Pleomorphic Adenoma of the Parotid Gland

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SUMMARY: A case of pleomorphic adenoma arising from the deep lobe of the parotid gland is presented. Controversy often surrounds the management of a parotid lump, and many investigations are of little help. The first operation cures most salivary tumours and the patient usually has no residual disability. There is no place for the use of radiotherapy in the treatment of pleomorphic adenoma.

Introduction

Salivary gland tumours are relatively uncommon, comprising approximately 3% of all tumours. They are more common in the major glands and in this group 90% occur in the parotid gland. Pleomorphic adenoma is by far the commonest type of salivary gland tumour and accounts for about 65% of all tumours in the parotid and for 55% of all tumours in the minor glands. The tumour is more common in females with the majority of patients being in their fifth or sixth decades, and is uncommon in patients under twenty(1).

Case History

In October 1986 a 21 year old soldier with a large right sided pre-auricular swelling of some four years duration was referred to the surgical division, Queen Elizabeth Military Hospital, Woolwich. He had first noticed the swelling intra-orally and as it slowly enlarged over this period it became more and more obvious extra-orally (Fig 1). As it was only growing slowly the patient could talk and swallow normally, and because he was experiencing no pain, he was not unduly worried by it. The swelling was by this time so apparent that his Sergeant Major advised him to seek attention!

About one year before the swelling was first noticed he had undergone tonsillectomy. At that time an "abscess" had been diagnosed in the right tonsillar fossa, the area "biopsied" but apparently "nothing was sucked out" and no further treatment was offered. He was kept under review for two years but was then lost to follow up. The history of his treatment was sparse and no notes were available. His medical history was otherwise unremarkable.

There was very obvious facial asymmetry with a large mass behind the right angle of the mandible extending forwards and downwards to the right submandibular region. On palpation the lesion was found to be firm, non-fluctuant, non-tender with no associated lymphadenopathy. It was attached to deep structures but not fixed to the overlying skin. Facial nerve function was normal and no pain or alteration of sensation was

Fig 1: Appearance of patient at presentation with large pre-auricular swelling.

detected. Intra-orally a large swelling was observed in the right faucial region which extended downwards into the base of the tongue, and into the soft palate, displacing the uvula to the left. Palatal function was unimpaired, talking and swallowing being unaffected.

Computerised Tomogram (CT) scanning demonstrated a large tumour mass arising in the region of the deep lobe of the parotid and right tonsillar region extending into the naso and oro pharynx, measuring 7 x 7cm at its maximum diameter; it extended upwards

towards the base of skull and downwards to the level of the larynx (Fig 2). Skull radiographs showed unusual bowing and resorption of the medial aspect of the ascending ramus.

The lesion was thought most likely to be a pleomorphic adenoma of the parotid. Fine needle aspiration cytology was subsequently carried out which seemed to support this clinical diagnosis. All other investigations were normal.

Excision was indicated but due to the large dimensions and position of this tumour it was decided that an external approach with possible division and subsequent plating of the mandible was necessary to afford adequate exposure. The procedure, described by Cook and Ranger(2) requires the vertical sectioning of the mandible and extraction of a lower premolar tooth with sacrifice of the inferior dental nerve bundle, "at only the slight cost of numbness to the lower lip". At completion reduction with fixation is carried out using bone plates, or more commonly now, miniplates(3).

Fig 2: CT scan showing extent of tumour.

At operation a pre-auricular incision was extended down to the mastoid process and then forward along a skin crease in the neck. Dissection was carried out along the anterior border of sternomastoid and the posterior belly of digastric, establishing a plane of dissection around the tumour sheath so that the tumour was enucleated with relative ease, and without recourse to mandibular osteotomy (Fig 3). On delivery of the tumour there was a small rupture of the sheath spilling some of the tumour content and therefore the cavity was washed out with sterile water before closing in layers.

The patient's postoperative recovery was uneventful with no residual seventh nerve weakness and he was discharged home ten days later. The histopathology report confirmed a diagnosis of pleomorphic adenoma which read: 'The tumour is composed of irregular ductular structures lined by double epithelium with streams of cells present in a loose myxoid and pseudocartilagenous stroma. There is a thin capsule present and no atypia is seen. No residual glandular tissue is seen. Conclusion; salivary gland - pleomorphic adenoma' (Fig 4).

Fig 3: Excised tumour immediately following enucleation.

Discussion

Before 1950 the management of parotid tumours was confused and unsatisfactory, mainly because of fear of damage to the facial nerve. It was recognised that the commonest tumour, pleomorphic adenoma, frequently recurred after surgery, often multifocally, and appeared to be radio-resistant. The pathology at this time was not understood and the tumour was thought by some pathologists to be a well differentiated carcinoma(4).

Pleomorphic adenomata show a great variety of histological appearances with complex intermingling of epithelial components and mesenchymal-like areas. The diversity and complexity of appearances account for the term pleomorphic; the term does not imply cellular pleomorphism. At present the majority view is that pleomorphic adenoma is a benign tumour of purely epithelial origin(1).

Although a connective tissue capsule does not always envelope the lesion completely and may show variation in thickness and density, the tumour is still clearly demarcated. Isolated nodules of tumour may also be seen within or even outside the capsule.

The pseudoinvasive appearance which has no adverse prognostic significance should neither be taken as an indicator of malignancy nor of malignant potential. An important aspect, however, of this multi-locality is that it influences the surgical management, as simple enucleation could give rise to uni or multi-focal recurrence(1).

By 1954 Patey had fully defined and described conservative and radical parotidectomy(5). The possible complications of parotidectomy are well known and include postoperative haematoma, Frey's syndrome, sialoceles, fistulae and neuromas of the great auricular nerve as well as permanent damage to the facial nerve.

All benign superficial tumours of the parotid gland present as a lump and unless there are clinical signs suggesting malignancy, an accurate pre-operative diagnosis of the tumour is impossible. A thorough oral examination should be carried out, including bimanual

Fig 4: Photomicrograph of tumour confirming diagnosis of pleomorphic adenoma.

palpation of the faucial region(6). By this method it is often possible to ascertain how far the tumour extends into the tissue planes, and whether it is fixed to superficial or deep structures.

Further investigations are of questionable value in most cases. Sialography does not help in the diagnosis(7,8) as it cannot identify extraglandular lesions, reliably distinguish between benign and malignant tumours, or accurately localise lesions within the gland substance.

Computerised tomography, and more recently CT sialography, have proved to be a major advance in investigation(8,9) and are invaluable in the management of malignant tumours, CT alone can demonstrate details of soft tissue and differentiate between specific tissue densities such as fat, blood, calcified tissue and tumour. Tomographic sialography is much more sensitive to the differentiation of soft tissue structure than sialography or CT alone, aids the differentiation between extrinsic and intrinsic, benign and malignant glandular lesions, and helps in establishing the relationship of the tumour mass to the facial nerve.

Needle biopsy is not recommended because of the difficulty sometimes encountered in accurate histological diagnosis of the whole tumour and because of the risk of seeding tumour along the needle track(10).

There still seems to be controversy regarding the correct method of surgical treatment of parotid tumours. Wide excision after nerve dissection is probably now the commonest procedure, although enucleation alone or followed by radiotherapy, is still being advocated by some(11,12). With enucleation recurrences may be seen up to 20 years later. Earlier ideas of semi-malignant potential or multifocal origin are incorrect(5).

In comparing enucleation with superficial parotidectomy following nerve dissection, the recurrence rate in the former is high, but the complication rate of the surgery is low(13).

Under low power microscopy small protrusions stretching the capsule are often seen, and it is likely that

enucleation actually ruptures the tumour's delicate capsule resulting in cellular spillage into the local area causing later recurrence.

The protagonists of local operations for the treatment of lumps in the parotid region make the following assumptions:

1. That an apparently benign parotid nodule is indeed an adenoma or a similar benign lesion. This has been abundantly disproved(5,6).
2. That local removal is efficacious. This is attested to by patients with recurrences following enucleation and was disproved many years ago(14).
3. Local removal carries less risk of damage to the facial nerve, shown not to be true(15).
4. That if radiotherapy is added to local removal, the chance of recurrence is comparable with that after formal parotidectomy(11,12).

Radiotherapy given to patients after local excision of the tumour, either before or following formal parotidectomy, was found to have no significant advantageous effect in terms of recurrence-free intervals, or in limiting the ultimate surgery required(16). Malignant transformation of pleomorphic adenoma is well documented(16,17) and radiotherapy may have a deleterious effect on the recovery of facial nerve function.

Radiotherapy is therefore not without complications and the possibility of field changes and induction of malignant change in an essentially benign tumour must be recognised(18). To use radiotherapy to treat parotid pleomorphic adenomas implies acceptance that this treatment carries an insignificant risk of precipitating malignant transformation.

Conclusion

It has been suggested that five years is an adequate period of post-operative follow up, but ten or twenty years may be more realistic. Indeed it may be advisable to follow the patient annually for life, given that late recurrences do occur.

The best operation for Pleomorphic Adenoma is the first. Given that superior treatment in the form of formal parotidectomy is available it is urged that this should be universally adopted for the management of both primary and recurrent pleomorphic adenomas.

Postoperative radiotherapy cannot be relied upon to prevent tumour recurrence, to lengthen the recurrence-free interval or to reduce the magnitude of the operation ultimately required in an attempt to achieve local control of the tumour, and may induce malignant change in an otherwise benign tumour.

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