Surgery Journal 12 (1-6): 1-4, 2017
ISSN: 1816-3211

Surgical Experience in Management of Para-Pharyngeal Tumors in Tertiary Center

[1]Ghader Jamjoum and [2]Sarah Talal Altayyari
[1]Department of General Surgery, Faculty of Medicine,
King Abdul-Aziz University, Jeddah, Saudi Arabia
[2]Department of Otolaryngology-Head Neck Surgery, Faculty of Medicine,
King Abdul-Aziz University and University of Jeddah, Jeddah, Saudi Arabia

Abstract: Para Pharyngeal Space (PPS) is a deep space lateral to the upper pharynx inverted triangular in shape, it is an area of complex anatomical relationship with very sensitive structures. PPS is one of the head and neck planes which could be involved with tumors, it could be inflammatory, infectious or neoplastic. Tumors are rare representing <1% of all head and neck neoplasms. The management of para pharyngeal tumor is mainly with surgical approach which have been chose to facilitate extracting the mass completely with the least morbidity. We aimed to identify the number, types of paraphernal tumors and the outcome in our center. Also, this study will review the presentation, histological diagnosis, surgical approaches and postoperative complications. A retrospective study for 72 patients in 2010-2015, King Abdul-Aziz University Hospital, Saudi Arabia, Jeddah, to identify the types of paraphernal tumors and the outcome of the procedure. The study included 72 patients 26 males (36.11) 46 females (63.8%). This study reported type of tumors as parotid tumor 40 (55.5%), carotid body tumor 8 (7.27%) pineal body tumor 1 (1.3%) and others 16 (26.3%). The most common presenting symptom is neck mass followed by those patients came without clear complain. Subtotal parotidectomy was the commonest procedure that has been used followed by total parotidectomy while. The post-operative pathology showed that 67 (93%) patients didn't need post-operative radiotherapy and 5 (7%) needed post-operative radiotherapy. PSS neoplasm is rare condition which most likely will need surgical intervention, a good pre-operative assessment with radiological imaging as CT or MRI is mandatory for every patient to improve the outcome. Moreover, FNA is a very helpful tool in pre-operative evaluation.

Key words: Para pharyngeal tumors, pre-operative, histological diagnosis, pineal body tumor, presentation

INTRODUCTION

Para Pharyngeal Space (PPS) is a deep space lateral to the upper pharynx inverted triangular in shape, it is an area of complex anatomical relationship with very sensitive structures. Its bounded superiorly with posterior belly of digastric muscle and hyoid bone. Inferiorly the temporal bone. This space is divided by the fascia into pre styloid and post styloid compartments. The pre styloid compartment contains the deep lobe of the parotid gland, medial and lateral pterygoid muscles and multiple lymph nodes. Moreover, the internal maxillary vein and artery, lingual, auriculo-temporal, Inferior alveolar nerves cross the pre styloid area. While the post styloid compartment contains more important structures which are the internal carotids, internal jugular vein and cranial nerves (Basaran *et al*., 2014).

PPS is one of the head and neck planes which could be involved with tumors, it could be inflammatory, infectious or neoplastic. Tumors are rare representing <1% of all head and neck neoplasms. Tumors are commonly benign 70-80% while malignant account of 20-30%. They can be primary in origin, metastatic neoplasms or directly extending from adjacent structures about 80% of PPS tumors consist of salivary gland, neurogenic and lymph reticular lesions. In the prestyloid compartment, pleomorphic adenoma is the most common lesion and accounts for 80-90% of salivary gland tumors. In contrast neurogenic tumors such as schwannomas and neurofibromas represent the majority of the tumors in the post styloid compartment (Locketz *et al*., 2016).

The management of para pharyngeal tumor is mainly with surgical approach which have been chose to facilitate extracting the mass completely with the least morbidity. While Irradiation defined as primary chosen treatment in patient who have bulky unrespectable tumors also for whom not candidate for surgery. Furthermore, it used for high grade malignancies after surgery. Choosing the surgical approach is depend on the suspicion of malignancy, histology, site of origin and size of the tumor;

Corresponding Author: Ghader Jamjoum, Department of General Surgery, Faculty of Medicine, King Abdul-Aziz University, Jeddah, Saudi Arabia

relationship of the tumor to neurovascular structures and experience of the surgeon. Although, when surgery done it should obtain clear margins in cases of malignancy, without adding to the patient's preoperative morbidity. However, surgical resection of malignant neoplasms, carry poor prognosis and low rate of disease-free surviva. Fine needle aspiration used as helpful tool in preoperative diagnostic evaluation of patients with Para pharyngeal space tumors.

We aimed to identify the number, types of paraphernal tumors and the outcome in our center. Also, this study will review the presentation, histological diagnosis, surgical approaches and postoperative complications.

MATERIALS AND METHODS

A retrospective study for 72 patients in 2010-2015, King Abdul-Aziz University Hospital, Saudi Arabia, Jeddah to identify the types of paraphernal tumors and the outcome of the procedure. We are looking for patient (age, gender, name) we looked also for the most common presentation, surgical approaches and the final histopathology furthermore, our outcome was to identify the most common type of tumor in our population also to detect the related post-operative complication. We collect the data from patient's electronic files. The ethical approval was obtained from KAUH ethical commit.

RESULTS AND DISCUSSION

The study included 72 patients 26 males (36.11) 46 females (63.8%). This study reported type of tumors as parotid tumor 40 (55.5%) carotid body tumor 8 (7.27%), pineal body tumor 1 (1.3%) and others 16 (26.3%). The most common presenting symptom is neck mass followed by those patients came without clear complain (Table 1). Subtotal parotidectomy was the commonest procedure that has been used followed by total parotidectomy. The post-operative pathology showed that 67 (93%) patients didn't need post-operative radiotherapy and 5 (7%) needed post-operative radiotherapy.

PPS tumors are rare tumors account of 0.5% of all the head and neck neoplasms and most of them are benign lesions. Around 70-80% of all PSS tumors are benign and the rest malignant, 30-40% of these neoplasm arise from salivary glands. The most common salivary gland tumor is pleomorphic adenoma which is around 60-80% followed by para-ganglioma and schwannoma (Laturiya *et al*., 2016). Represent 80-90% of salivary gland tumors. Up to 40-50% of prestyloid PPS tumors are salivary gland in origin. Salivary gland tumor can arise from the deep loop of the parotid gland, ectopic salivary rests or minor salivary gland in the lateral pharyngeal wall. Only 18% of minor salivary gland tumors are benign malignant salivary gland neoplasms such as mucoepidermoid carcinoma and adenoid cystic carcinoma are very rare (Murhekar *et al*., 2015).

Table 1: Tumor and its patien's

Variables	Values
Gender	
Male	26 (36.1%)
Female	46 (63.8%)
Total	72
Type of tumor	
Others	19 (26.3%)
Parotid tumor	44 (55.5%)
Carotid body tumor	8 (11.1%)
Pineal body tumor	1 (1.3%)
Total	72
Presenting symptoms	
Neck mass	60 (81%)
No presenting symptoms	2 (1.5%)
N/A	96.6
Other	1 (0.74%)
Total	72
Surgical intervention	
Total parotidectomy	18 (12.72%)
Subtotal parotidectomy	27 (27.27%)
Carotid body excision	8 (7.27%)
No intervention	5 (6.9)
Trans cervical	14 (19.4)
Total	72
Post OP pathology	
No need for radio therapy	67 (93%)
Need radio therapy	5 (7%)
Post-operative complication	
No complications	62 (86.11%)
Horsiness of voice	2 (12.7%)
Recurrence	5 (6.9%)
Infection	1 (1.3%)
Dysphagia	1 (1.3%)
Facid N. paralysis	3 (4.1%)

In the post styloid compartment, neurogenic tumors such as schwannomas and neurofibromas are the frequent lesions. Other less frequent lesions include venolymphatic malformation, metastatic masses, rhabdomyosarcomas, tumors of the minor or ectopic salivary glands and lymphomas. Neurogenic tumor represents 13% of PPS tumors and they are commonly an extension of neurogenic tumor in the carotid space. Primary neurogenic tumor is rare (Castano and Nayak, 2013). Most of the patient with PPS neoplasms will discover the problem incidentally with no symptoms, less frequently patient may present with neck mass, hoarseness of voice, dysphagia or dysphonia. In our study we noticed slight difference that 81% of our patients presented with neck mass while 2% discovered incidentally and none had dysphagia. Another systemic review showed that 52% presented with intra oral mass followed by 48% cervical mass. Kuet *et al*. (2015) more importantly, due to the limitation of physical examination of the anatomical area, images are very important part of investigation, the modality of choice usually MRI but

almost always the physicians will do CT scan for more details (Lee *et al*., 2014) furthermore, radiological guided biopsy mostly FNA will provide vital information in cases were malignances is suspected indeed cytopathology diagnosis will give us more information and good preparative planning (Eisele and Richmon, 2013).

Surgery considered the first line of management in PSS neoplasm but there is some limitation of surgery which is unresectable tumors, unfit patient and advanced metastatic malignant neoplasms in these sittings patient may get benefit from palliative radiation (Fliss and Gil, 2016). Many surgical approaches can be offered for such neoplasms but carful surgical planning and risk benefit must be considered in each patient also surgeon experience and technicality has an important role in choosing the approach (Modest *et al*., 2014). A retrospective study reviewed 51 patients diagnosed with tumors of the PPS and treated surgically between 1984 and 2006 showed 70% of the PSS neoplasms were benign while 30% malignant. Pleomorphic adenoma was the most common neoplasm (37%) followed by benign tumors (34%) paraganglioma (21%) and neurogenic tumors (8%).

Surgery was chosen in all case with the trans-cervical approach used in 32 cases whereas the cervical-trans parotid approach used in 13 cases and the trans mandibular approach in 4 cases with mandibulectomy in 1 patient, moreover the trans-oral approach in 1 case and the infratemporal fossa approach in 1 case. They concluded that most PPS tumors can be removed surgically with a low rate of complications and recurrence and the trans-cervical approach is the most frequently used (Riffat *et al*., 2014).

In our study we had total of 72 patients presented with PPS during period 2010-2015 female were more than male with percentage of 63.8 female to 36.1% males, parotid tumors were the most frequent type seen in our patient (55.5%) followed with carotid body tumor (11.1%) and lastly pineal body tumor with percentage of (1.3%). Most common surgical approach used in our center is sub-total parotidectomy (27%) followed by total parotidectomy (12.72%) and least common is carotid body excision (7.27%) in contrast, another study showed that cervical approach was the most frequently used (46%) (Kuet *et al*., 2015). While Papadogeorgakis *et al*. (2010) collected 13 cases with PPS neoplasm, they mentioned that trans-mandibular approach was used in 7 cases followed by trans-cervical and the least used is the trans-oral approach (Papadogeorgakis *et al*., 2010). Most of our patient discharged home with no problems, 86.11% has a smooth post-operative course, 6.9% had recurrence of the primary disease and 4.1% had temporarily facial nerve paralysis. On the other hand, a retrospective review of 47 patent post PSS excision showed transient facial nerve paralysis in 5 patients. Khafif *et al*. (2005) another study concluded that vagus nerve injury is the most common complication (13%) (Kuet *et al*., 2015) (Fig. 1).

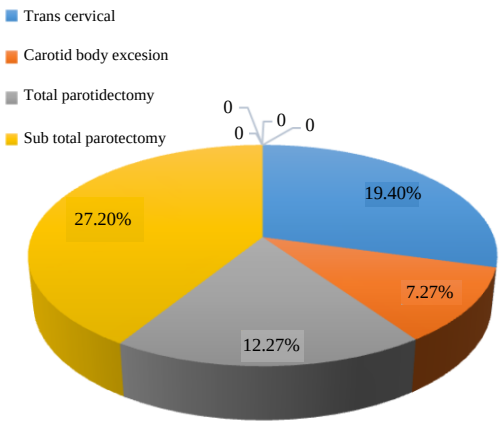

Fig. 1: Percentage of different surgical approach

CONCLUSION

PSS neoplasm is rare condition which most likely will need surgical intervention, a good pre-operative assessment with radiological imaging as CT or MRI is mandatory for every patient to improve the outcome. Moreover. FNA is a very helpful tool in pre-operative evaluation.

REFERENCES

Basaran, B., B. Polat, S. Unsaler, M. Ulusan and I. Aslan *et al*., 2014. Parapharyngeal space tumours: The efficiency of a transcervical approach without mandibulotomy through review of 44 cases. Acta Otorhinolaryngologica Italica, 34: 310-316.

Castano, J.E. and C.S. Nayak, 2013. Parapharyngeal Space Tumors Encyclopedia of Otolaryngology, Head and Neck Surgery. Springer, Berlin, Germany, pp: 61-2053.

Eisele, D.W. and J.D. Richmon, 2013. Contemporary evaluation and management of parapharyngeal space neoplasms. J. Laryngology Otology, 127: 550-555.

Fliss, D.M. and Z. Gil, 2016. Approaches to the Parapharyngeal Space Atlas of Surgical Approaches to Paranasal Sinuses and the Skull Base. Springer, Berlin, Germany, pp: 88-169.

Khafif, A., Y. Segev, D.M. Kaplan, Z.I.V. Gil and D.M. Fliss, 2005. Surgical management of parapharyngeal space tumors: A 10-year review. Otolaryngology Head Neck Surg., 132: 401-406.

Kuet, M.L., A.V. Kasbekar, L. Masterson and P. Jani, 2015. Management of tumors arising from the parapharyngeal space: A systematic review of 1,293 cases reported over 25 years. Laryngoscope, 125: 1372-1381.

Laturiya, R., J.S. Kasim, A.S. Jankar and S.A. Mohiuddin, 2016. Pleomorphic adenoma of minor salivary gland arising de novo in the parapharyngeal space-a rare case report. J. Clin. Diagn. Res. JCDR., 10: ZD01-ZD03.

Lee, J.E., H.S. Hong, K.H. Chang, H.K. Kim and J. Park, 2014. Solitary fibrous tumor of the post styloid parapharyngeal space. Acta Radiol. Short Rep., Vol. 3,

Locketz, G.D., G. Horowitz, S. Abu-Ghanem, O. Wasserzug and A. Abergel, 2016. Histopathologic classification of parapharyngeal space tumors: A case series and review of the literature. Eur. Arch. Oto Rhino Laryngology, 273: 727-734.

Modest, M.C., K.M.V. Abel, E.J. Moore, J.R. Janus and D.L. Price *et al*., 2014. Parapharyngeal space neoplasms: A 50-year experience. Otolaryngology Head Neck Surg., 151: 175-175.

Murhekar, K., U. Majhi, A. Krishnamurthy and V. Ramshankar, 2015. Diagnostic dilemma involving a mass in the parapharyngeal space: A metastatic breast carcinoma masquerading as a malignant salivary gland tumor. Indian J. Nucl. Med. IJNM. Off. J. Soc. Nucl. Med. India, 30: 248-250.

Papadogeorgakis, N., V. Petsinis, L. Goutzanis, G. Kostakis and C. Alexandridis *et al*., 2010. Parapharyngeal space tumors: surgical approaches in a series of 13 cases. Int. J. Oral Maxillofacial Surgery, 39: 243-250.

Riffat, F., R.C. Dwivedi, C. Palme, B. Fish and P. Jani, 2014. A systematic review of 1143 parapharyngeal space tumors reported over 20 years. Oral Oncol., 50: 421-430.