

Role of limited parotidectomy in management of pleomorphic adenoma

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Abstract

There is continued controversy over the extent of parotidectomy required for removal of a benign pleomorphic adenoma from the parotid gland. Currently, consensus exists that the integrity of the facial nerve must be preserved when the tumour is totally removed.

As a result of experience gained in the first half of the twentieth century, it was recommended that superficial parotidectomy with facial nerve dissection should be the minimal biopsy for pleomorphic adenoma. Since that time, however, research has indicated that partial parotidectomy or extracapsular dissection of benign pleomorphic adenoma can be accomplished with preservation of the facial nerve without an increase in tumour recurrence. Partial parotidectomy or extracapsular dissection results in impaired cosmetic results and a lower incidence of Frey's syndrome, and thus may be the preferred approach when undertaken by experienced surgeons.

Key words: Parotid Gland Neoplasms; Parotidectomy; Pleomorphic Adenoma

Pleomorphic adenoma is the most commonly encountered tumour of the parotid gland and represents approximately 80 per cent of all benign neoplasms.¹ Complete excision results in cure in the overwhelming majority of patients. Untreated, a small but important cohort of tumours will undergo malignant transformation.² Incomplete removal is associated with recurrence. These recurrences are often multifocal and may be associated with malignant transformation (with a metastasising form of pleomorphic adenoma being associated with a fatal outcome in 20 per cent).^{2,3} Surgery for recurrent pleomorphic adenoma is associated with a greater risk of injury to the facial nerve.⁴

In the first half of the twentieth century, surgical reports described tumour enucleation and other forms of subtotal removal.^{5–7} These approaches appear to have been motivated by an effort to reduce risk to the facial nerve, and also a lack of understanding of the biology of these mixed tumours. Recurrence was observed in 23–31 per cent of patients treated in this way.

Benedict and Meigs,⁵ of the Massachusetts General Hospital, reported their surgical experience in 40 patients with mixed tumours of the parotid glands. All patients were followed for more than five

years. Recurrences were observed in 12 patients (30 per cent).

McFarland,⁸ from the University of Pennsylvania, observed 69 recurrences (23 per cent) in 300 patients treated for benign pleomorphic adenoma. Joseph McFarland is credited with making the observation that recurrent pleomorphic adenoma may occur many years after initial therapy.

Rawson *et al.*,⁷ also from the University of Pennsylvania, followed 45 patients for 10 years or more. Recurrence was observed in 14 patients (31 per cent).

However, in the latter half of the twentieth century, the minimum recommended approach to parotid neoplasia changed. Patey and Thackray⁹ reported in the *British Journal of Surgery* that the standardisation of parotidectomy techniques had revolutionised surgery of the parotid glands. They cautioned against biopsy, indicating that a small sample from a heterogeneous tumour may be misleading, and they concluded with the recommendation that the standard operation for parotid tumours lateral to the facial nerve should be superficial conservative parotidectomy. These authors were of the opinion that the most important factors responsible for the recurrence of primary mixed tumours were incomplete excision

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and implantation. They rejected multiplicity of tumour foci as a significant factor.

Complete superficial parotidectomy with facial nerve dissection affords the surgeon an opportunity to maximally expose the facial nerve, the goal of which is, of course, to protect the nerve. It also gives the surgeon an opportunity to completely remove the pleomorphic adenoma together with a margin of normal gland.

The justification for superficial parotidectomy with facial nerve dissection was the prevailing surgical concept that the best means of protecting the nerve was complete dissection and exposure of the nerve. It was also based on the observation that some pleomorphic adenomas appeared not to be entirely encapsulated. Therefore, taking a margin of apparently normal tissue seemed prudent and perhaps necessary.

Complete facial nerve dissection with total removal of the lateral aspect of the gland is effective in curing most patients with pleomorphic adenoma. Unfortunately, some patients do experience temporary or permanent damage to the facial nerve. Most patients have a significant soft tissue defect, and Frey's syndrome is a common sequela.

Donovan and Conley¹⁰ challenged the concept of complete superficial parotidectomy for pleomorphic adenoma. In 1984, they published a careful examination of a large series of patients successfully treated for pleomorphic adenoma. In 60 per cent of patients, there had been no margin of normal tissue on the capsule of the tumour because the margin was abutting a branch of the facial nerve itself. In every case, the nerve was preserved. Recurrence was not observed. These authors challenged the necessity of taking a wide margin of normal parotid tissue when removing pleomorphic adenomas.

European surgeons have long advocated extracapsular dissection and removal of select pleomorphic adenomas without dissection of the facial nerve and without removing a rim of tissue as a margin. Dallera *et al.*¹¹ presented the results of local capsular dissection in 71 patients with pleomorphic adenoma of the parotid gland. Recurrence occurred in four patients (5.6 per cent): two had been treated for a tumour of the deep lobe, and two for a tumour of the superficial lobe. The authors recommended careful follow up, with re-examination every six months in order to diagnose recurrences at an early stage.

McGurk *et al.*¹² reported a series of patients treated between 1947 and 1992 at the Christie Hospital, Manchester. 'Extracapsular dissection' was performed in 380 patients and standard superficial parotidectomies in 95 patients. Recurrence was observed in 2 per cent of each group (median follow up was 12.5 years). These authors emphasised that extracapsular dissection did not equate to enucleation. It requires careful dissection of the tumour outside the capsule, and does not require prior identification of the facial nerve. McGurk *et al.* reported cure rates similar to those for superficial parotidectomy. The incidence of injury to the facial nerve was similar to or less than that observed following superficial parotidectomy. The incidence

of cosmetic defects and subsequent Frey's syndrome were remarkably improved. In particular, post-operative Frey's syndrome was recorded in 38 per cent of patients following superficial parotidectomies and in 5 per cent following extracapsular dissection.

Hancock¹³ indicated an 'elective local extracapsular dissection' as an alternative to superficial parotidectomy in selected cases of benign parotid tumours, including pleomorphic adenoma. This author concluded that local dissection gave similar results to conventional nerve dissection, with less morbidity, and confirmed that tumour recurrence cannot be ascribed to any properties of the tumour but instead lies in the hands of the surgeon, depending upon the care with which the tumour is removed.

Witt's study findings¹⁴ suggested that cases of small parotid pleomorphic adenoma treated by less complete parotidectomy (enucleation excluded), and hence involving less facial nerve dissection, are not at higher risk of recurrence. McGurk *et al.*¹⁵ advocated 'extracapsular dissection' for clinically benign parotid lumps and suggested that this was a viable alternative to superficial parotidectomy for the majority of parotid tumours, being associated with reduced morbidity without oncological compromise. Patient selection criteria for such a limited procedure have not yet been defined. However, the procedure should be advocated only when undertaken by 'experienced surgeons'.¹⁶ Stennert *et al.*¹⁷ reviewed the histopathology of 100 unselected cases, commenting on the tumour stroma, capsule integrity and tumour penetration, and concluded that, depending on the location of the tumour, a lateral or total parotidectomy is the recommended treatment of choice.

Wen *et al.*¹⁸ offered pathology-based arguments for partial parotidectomy for pleomorphic adenoma, and concluded that it was a safe method and could remove tumour completely.

O'Brien,¹⁹ of the Sydney Head and Neck Cancer Institute, argued that complete superficial parotidectomy is unnecessary for treatment of benign, localised parotid tumours. This author supported the role of limited superficial parotidectomy in the management of benign parotid tumours, and found that the procedure was associated with very low morbidity and recurrence rates. Frey's syndrome was not reported in this study, which included 254 cases of pleomorphic adenoma. The surgeons of the Latvian Oncological Center²⁰ have also supported limited superficial parotidectomy.

When dealing with pleomorphic adenoma deep to the facial nerve, the lateral parenchyma of the parotid is dissected off the nerve to facilitate mobilisation of the nerve and delivery of tumour from beneath the nerve. Subsequently, when the lateral lobe of the parotid gland is returned to its anatomical position and the wound is closed, recurrence is almost never observed.

Conclusion

Complete removal of pleomorphic adenoma with preservation of an intact facial nerve is, of necessity,

the goal when treating every patient. This goal can clearly be better accomplished with procedures associated with less morbidity than complete superficial parotidectomy. The use of superficial parotidectomy, classical or partial, has stood the test of time and should be within the acceptable expertise of the modern, competent surgeon. If extracapsular dissection is to be more widely accepted, then the onus is on training future surgeons in the precise technique required to safely remove these tumours without nerve injury or tumour spillage.²¹

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