

Case report:

Transcervical Excision Parapharyngeal Space Masses

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Parapharyngeal space is a potential space, which is divided by the styloid process into the prestyloid and poststyloid space. The primary parapharyngeal space tumours are rare and accounting for 0.5% of Head & Neck neoplasms¹. No doubt surgical removal of these tumours is challenging and access requires mandible split quite often. In this paper we review the brief anatomy, presentation and evaluation of four cases, which was operated in ENT and Head & Neck Surgery Department of Sir Ganga Ram Hospital and Manchester Royal Infirmary U.K. All these tumours have been removed without mandible split through Transcervical approach even with their enormous size.

Key words: Parapharyngeal mass, Intraoral presentation, Transcervical approach.

Parapharyngeal space may harbor a wide variety of diseases. The lesions are mainly inflammatory or benign tumours. Malignant tumours usually invade the space from the surrounding areas.

Parapharyngeal masses are mostly tumour of Salivary Glands (50%) and Neural tissue (30%). Rarely the chemoreceptor system, the lymphatic system, vascular system, and muscles are the origin of these lesions. Malignant tumours may invade the parapharyngeal space from the nasopharynx, oropharynx, mandible, maxilla and oral cavity

Common clinical presentation is a painless and slowly expanding mass in the lateral wall of the oropharynx or a swelling in the neck. These masses are often discovered during the routine physical examination and fullness is noted in the soft palate or tonsillar region. At the time of clinical presentation tumour size is usually 2.5 to 3 cm. There are different surgical approaches depend upon the site, size and nature of the tumour.

The Parapharyngeal space is described as an inverted pyramid with its base at the skull and apex at greater cornu of the hyoid bone (Figure-1). It is bounded above by a sharp angle formed by the insertion of the medial pterygoid muscle into the inner aspect of the lateral pterygoid plate on the one hand, and by the superior constrictor muscle on the other. Medially the lateral wall of the pharynx bound it, while laterally the upper limit is formed by the medial surface of medial pterygoid muscle, and further posteriorly by the deep lobe of the parotid gland and styloid apparatus. Superiorly the anterior half of the parapharyngeal space is separated from the infratemporal fossa by the medial pterygoid muscle, while the posterior half is continuous with it. Inferiorly, the parapharyngeal space descends into the neck medial to the carotid sheath.

Shaped rather like a boat the parapharyngeal space narrows anteriorly where the superior constrictor is attached to the pterygomandibular raphe, where as it is somewhat broader posteriorly where the carotid sheath separates it from the prevertebral muscles, and where it merges medially with the retropharyngeal space^{2,3}.

The parapharyngeal space contains loose fibroalveolar tissue and small islands of salivary gland tissue, derived presumably from the deep lobe of the parotid gland. There are no lymph nodes within it⁴.

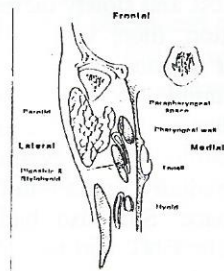


Fig. 1. Inverted pyramidal shape of parapharyngeal space

Case No.1

Fifty two years female presented to the ENT OPD with a feeling of the sensation of fullness of the left side of the throat. She also complained of excessive salivation. There was no history of difficulty in swallowing or any systemic illness. Examination of the oropharynx revealed a swelling in the left parapharyngeal region with marked medial push of the left tonsil. (Fig-2) The swelling was firm to hard in consistency with intact normal looking mucosa over it. No sign or symptom of any neurological deficit was noted. There was no regional lymphadenopathy. The laboratory data like CBC, ESR, Electrolytes, Blood Sugar and Urea was within the normal limit. FNAC result was Benign Salivary gland tumour. CT Scan shows a well defined rounded soft tissue density mass, measuring 3.1x 5.0 cm, in the left parapharyngeal space.

The mass was removed by upper cervical incision extending from the mastoid tip to the midline at the level of the hyoid bone. Submandibular gland was excised to gain access to the parapharyngeal space. Marginal mandibular nerve was identified and preserved. Facial vessels ligated and divided, Hypoglossal and Lingual nerves preserved, tumour was exposed deep to the ramus of the mandible and resected in toto with blunt dissection.

She had uneventful recovery and was discharged after three days.



Fig. 2 Lt tonsil and uvula is pushed medially by a large parapharyngeal mass.

Case No..2

Forty years female presented in the ENT OPD with a swelling in the left upper neck area of 2 years duration. She also had hoarseness of voice for twelve months. The swelling was painless and slowly increased in size.

On examination, there was a diffuse lump in left upper neck and it seemed to be extending deep to the ramus of the mandible. The swelling was non-tender, mobile and no pulsation present on palpation. Bruit was present on auscultation. Throat examination revealed left tonsil pushed medially with fullness in the left parapharyngeal space. She also had a left vocal cord paralysis. Rest of the ENT and neurological examination was unremarkable. Laboratory investigations like CBC, ESR, LFTs, Blood Urea, creatinine done which was within normal limits. Chest x-ray and E.C.G. was normal.

CT scan with contrast showed a very enhancing soft tissue mass, measuring 4.5x4.0 cm, in the left parapharyngeal space (Fig 3). Angiography confirmed a vascular lesion in the parapharyngeal space with all the blood supply from external carotid system (Fig. 4). Surgery was performed through transcervical approach. Submandibular gland was excised and after gaining control of external carotid artery, the tumour was excised in toto. It was extending from the base of skull to the cricoid cartilage. Hypoglossal nerve was traversing the tumour and had to be sacrificed. Haemostasis secured minimal venous ooze from the skull base was controlled with spongostone pack. Drain was put in and wound closed in layers. She had uneventful recovery and was discharged after five days.

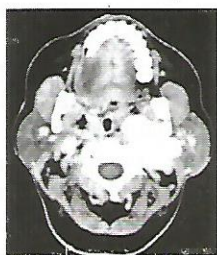


Fig. 3. CT Scan with contrast showing a large parapharyngeal tumour disturbing the oropharynx.

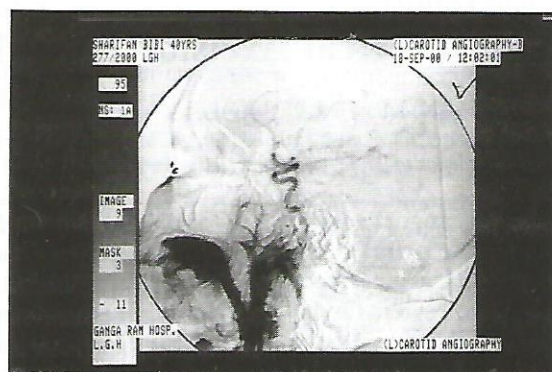


Fig. 4. Lt carotid Angiogram showing a large vascular tumour in the Lt Parapharyngeal space abutting the skull base.

Case No.3

Forty eight years Female presented in the ENT OPD with the history of swelling in the Rt side of the neck for the last one and half year, which was small in size initially but gradually, increased in size. There was no other symptom. On examination there was bulge of the Rt tonsil medially with slight medial pushed soft palate and uvula. Ballotment was negative. No any other abnormality in the rest of ENT and Systemic examination. CT scan showed a soft tissue density mass of the parapharyngeal space, measuring 3x3.8 cm. FNAC confirmed the clinical suspicion of pleomorphic adenoma.

She also had a transcervical resection of the tumour, as described with other cases. Rt cervical incision was made, skin flap elevated. Submandibular gland removed and after ligating the facial vessels, the mass identified in the Rt parapharyngeal space and removed piecemeal. Suction drain was placed in the cavity and wound closed in layers. She went home after five days.

Case No. 4

Forty five years old Chinese female presented with lump in the throat of one year duration. On examination she was found to have markedly pushed right tonsil by a parapharyngeal mass. FNAC revealed Pleomorphic Adenoma. C.T. Scan confirmed the extent of lesion. She had well-defined capsulated mass, about 5cm in diameter with some contrast enhancement. It was mainly deep to the ramus of mandible extending upto the skull base.

Transcervical approach was used to remove the tumour. Unluckily She has capsule rupture, but total removal was achieved. She received postoperative radiotherapy, 2 years post operative follow-up she remains symptoms free.

Surgical approaches to parapharyngeal mass

There are many ways to excise the parapharyngeal space tumour

1. Peroral
2. Cervical approach
3. Cervical parotid approach

4. Trans parotid approach
5. Cervical approach with angle mandibulotomy
6. Cervical Trans pharyngeal with midline mandibulotomy
7. Infra temporal fossa approach.

Cervical approach

As shown in (Fig.5) this approach involve a transverse incision at the level of the hyoid bone. The fascia incised and submandibular gland was removed to gain excess to the parapharynx. Facial nerve was not visualized, no doubt marginal mandibular never was saved. Our incision through the deep fascia to the submandibular space allowed for blunt dissection of the tumour. Extensions of this approach possible by dividing the digastric stylohyoid and styloglossus muscle, from them hyoid bone.

In 1945, Morfit⁵, first described the submandibular incision with blind tumour enucleation as a way to remove 12 parapharyngeal space neoplasm. Many variations of this approach have been reported. Bass described the removal of the submandibular gland with identification of the marginal mandibular branch of the facial nerve². The styloid process and stylomandibular ligament were divided. Som describe an essential approach to include divisional of the digastric, stylohyoid, styloglossus muscles from the hyoid bone further improve the excess to parapharyngeal space^{4,6}.

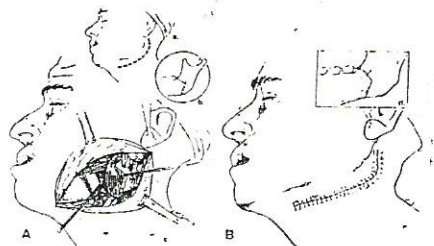


Fig. 5. Diagram of the transcervical approach with an osteotomy. A) a. an incision: b: osteotomy outline c: exposure (note that the facial nerve is not exposed) B) d. rewiring osteotomy i.e. closure

Heeneman and Marn described a cervical approach that included identification of the facial nerve and exposure of the vessels of the carotid sheath early. They placed tapes around them to exposure hemostasis in an emergency. They also described removing the submandibular gland and tail of the parotid.

Discussion

We are reporting four cases of parapharyngeal space tumour, which were operated through transcervical approach. The symptoms related to the tumour were minimal. In our series the mass was noted incidentally or it was found on routine examination. All patients underwent routine and specialized investigation to see the

medical status of the patient as well as extent of the tumour.

We remove all masses by transcervical approach without any complication. In the past per oral route excision was used extensively^{7,8}. This approach is condemned because the risk of haemorrhage and inability to control bleeding, the chance of tumour rupture or subtotal removal and wound contamination with subsequent infection^{9,15}.

For deep lobe tumour transparotid approach with facial nerve dissection is essential for extra parotid lesion superficial parotidectomy and facial nerve exposure is not necessary. In these case a Trans cervical approach can be utilized with anterior displacement of sub maxillary gland.

In our series we removed the tumour by this approach. The tumour was removed by blunt finger dissection. However the medial, posterior and superior dissection was not performed due to limited exposure.

Some surgeon doing Anterior dislocation of the mandible and fracture of the styloid process or osteomy at the angle of the mandible of further widen the field.

The mandibular osteomy does not enhance the exposure medially, posteriorly and superiorly and superior. It also save the inferior alveolar nerve and some time lingual nerve. We removed the tumour by transcervical approach

The impending complications of this approach were facial nerve palsy loss of vagus nerve function, major blood vessel injury causing haemorrhage. In one series of 54 parapharyngeal space tumour found a 48% complication rate¹⁶. In our four cases of parapharyngeal space tumour one patient who have paraganglioma of the vagus nerve removal has left vocal cord palsy & this complication was expected. This patient was managed later by thyroplasty type-1. All our cases went home without any problem. In follow up all our patients had no recurrence

Conclusion

The different types of tumours present in the parapharyngeal space contribute to unique management problem. The cervical approach has been recommended by many authors^{17,18,19,20} as the best access route for removal of parapharyngeal space tumours.

We conclude that excision of the parapharyngeal tumors can be performed without mandibular split. Transcervical approach reduces the potential complications and operative time. We operated on four cases of different pathology, we remove the disease completely by transversal approach without mandibular split. In these cases no post operative complication was noted. In our opinion it is the safest approach to remove benign parapharyngeal masses.

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