

## A transpalatal approach to the parapharyngeal space

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### Abstract

The case of a 75-year-old lady with a large parapharyngeal pleomorphic adenoma excised via a transpalatal peroral technique is presented. This is a new approach to the parapharyngeal space not previously described. A laterally placed full thickness soft palate split from the superior pole of the tonsil to 1 cm proximal to the pterygoid hamulus provided good surgical access to the whole length of the parapharyngeal space and allowed complete tumour excision with minimal morbidity.

**Key words:** Adenoma, pleomorphic; Soft palate; Parapharyngeal space

### Introduction

Parapharyngeal space tumours present a formidable challenge to the surgeon with respect to both the pre-operative assessment and surgical approach. Surgical exposure should enable total tumour extirpation with the least morbidity and incidence of tumour recurrence.

There are four ways to approach the parapharyngeal space: through the mouth (peroral), through the neck below the mandible (transcervical), behind the mandible (transparotid) and through a mandibulotomy (transmandibular). The peroral approach has been used to remove small pleomorphic adenomas arising from the palate or lateral pharyngeal wall but larger tumours have required a combined cervical approach with intraoral delivery due to limited peroral access to the lateral pharyngeal wall. The new transpalatal approach described in this paper allows excellent access to the whole length of the parapharyngeal space from base of skull to hyoid bone. The line of incision through the soft palate from the superior pole of the tonsil to within 1 cm of the pterygoid hamulus is such that the natural pull of the muscles increases the exposure without requiring retraction. The laterally placed palatal incision avoids damage to the ascending palatine artery, palatine veins and the greater palatal neurovascular bundle, thus preserving the blood supply and sensation of the soft palate. The vertical palatal split healed quickly and created none of the recognised complications commonly associated with surgery to the palate. The transpalatal approach proved to be the appropriate choice in this 75-year-old lady with a large parapharyngeal pleomorphic adenoma.

### Case report

A 75-year-old lady was referred to the ENT department by her General Practitioner with a month's history of a lump in the oral cavity which was interfering with swallowing. On examination she was found to have a smooth mass in the soft palate on the right-hand-side which was deviating the ipsilateral tonsil medially. The appearance clinically mimicked that of a quinsy but the patient had no trismus or constitutional upset. There was

no external neck swelling, no facial nerve weakness nor other motor nerve paralysis.

The patient underwent an examination of the oral cavity under general anaesthetic and the lump was found not to be in the soft palate but arising from the upper right parapharyngeal space (Figure 1). A fine needle biopsy of the lump perorally via the lateral pharyngeal wall was

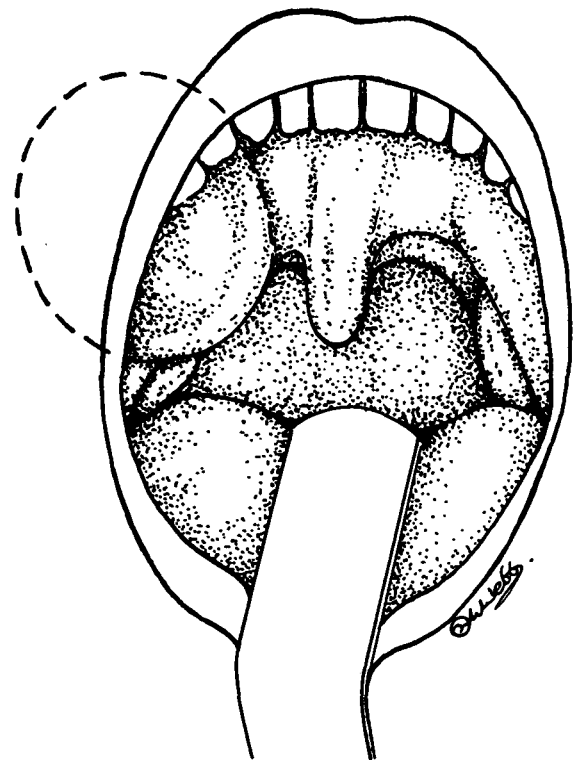
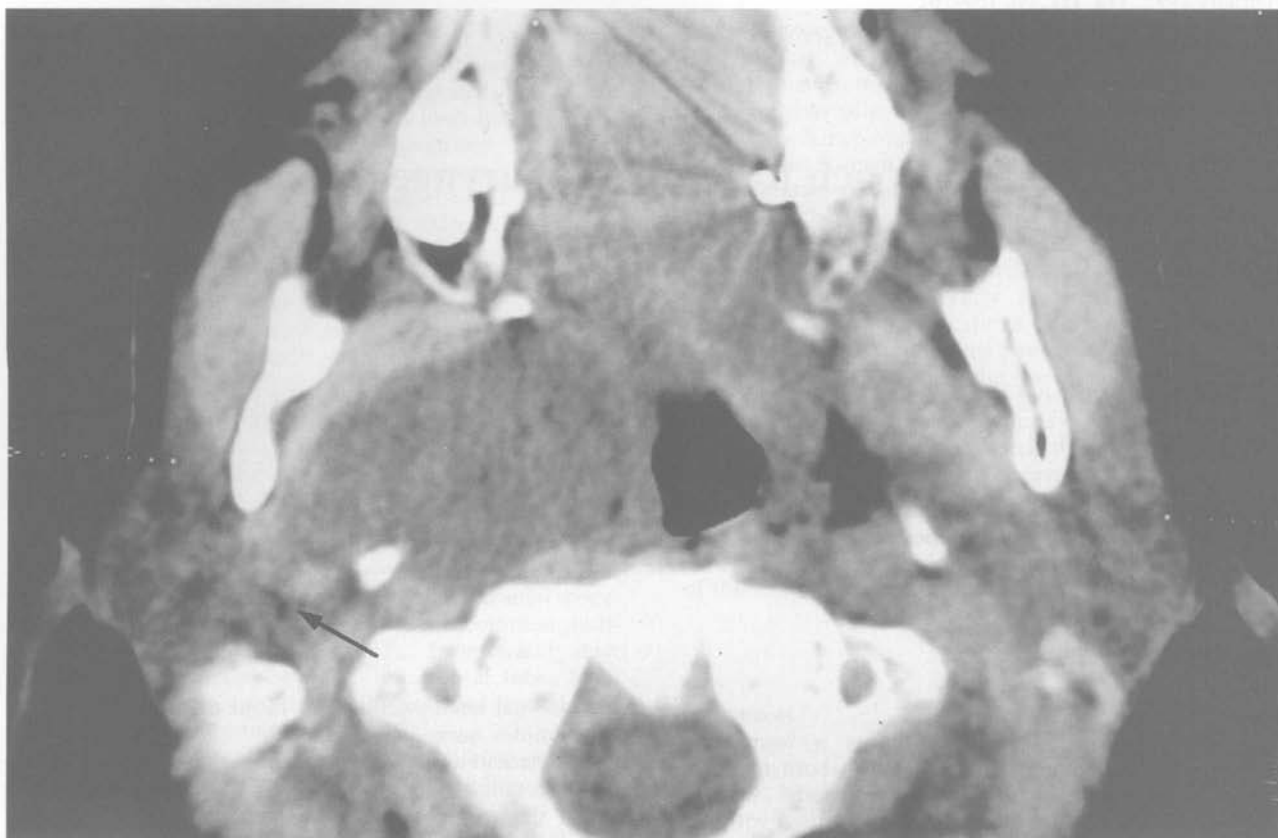


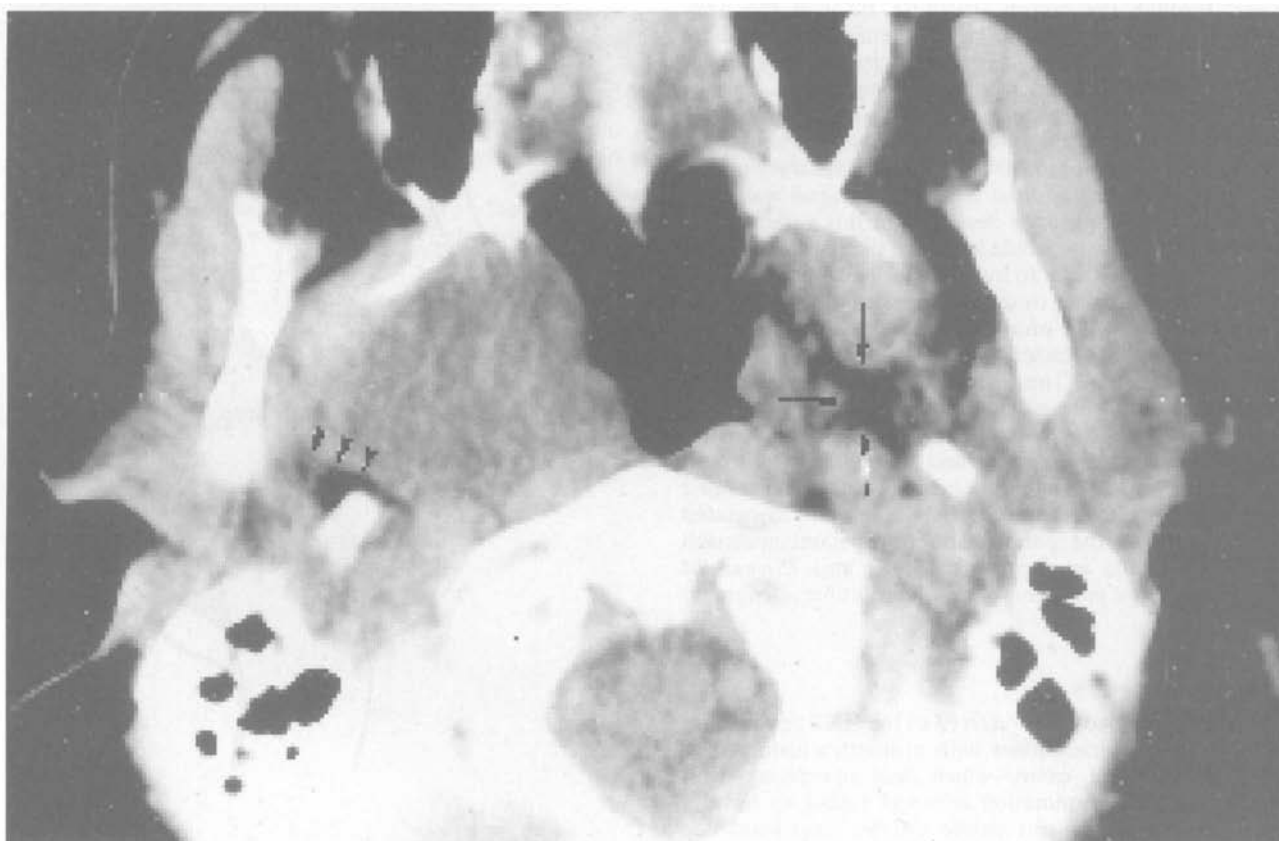
FIG. 1

A line drawing showing the presentation of parapharyngeal pleomorphic adenoma with bulging of the soft palate and medial displacement of the tonsil.

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Accepted for publication: 16 November 1996.



(a)



(b)

FIG. 2

Axial computed tomography (a) at the level of the palate and (b) just below the skull base show the well-defined, poorly enhancing 5 cm mass in the right parapharyngeal space which has displaced the fat pad posterolaterally (arrowheads). Note the normal left parapharyngeal fat (arrows). A plane of cleavage remains between the mass and the low attenuation right parotid (long arrow).

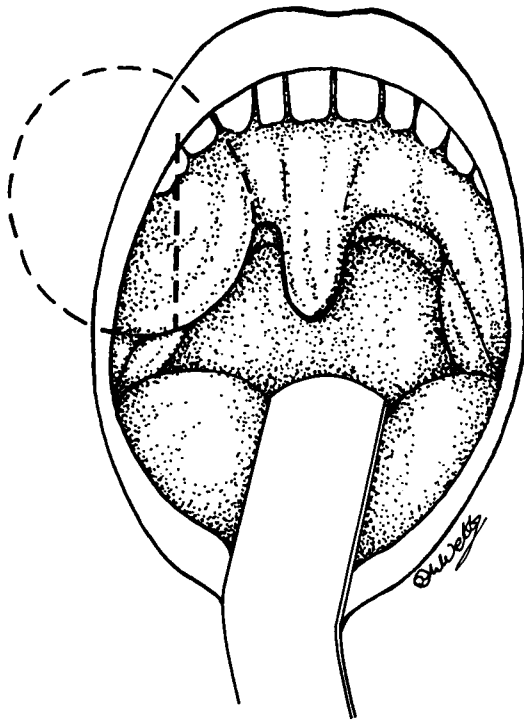


FIG. 3

A line drawing showing the full thickness palatal split incision for access to the lateral pharyngeal wall. The split extends from the upper pole of the tonsil to within 1 cm of the pterygoid hamulus.

performed. Histological analysis of the biopsy specimen confirmed a pleomorphic adenoma.

The patient was further investigated with contrast enhanced computed tomography (CT) of the head and neck. This showed a non-enhancing 5 cm mass in the right parapharyngeal space extending from the upper pole of the tonsil to the skull base. Posterior displacement of the

parapharyngeal fat indicated that this mass was separate from the deep lobe of the parotid gland (Figures 2a and 2b). The diagnosis of a parapharyngeal pleomorphic adenoma which had arisen *de novo* from salivary rest cells in the parapharyngeal space was made.

In view of the patient's age and the confirmed benign nature of the mass, we aimed to excise the tumour with minimal morbidity and complications. A peroral excision was favoured but access to the upper parapharyngeal space is limited by this approach and there is a risk of tumour rupture and seeding. The decision was made to split the soft palate vertically from the upper pole of the right tonsil to within 1 cm of the pterygoid hamulus to provide access to the whole length of the parapharyngeal space thus allowing removal of the tumour without rupture of its capsule.

**Operative procedure**

The patient was anaesthetised with a general anaesthetic and intubated. The oral cavity was exposed using a Boyle-Davis mouth gag. An incision was made with unipolar cutting diathermy through the full thickness of the soft palate from the superior pole of the right tonsil to within 1 cm of the pterygoid hamulus (Figures 3 and 4). The laterally placed palatal incision avoided damage to the ascending palatine artery, palatine veins and the greater palatal neurovascular bundle, thus preserving the blood supply and sensation of the soft palate. The lateral pharyngeal wall was incised using a 15 blade from its upper limit to the level of the hyoid (Figure 5). The tumour was immediately visualised and its glistening white capsule bulged further into the oral cavity. Using gentle blunt dissection with a forefinger the tumour was enucleated from surrounding structures and delivered unruptured into the oral cavity. The lateral pharyngeal wall was repaired primarily using interrupted catgut sutures. The soft palate was repaired in the same fashion. The operation time was

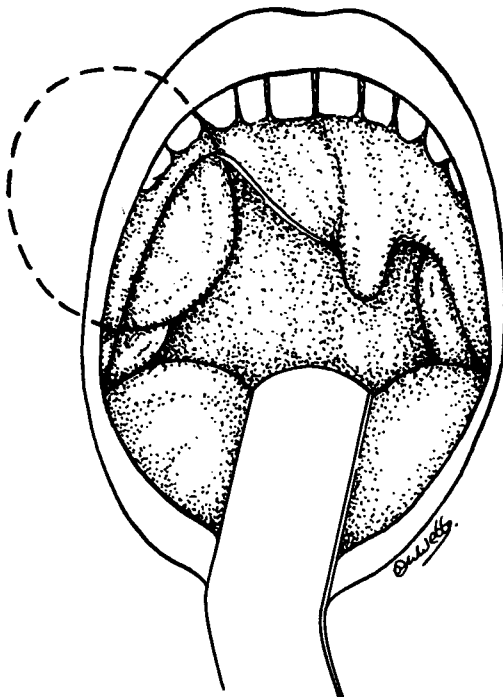


FIG. 4

A line drawing showing the surgical access provided by the palatal split.

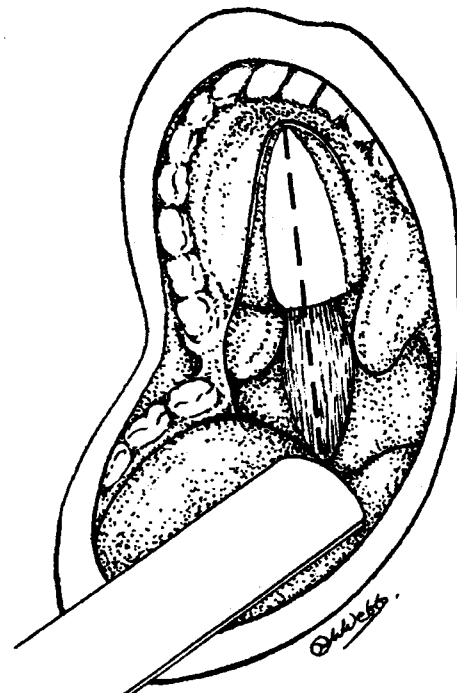


FIG. 5

A line drawing showing bulging of the parapharyngeal pleomorphic adenoma into the oral cavity.

20 minutes and the intra-operative blood loss less than 10 ml.

Post-operatively the patient was given three doses of intravenous antibiotic and regular diclofenac 50 milligram t. d.s. for five days. The patient was eating breakfast the day after surgery and was discharged fit and well after 48 hours. Out patient review at two weeks, six weeks and three months revealed excellent healing of the intraoral incisions and the patient suffered none of the complications commonly associated with palatal surgery such as nasal regurgitation of food, nasal escape of speech, dry mouth or loss of taste.

### Discussion

Parapharyngeal tumours are rare, accounting for 0.5 per cent of all head and neck neoplasms (Batsakis and Neige, 1989). Parapharyngeal space tumours may originate from any of the various types of tissue present within the space or by direct invasion from adjacent structures. Primary tumours account for 95 per cent of parapharyngeal space tumours, 80 per cent of these are benign (Bent *et al.*, 1992). The majority of malignant parapharyngeal tumours are in fact parapharyngeal lymph node metastases. Primary parapharyngeal tumours include salivary gland tumours (50 per cent), neurogenic tumours such as paragangliomas, schwannomas and neurofibromas (30 per cent) and an array of soft tissue neoplasms such as lipomas, leiomyomas, teratomas, rhabdomyosarcomas, haemangiomas and fibrosarcomas (20 per cent). Pleomorphic adenoma is the most common tumour arising in the parapharyngeal space accounting for between 26 to 43 per cent of tumours (Bent *et al.*, 1992). These either arise in the deep lobe of the parotid or *de novo* from salivary gland tissue rests in the parapharyngeal space which have no connection with the parotid gland (Conley and Clairmont, 1978). It is of vital importance to differentiate the two types as this will dictate the surgical approach used. An intraoral approach has no role to play in excising deep lobe parotid tumours. Cross-sectional imaging studies can differentiate between deep lobe parotid tumours invading the parapharyngeal space and tumours arising in minor parapharyngeal salivary glands. CT and magnetic resonance imaging (MRI) reliably show displacement of the normal parapharyngeal fat anteriorly or posteriorly respectively (Som *et al.*, 1987; Cross *et al.*, 1989).

Access to tumours of the upper parapharyngeal space provide a surgical challenge. There are four ways to approach the parapharyngeal space: through the mouth (peroral), through the neck below the mandible (transcervical), behind the mandible (transparotid) and through a mandibulotomy (transmandibular). A peroral approach with ligation of the ipsilateral external carotid artery was used in the majority of patients in a study of 112 parapharyngeal tumours (McElroth *et al.*, 1963). However, during the last decade of their research it was abandoned in favour of the transcervical approach because of complications. More recently, the peroral excision of small salivary gland tumours of the anterior parapharyngeal space, that have been demonstrated to be separate from the deep lobe of the parotid, has been readvocate

because the resulting space available for tumour removal is greater when utilising a peroral approach than it is when using the cervical approach (Som *et al.*, 1981). A description of the peroral excision of six pleomorphic adenomas of the parapharyngeal space was given by Goodwin and Chandler in 1989. In their study there was little intra-operative haemorrhage and complete tumour excision without spillage was achieved in all six patients. In comparison, removal of these tumours via a transcervical approach has resulted in an incidence of post-operative complications of 31 per cent (Carrau *et al.*, 1990).

As well as the low reported morbidity the peroral approach allows direct access to the parapharyngeal space and combined with a palatal split it gives excellent exposure to its whole length from base of skull to hyoid thus creating little post-operative morbidity and greatly reducing hospital stay.

We suggest that a peroral transpalatal approach should be considered for benign parapharyngeal tumours which have been demonstrated on imaging to be extra-parotid and non-vascular. The approach does not provide adequate exposure for the removal of malignant tumours except possibly in the very frail who have had pre-operative radiotherapy.

### References

- Batsakis, J. G., Neige, N. (1989) Parapharyngeal and retropharyngeal space disease. *Annals of Otolaryngology and Laryngology* **98**: 320–323.
- Bent, J. P., Dinges, D., Whitehouse, A. (1992) Pathology Quiz Case 1. Minor salivary gland pleomorphic adenoma of the parapharyngeal space. *Archives of Otolaryngology, Head and Neck Surgery* **118** (6): 664–666.
- Carrau, R. L., Myers, E. N., Johnson, J. T. (1990) Management of tumours arising in the parapharyngeal space. *Laryngoscope* **100**: 583–589.
- Conley, J. J., Clairmont, A. (1978) Tumours of the parapharyngeal space. *Southern Medical Journal* **71**: 543–546.
- Cross, R.R., Shapiro, M. D., Som, P. M. (1989) MRI of the parapharyngeal space. *Radiology Clinics of North America* **27**: 353–358.
- Goodwin, W. I., Chandler, J. R. (1989) Transoral excision of lateral parapharyngeal space tumours presenting intra-orally. *Laryngoscope* **98**, 266–269.
- McElroth, D. C., ReMine, W. H., Devine, K. D. (1963) Tumours of the parapharyngeal region. *Surgery, Gynecology and Obstetrics* **116**: 88–94.
- Som, P. M., Biller, H. F., Lawson, W. (1981) Tumours of the parapharyngeal space: preoperative evaluation, diagnosis and surgical approaches. *Annals of Otolaryngology and Laryngology* **90** (Suppl. 80/4): 3–15.
- Som, P. M., Braun, I. F., Shapiro, M. D. (1987) Tumours of the parapharyngeal space and upper neck. MRI characteristics. *Radiology* **164**: 823–829.

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