Palato-pharyngeal Approach to the Parapharyngeal Space

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Introduction

Parapharyngeal space tumours present a great challenge to the surgeon with respect to pre-operative evaluation as well as surgical approach. The aim of surgical endeavour is to excise the tumour in toto with least morbidity to the patient. There are various approaches to the parapharyngeal space viz: (1) transcervical (2)transoral (3)transparotid (4)transparotid-transmandibular etc. The transcervical approach is suitable for tumours presenting in the neck but not extending into the upper parapharyngeal space. The transoral route has been traditionally condemned, though this route has been used to excise small relatively avascular benign tumours of parapharyngeal space, which present intraorally and are not palpable in the neck. Transparotid approach is the commonly used approach to excise tumours presenting in the upper parapharyngeal space, displacing the tonsil and palate. This approach is combined with mandibulotomy in cases of very large tumours. The palato-pharyngeal approach described in this paper allows excellent access to the whole length of the parapharyngeal space from base of skull to the hyoid bone. Recently, interest has been generated in this approach, referred to as transpalatal or palatal split approach. There is minimal bleeding and morbidity using this surgical approach.

Case Report

A 31 year old patient presented to the ENT department with the symptom of slowly progressive painless swelling below and behind left angle of mandible for past 4 years. On examination, he was found to have an 8x6 cm oval, firm and non tender swelling with diffuse margins below and behind left angle of mandible. Oropharynx showed a smooth bulge in left lateral pharyngeal wall with tonsil, its pillars and the soft palate pushed anteromedially and the uvula pushed to the opposite side. There was no trismus. Indirect laryngoscopic examination was normal. Posterior rhinoscopy revealed same bulge extending into nasopharynx upto left

fossa of Rosenmuller. Clinical diagnosis of left parapharyngeal space tumour was made.

Peroral fine needle aspiration cytology was done which was reported as pleomorphic adenoma. Further evaluation of the patient was done with contrast enhancement computed tomography (Fig 1) and magnetic resonance imaging (Fig 2). These showed a 3.1 x 5.4 x 4.6 cm well capsulated, lobulated and avascular lesion in left parapharyngeal space separate from parotid gland and contents of carotid sheath. Final diagnosis of a parapharyngeal pleomorphic adenoma arising de-novo from salivary rest cells was made. In view of the benign and avascular nature of the tumour, the decision was taken to excise it via peroral approach with palatal split (palato-pharyngeal approach) which allows complete tumour removal with minimum morbidity and complication.

The patient was operated under general anaesthesia. The exposure of oral cavity and oropharynx was achieved using Boyle-Davis mouth gag. A full thickness palatal split incision was made with unipolar cutting cautery. This laterally placed incision in the soft palate ran from superior pole of left tonsil to just short of pterygoid hamulus (Fig 3), thus avoiding damage to ascending palatine artery, palatine vein and greater palatal neurovascular bundle; thereby preserving the vascularity and nerve supply of soft palate. Lateral pharyngeal wall was incised down to the level of hyoid. The tumour immediately popped out in view with its glistening white capsule. Gentle blunt dissection was carried out all around using tonsillar dissector and index finger. Tumour was thus enucleated from its surrounding tissues and delivered into oral cavity in-toto. The lateral pharyngeal wall was repaired primarily using interrupted catgut sutures. The soft palate was repaired in two layers with catgut. Nasogastric tube was introduced through right nostril for post-operative nutrition. The total operative time was 45 minutes and per-operative bleeding was about 40ml.

Two post-operative problems were noticed. The palatal wound had partially given way and patient was having tachycardia without evidence of fever, haemorrhage or anxiety. Palatal wound was repaired under general anaesthesia. It was noticed that under deeply anaesthetized state also his pulse

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Fig. 1 : CT image of the lesion

rate remained between 132-140 per minute. This may have been due to the stretching and stimulation of the cervical sympathetic chain during blunt dissection of tumour from its bed. However, the patient thereafter made uneventful recovery. He was given injectable antibiotics and analgesics for 2 days and orally thereafter for 3 more days. Nasogastric tube was removed after 48 hours. He was given soft semisolid diet for next 2 days. Patient remained afebrile, his pulse rate came down to 100 per minute and he was discharged after 5 days. The histo-pathological examination of the excised specimen was reported as pleomorphic adenoma of minor salivary gland. OPD review after 1 week, 2 weeks, 6 weeks, 6 months and 1 year has shown excellent healing of palatopharyngeal incisions, normal palatal movements, normal speech and no nasal regurgitation of food. CT scan studies 1 year after surgery have shown no residual or recurrent lesions (Fig 4).

Discussion

Parapharyngeal space tumours are rare. They account for 0.5% of all head and neck neoplasms [1]. They may arise de-novo from any of the various tissues present within parapharyngeal space or by direct invasion from adjacent structures. These primary tumours account for 95% of parapharyngeal space tumours; 80% of which are benign. They include salivary gland tumours (50%), neurogenic eg. neurofibroma, paraganglioma, schwannoma (30%) and other soft tissue neoplasms eg. lipoma, leiomyoma, teratoma, rhabdomyoma, fibrosarcoma and haemangioma etc (20%). Pleomorphic adenoma is the commonest tumour here accounting for 26-43% [2]. These either arise from the deep lobe of parotid gland or de-novo from minor salivary gland tissue rests in the parapharyngeal space which have no connection at all with the parotid gland [3]. It is of

Fig. 2 : MRI scan of the growth

paramount importance to differentiate the two types as this will dictate the surgical approach. CECT or MRI reliably show displacement of normal parapharyngeal space fat anteromedially or posteromedially in tumours arising from deep lobe of parotid gland or tumours arising from minor salivary gland tissues respectively. Based on this knowledge, Som et al [4] in their comprehensive illustration of surgical approaches, have readvoked the use of transoral route for excision of small salivary gland tumours of anterior parapharyngeal space that have been demonstrated to be separated from deep lobe of parotid gland.

The choice of surgical approach is dictated by the size of the tumour, its location and relation to the major vessels and the index of suspicion of malignancy. Since most of these masses are benign, surgical morbidity must be minimized. Before going in favour of transcervical approach, the majority of patients in McElroth's series of 112 parapharyngeal tumours were successfully operated upon through transoral route with ligation of ipsilateral carotid artery [5]. Goodwin and Chandler [6] in 1988 published their experience of completely excising, with minimal blood loss, six parapharyngeal space salivary gland adenomas using transoral route without any complication.

Transoral route does not provide control of the great vessels. The risk of per-operative vascular injury is the major disadvantage of this route, the other risk being incomplete removal of tumour. CECT and MRI are essential investigation tools to show the vascularity of tumour per se and its relation to great vessels. The tumours which are non-parotid, avascular and away from great vessels can be considered for transoral approach.

INCISION

Fig. 3 : Incision line on the soft palate

The suggested transpalatal incision gives complete access to the parapharyngeal space thereby achieving complete removal of the tumour.

The peroral palato-pharyngeal approach is the most direct approach to parapharyngeal space because the surgeon does not have to dissect through parotid or mandible. The incision through the soft palate is such that the natural pull of the muscles of soft palate itself increases the exposure without requiring retraction. This incision in palate is laterally placed, thus avoiding damage to the ascending palatine artery, palatine vein and the greater palatine neurovascular bundle, hence preserving the blood supply and sensation of soft palate. The vertical palatal split incision healed quickly and created none of the recognised complications commonly associated with palatal surgeries. This transpalatal approach has been successfully used by Myatt and Remedios (1997) [7] and N Vaid et al (2001) [8] to remove similar tumours. This approach has many advantages viz-short operative time, minimal bleeding, fast post-operative recovery and hardly any morbidity.

The peroral palato-pharyngeal surgical approach may be recommended for excision of parapharyngeal tumours which are benign, medially bulging, relatively avascular,

Fig. 4 : CT scan one year after surgery

extra-parotid and free from the contents of carotid sheath. It is mandatory to get a CECT and / or a MRI done. This approach needs fair and sincere consideration.

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