

Original Article

Clinicopathological Study of Parapharyngeal Space Tumor

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Abstract:

Objective: To see the mode of presentation, diagnosis and management of parapharyngeal space tumours.

Study design: Cross sectional study.

Setting: Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.

Methods: The condition being relatively rare, it was difficult to find good number of fresh cases. We have studied all cases of parapharyngeal space tumour attending in the Bangabandhu Sheikh Mujib Medical University from January 2010 to March 2011.

Result: Parapharyngeal space tumours are rare head and neck neoplasms. The third decade of life showed greatest incidence. The main presenting complaint's were painless neck swelling (73%). The highest number of pathology were attached to the deep lobe of parotid gland (pleomorphic adenoma-27%) and then neurofibroma (20%). Of all cases 77% were benign. Their accurate diagnosis and management is challenging.

Keywords: Parapharyngeal tumours; Schwannoma; Paraganglioma; Pleomorphic adenoma.

Introduction:

The parapharyngeal space is a potential space lateral to the pharynx. On each side it contains some vital structures like carotid arteries, internal jugular vein, last four cranial nerves and sympathetic chain.

Parapharyngeal tumours most commonly present as asymptomatic masses in the neck

or palatal region found on routine physical examination. Tumor arising in the parapharyngeal space draw special attention because of difficulties in investigation, diagnosis and surgical intervention. Parapharyngeal space tumor are rare, forming less than 0.5% of head and neck neoplasm.¹⁻⁴. Both benign and malignant tumors may arise from any of the structures contained within

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the parapharyngeal space, 70-80% are benign and 20-30% are malignant.^{1,2,5} The majority of tumor arising in the parapharyngeal space are benign and surgical resection is the main stay of treatment.^{2,6} In this study I attempted to present our experiences regarding presentation, diagnosis and management of these lesions and to compare and contrast other available literature.

Methods:

This study was carried out in the Department of ENT & HNS, Bangbandhu Sheikh Mujib Medical University. We have studied all cases of parapharyngeal space tumour (30 patients) attending in this Department from January 2010 to March 2011. Patients of parapharyngeal space tumour were selected on the basis of clinical presentation, radiological investigations and FNAC reports. Ultrasound of neck and Color Doppler study was done in selected cases.

Result:

In our study, Maximum patients fall within the age group between 21-40 years and among them the most common age group of presentation was 31-40 years (10 patients-33%) followed by the age group between 21-30 (9 patients-30%). There was male predominance. Out of 30 cases, 16 cases

(53%) were males and 14 cases (47%) were females.

The commonest presenting symptom in our study was painless neck swelling, as in 22 of our patients (73%), followed by oropharyngeal swelling-14 patients (47%), dysphagia-11 patients (37%), dysphonia-9 patients (30%), fullness of ear-5 patients (17%), cranial nerve palsy-1 patients (3%), sore throat-4 patients (13%) and cervical pain-2 patients (7%) (Table-I).

Table-I
Clinical Presentation

Symptoms	No. of patients	Percentage
Neck swelling	22	73
Oropharyngeal swelling	14	47
Dysphagia	11	37
Dysphonia	9	30
Fullness of ear	5	17
Cranial nerve palsy	1	3
Sore-throat	4	13
Cervical pain	2	7

In this study salivary gland origin tumours were the most numerous (47%). Neurogenic tumours constituted 33% while chemodectomas 16%. Pleomorphic adenoma of the deep lobe of parotid gland and neurofibroma were the most numerous in the study.

Table-II
Types of Parapharyngeal Tumours

Type of tumour	No. of patients	Percentage
Pleomorphic adenoma of the deep lobe of parotid	8	27
Ectopic salivary gland tumour	5	17
Mucoepidermoid carcinoma	3	10
Adenocarcinoma	2	7
Adenoid cystic carcinoma of deep lobe of parotid	1	3
Neurilemmoma	4	13
Neurofibroma	6	20
Chemodectoma	5	16
Carotid body tumour	4	13
Vagal body tumour	1	3
Synovial sarcoma	1	4

Benign tumours are more frequently encountered (23 patients-77%) in the study. Malignant neoplasm constituted 7 patients-23% .

Transcervical approach was the most often performed approach in this study (73%). Transcervical-transparotid (10%), transcervical-transmandibular (13%) and trans-oral (4%) approaches were also used.

Table-III
Surgical Approaches

Type	No. of patients	Percentage
Transcervical	22	73
Transcervical-transparotid	3	10
Transcervical-transmandibular	4	13
Trans-oral	1	4

Discussion:

The parapharyngeal space is a virtual anatomic region classically compared to an inverted triangular pyramid extending from the skull base to the hyoid bone. Tumour arising in the parapharyngeal space represent a challenge to the head and neck surgeon. Not only because they are rare, but also because of the wide variety of histological types in this site.

This study as it comprises of cases attending hospital fifteen months of time limit only, is not large enough to represent scenario with more accuracy. But since it was carried out in a major tertiary health institute of the capital city of a 140 million population country, cases were not difficult to found.

A total of 30 cases of parapharyngeal space tumours were collected from department of Otolaryngology and Head-neck Surgery of Bangabandhu Sheikh Mujib Medical

University. They were treated upon from January 2010 to March 2011.

A standard data sheet was designed for the study. Information available from the records were included in it. Besides this, a number of patients were followed up prospectively.

The age of the patients ranged from 18 to 62 years (mean:36.5 years). The highest incidence was found in the 3rd decade (33%) of life. This finding compares to that described by Stanley⁷, Singh⁸ and Anwar.⁹

Male preponderance was observed in this study. Here male to female ratio was 1.13:1. Ritesh, Rashmi, Nita, Shelly and Ashish⁵ had similar observation. Tincani, et al. reported a male preponderance of 70%. Maran et al. however found no sex predominance.¹⁰ Pang, Goh and Tan⁴ observed no sex predominance in their series too.

Majority of the patients were from middle socioeconomic class. 25% of them from the affluent and 15% from lower socioeconomic class. 65% of them were from the rural area.

Clinical presentation of the patients were diverse. Most patients presented with multiple complains. The most common presenting symptom was of a painless neck swelling, as in 22 patients (73%) in this study. Next to this oropharyngeal bulging was experienced by 14 of patients (47%). Eleven patients complained dysphagia (37%) and nine patients complained dysphonia (30%). Sore-throat and mild throat discomfort were complained by 6 patients (20%).

Five patients presented with ear symptoms. They had conductive hearing loss due to middle ear effusion subsequent to Eustachian tube blockade¹¹ caused by the large tumour indenting the nasopharynx.

These tumours are usually painless because of their expansile nature, however, pain must raise a strong suspicion of malignancy.

Speech or swallowing problems may result from lower cranial nerve involvement. It occurs more commonly due to displacement of the lateral pharyngeal wall and the tonsil. In our study, one patient had a tonsillectomy performed for a unilateral "tonsillar" mass. One patient had an incision and drainage performed earlier for a suspected left "quinsy".

In this study salivary gland origin tumours were of the highest incidence 47%. In nine cases the tumours arose from the deep lobe of the parotid gland. Maran¹⁰ observed that deep lobe tumours of the parotid gland account for 12 to 25 percent of all parotid tumours.

In the series reported by Work et al¹² and Mayo clinic¹³ the commonest tumours were benign mixed salivary tumours (33.3% and 43% respectively in both the series).

The present study depicted 27% incidence of benign mixed salivary tumour. The cases of ectopic salivary gland tumour were diagnosed as an adenocarcinoma and a mucoepidermoid carcinoma.

Tumour arising from the minor salivary gland tissue within the parapharyngeal space fat¹⁴ have also been documented. These tumours have a higher likelihood of malignancy.⁴

Ten(33%) of the cases were of neurogenic tumours. The figure as found by Tincani et al. was 35.3% in his study.

Bahadur, Tandon, Kacker and Mishra reported 13 cases of neurofibroma in their series of 36 cases which constitutes 36% of total cases.

In the present series 4 patients had neurilemmomas. In one case the tumour was attached to hypoglossal nerve from which it difficult to be freed. Patient had temporary post-operative XIIth nerve paralysis, which improved subsequently. In another case the fibres of the XIIth nerve were found stretched over the capsule of the tumour from which

the tumour could be easily dissected and no palsy was occur. In two cases the tumour were attached to the vagus nerve from which the tumour could not be freed easily. They suffered from temporary post-operative vagal paralysis which improved subsequently. Six patients had neurofibromas, from which one patient developed temporary combined IX,X and XIth cranial nerve paralysis.

We had 5 cases (16%) of chemodectomas. Out of them 4 cases were of carotid body tumours and one of vagal body tumour. CT scan or MRI, carotid angiography or MRA and urinary catecholamine level were done for diagnosis. Either contrasted CT or MRI will clearly demonstrate a chemodectoma expanding the carotid bifurcation.¹⁵ Sometimes carotid body tumours may also be malignant with a metastasis rate of 2 to 9 percent.¹⁶ Surgical excision is the treatment of choice and offers high rate of cure¹⁷. All our cases were excised successfully.

There were no recurrence observed. Amar A. Attia, et al¹⁵ also found same result. No case of malignancy was encountered in our series. B. Ozay, et al¹⁷ had similar observation.

Surgical approaches were considered according to the size of the tumour, its location, its relationship to the great vessels and the suspicion of malignancy.² Most cases in this study were operated by the transcervical approach (73%). Transcervical-transparotid and transcervical-trnsmandibular (mandibular swing) approaches were used 10% and 13% cases separately. 4% patients were subjected to a transoral approach. Tracheostomy were required 7% of cases for airway management in the immediate postoperative period.

Vanessa Suarez-Fente, et al¹⁸ used transcervical approach in 63% cases in his series. Malone et al¹⁹ and Hamza et al²⁰ also used this approach in 90 to 100% of cases.

Bahadur⁷ used transparotid approach for deep lobe of tumours with excellent post operative results.

Pre-operative assessment by FNAC were confirmed in all cases by histopathological examination. Post operative complications were few. 13% of cases were encountered temporary cranial nerve paralysis, which improved subsequently. Dysphagia were occurred in 10% of cases. One patient developed hematoma, which was managed conventionally.

Conclusion:

Anatomy of parapharyngeal space is complex with important neurovascular structures. Parapharyngeal space tumours are rare and mostly benign. More over, they are difficult to diagnose early as they produce symptoms slowly. Surgical resection being the mainstay of therapy, tumours of this complex anatomical region call for careful preoperative planning and great skill for selecting the right approach and for management with minimal morbidity and recurrence. The present study unfurls the need to carry on with further research into this particular area.

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