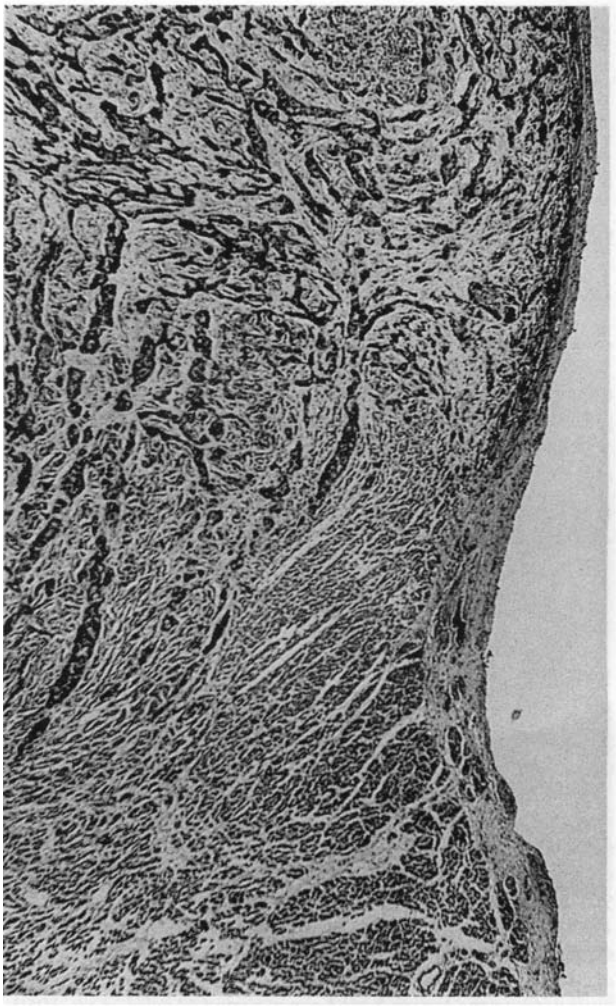

FIG. 2

Photomicrograph of metastatic squamous cell carcinoma in the myocardium of the left ventricle. (H & E; × 34).

specified (Lederman, 1970). In the present case, the solitary nature of the deposit, its remote location relative to the primary site, and the presence of liver, renal and adrenal deposits suggest that it most probably resulted from a haematogenous spread.

Conclusions

This case of squamous cell carcinoma of the maxillary antrum was associated with widespread metastatic disease including deposits in the unusual sites of myocardium and skin. Apart from the skin deposit, the presence of distant metastases was clinically unsuspected until the autopsy. This emphasises the central role of the autopsy in a study of the natural history of the disease and the possible effects of therapeutic intervention.

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