

View from Beneath: Pathology in Focus

Fine needle aspiration cytology of a head and neck swelling in a child: A non-invasive approach to diagnosis

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Abstract

A 12-year-old boy presented with a three-month history of a painful parotid swelling. Fine needle aspiration cytology indicated a pleomorphic adenoma—an uncommon lesion in a child. This diagnostic technique plays a useful role in the investigation of head and neck swellings.

Introduction

The use of fine needle aspiration cytology (FNAC) as a diagnostic procedure is firmly established in some continental European countries, especially in Scandinavia. Over the recent years, outside of these countries, there has been a marked increase in the popularity in the use of this technique in the investigation of salivary gland and other head and neck swellings (Young *et al.*, 1981; Qizilbash *et al.*, 1985; Layfield *et al.*, 1987; Owen *et al.*, 1989; Rodriguez *et al.*, 1989; Schelkun and Grundy, 1991). There are indications, however, that this procedure is still not as widely used as it merits (Birchall *et al.*, 1991). There has also been relatively less interest in the use of FNAC in children, although there are reports of the value of the use of this technique in this age group (Wakely *et al.*, 1988; Cohen *et al.*, 1989; Obers and Phillips, 1991; Silverman *et al.*, 1991).

We report a case where FNAC played a useful role in the evaluation of a pre-auricular mass in a child and the diagnosis of a pleomorphic adenoma—an uncommon lesion in a child.

Case report

A 12-year-old boy presented with a three-month history of a painful swelling on the left side of the face. The pain was not associated with eating and the swelling had not fluctuated in size.

Palpation revealed a 1.5 cm mobile lump antero-inferior to the left external auditory meatus and posterior to the ramus of the mandible. FNAC was performed with a 23G needle attached to a 10 ml plastic syringe fitted to a Comeco syringe holder. A diagnosis of pleomorphic adenoma was made. A CT scan revealed a dumb-bell type parotid tumour. A superficial parotidectomy was performed. The facial nerve trunk was identified and the tumour was resected with a cuff of normal parotid tissue. The post-operative recovery was uneventful and he had normal facial movements.

Pathological findings

The smears were stained by Diff-Quik (Baxter) staining solutions. Microscopy revealed fibrillary myxoid stroma merging with epithelial and myoepithelial cells (Fig. 1). In addition, there were cohesive groups of epithelial cells and fragments of cartilage (Fig. 2). These were the characteristic appearances of a pleomorphic adenoma in a fine needle aspirate. Histological examination of the resected tumour confirmed the fine needle aspirate diagnosis of pleomorphic adenoma (Fig. 3).

Discussion

The evaluation of a firm pre-auricular mass in a child can be

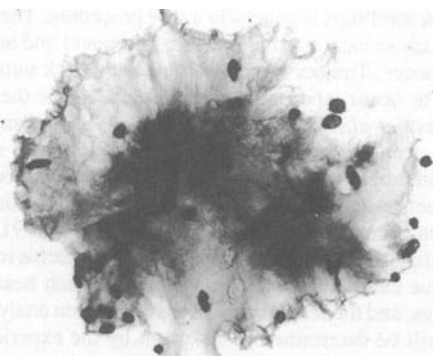


FIG. 1

Pleomorphic adenoma. Fine needle aspirate showing myxoid stroma with a fine fibrillar structure together with dispersed epithelial and myoepithelial cells. (Diff-Quik, $\times 400$).



FIG. 2

Pleomorphic adenoma. Fine needle aspirate showing a cluster of epithelial cells and a fragment of stroma with cartilaginous differentiation (Diff-Quik, $\times 400$).

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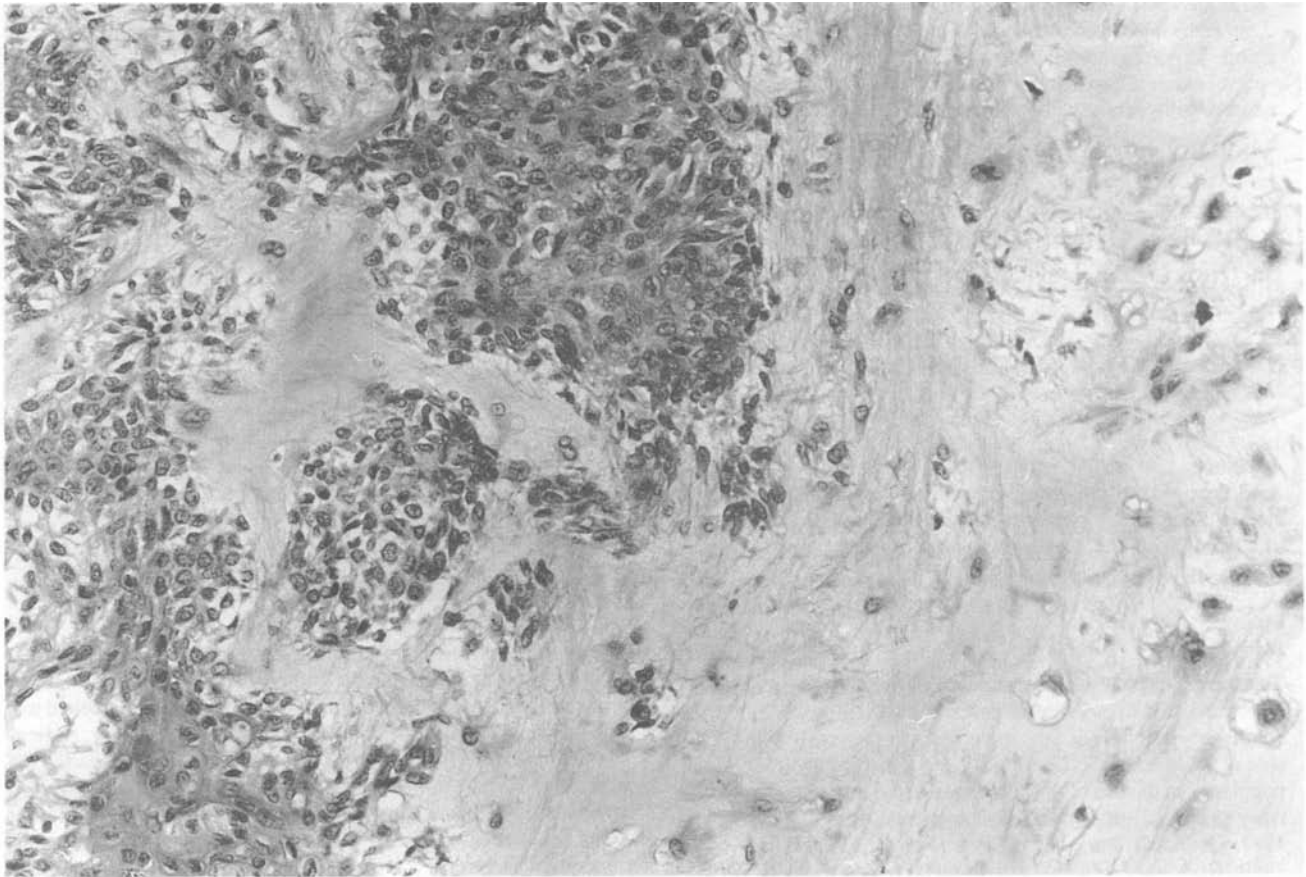


FIG. 3

Pleomorphic adenoma. Histology showing abundant fibrillary myxoid stroma and areas of cartilaginous differentiation, together with epithelial and myoepithelial components. (HE $\times 250$).

difficult (Wright *et al.*, 1985; Camacho *et al.*, 1989). After considering the history and physical examination there are often several possibilities as to the nature of the swelling. Lesions of the parotid gland are likely. Such swellings in children are more often inflammatory than neoplastic (Krolls *et al.*, 1972; Wright *et al.*, 1985; Camacho *et al.*, 1989). Many are chronic parotitis of uncertain aetiology, but specific conditions such as mycobacterial infections and cat-scratch disease also need to be considered. Tumours of the parotid gland are uncommon in children and of these, benign tumours occur more frequently than malignant tumours (Malone and Baker, 1984; Wright *et al.*, 1985; Camacho *et al.*, 1989). Most of the benign tumours in children are pleomorphic adenomas (Krolls *et al.*, 1972; Wright *et al.*, 1985; Camacho *et al.*, 1989).

FNAC is useful in distinguishing a tumour of the parotid gland from an inflammatory lesion, and in recognizing a malignant tumour from a benign one. The sensitivity in detecting the presence of a salivary gland tumour is reported to be 92 per cent from established centres (Eneroth *et al.*, 1967; Frable and Frable, 1982). The sensitivity of identifying a tumour as malignant is between 84 per cent and 88 per cent, while the specificity of a malignant diagnosis is between 95 per cent and 100 per cent (Young *et al.*, 1981; Qizilbash *et al.*, 1985; Layfield *et al.*, 1987; Rodriguez *et al.*, 1989). An indication by FNAC that the lesion is inflammatory in nature may obviate the need for an open excision biopsy, together with the extra expense, inconvenience and time involved. At the same time, material may be obtained for microbiological culture. In the cases where the indications are of a tumour, the pre-operative diagnosis as provided by FNAC is useful as a guide in planning an appropriate surgical procedure. In cases where a malignant tumour is indicated, the patient can be prepared for the possibility of a total parotidectomy with sacrifice of the facial nerve.

Other possibilities when considering a pre-auricular swelling include a branchial cyst and an enlarged lymph node. An enlarged lymph node in a child is often due to lymphadenitis, but a lymphoma and, rarely, metastatic tumour should also be considered. These lesions can be distinguished in many cases by FNAC (Silverman *et al.*, 1991). If further classification of a lymphoma is indicated, excision of the node can be recommended.

The procedure involved in FNAC is quick, inexpensive and can be performed on the patient's first visit. The procedure is readily accepted even by children. Minimal discomfort is involved and a general anaesthetic is not required. FNAC of head and neck swellings is generally a safe procedure. The complications, such as local haematoma, are infrequent and are of minor consequence. Tumour seeding of head and neck tumours is not known to occur when a fine needle is used for the aspiration (Qizilbash *et al.*, 1985; Layfield *et al.*, 1987). Compared with FNAC, open biopsy of a malignant neck lesion in some cases results in problems which include a more difficult procedure for subsequent resection, tumour fungation through skin and early recurrent tumour in the wound (Birchall *et al.*, 1991).

The diagnostic limitations of FNAC, the precise role that this technique can play in the management of such head and neck swellings, and the relative role of frozen section analysis in these cases will be determined to an extent by the experience of the cytopathologist. Nevertheless, FNAC appeals as a useful first-line investigative procedure in view of its simplicity, low cost and lack of complications. Its use in the assessment of head and neck swellings in children should gain wider acceptance.

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