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Case Series

The parotid tumours-benign and malignant: our experience

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ABSTRACT

Salivary gland tumors are uncommon and constitute a highly heterogeneous histopathological group of neoplasms. The present study aims to determine the correlation between the cytological and histopathological findings of parotid gland tumors, and preservation of the facial and posterior branch of the greater auricular nerve during parotid surgery. A study of 21 cases of parotid gland tumors was conducted at our hospital- GMERS Medical College and Civil Hospital, Valsad. All of them were clinically diagnosed and investigated. Hospital records of these patients including operative findings were analyzed concerning age, sex, indications for surgical management, and outcome. A total of 21 salivary gland tumors were diagnosed over 2 years representing pleomorphic adenoma was most commonly occurring in 15 (71%) cases followed by Warthin`s in 3 (14%) cases, mucoepidermoid carcinoma 2 (10%) and benign cystic lesion in 1 (5%) cases. Most of the parotid gland tumors occurred in the 20-60 years age group. Females were more commonly affected than males. The data discussed in this study was consistent with other hospital-based studies concerning age, sex, site, clinical presentation, diagnosis, complications, management, and outcome of these different types of parotid gland tumors.

Keywords: Pleomorphic adenoma, Great auricular nerve, Facial nerve, Parotid surgery

INTRODUCTION

The chances of a tumor being benign are more in major salivary glands (80% of parotid and 50-60% of submandibular) while less in minor salivary glands (25%).[1,2] The parotid gland is the most commonly involved salivary gland with an incidence of 70% followed by the submandibular gland and other minor salivary gland tumors.[2] The major salivary glands are a common source of benign pathology, both inflammatory and neoplastic.[2,3] Salivary gland tumors comprise 0.3% of all malignancies and 2-6.5% of the head-and-neck tumor. German surgeon Lorenz Heister is credited for the description of the first parotidectomy in 1765, which he mentioned in his book "A General System of Three Parts". All age groups are affected with the peak incidence in the 50-60 years age. There is a female preponderance with exception of Warthin's tumors, which are more common in males.

The study aims to analyze parotid tumors retrospectively with the following objectives: correlation of cytological and histopathological findings of parotid gland tumors; preservation of the posterior branch of the greater auricular nerve during parotid surgery; and preservation of facial nerve and its branches during parotid surgery.

CASE SERIES

It was a prospective observational study involving 21 patients who presented with parotid region swelling in the outpatient department of ENT. After obtaining informed and written consent from all the patients they underwent a protocol of detailed history, clinical, radiological, cytological (FNAC), and histopathological (HPE) evaluation.

A total of 21 patients were involved in our study.

In the present study, the maximum numbers of cases were in the age group of 21-40 years (57%), followed by 24% in 41-60 years (Table 1).

Table 1: Age distribution.

Age group of patients (years)	No. of patients in our study (%)
<20	1 (5)
21-40	12 (57)
41-60	5 (24)
>60	3 (14)
Total	21 (100)

Around 57% of female patients were noted in our study (Table 2). So more incidences were noted in females than males.

Table 2: Sex distribution.

Sex of patient	No. of patients in our study (%)
Male	9 (43)
Female	12 (57)

Around 52% of patients had swelling on the right side, and 48% on the left side. There was no any side predilection for parotid tumors (Table 3 and Figure 1).

Figure 1: Preoperative and intraoperative parotid tumour.

1st arrow-superficial parotid lobe, 2nd arrow- deep lobe of parotid

Table 3: Site of the pathology of the parotid lesion.

Site of pathology	No. of patients in our study (%)
Right	11 (52)
Left	10 (48)
Total	21 (100)

FNAC was done in all cases which were suggestive of benign tumors. Pleomorphic adenoma (15 cases-71%) was the most frequent benign tumor, followed by Warthin's tumor in 14% of cases and benign cystic lesion in 10% of cases (Table 4).

Table 4: FNAC of salivary gland lesions.

Salivary gland lesions	No. of patients in our study (%)
Non-neoplastic lesion	
Benign cystic lesion	2 (10)
Reactive lymphadenitis	1 (5)
Neoplastic lesion –benign	
Pleomorphicadenoma	15 (71)
Warthins tumor	3 (14)
Neoplastic lesion–malignant	0
Total	21 (100)

A postoperative parotid swelling specimen was sent for histopathological examination. Out of 21 cases, 20% non-neoplastic lesion was found, 68% benign neoplastic lesion and 15% malignant neoplastic lesion were reported (Table 5).

Table 5: Histopathological diagnosis of salivary gland lesions.

Salivary gland lesions	No. of patients in our study (%)
Non-neoplastic lesion	
Chronic sialadenitis	2 (9.5)
Benign cysticlesion	0
Reactive lymphadenitis	1 (5)
Benign lymphoepithelial cyst	1 (5)
Neoplastic lesion–benign	
Pleomorphicadenoma	11 (52)
Warthins tumor	0
Basalcelladenoma	2 (9.5)
Schwannoma	1 (5)
Neoplastic lesion–malignant	
Low-grade mucoepidermoid carcinoma	2 (9.5)
Adenocarcinoma NOS type	1 (5)
Total	21 (100)

Among 11 cases pre-operative FNAC and post-operative histopathology were the same and 10 cases reports different.

Preservation of the posterior branch of GAN during parotid surgery

GAN preservation was determined by its objective feasibility and by the surgeon's preference; the risk of parotidectomy was explained to all patients, including those related to the sacrifice of GAN or one of its branches. We preserved the posterior branch of GAN in 19/21 (90%) patients. We did not take into account the preservation of the anterior branch of GAN because generally during skin flap elevation it is necessary to divide it. In 2/21 (10%) patients GAN was sacrificed **(**Figure 2).

Figure 2: Great auricular nerve.

Preservation of facial nerve and its branches

We had to identify the facial nerve by a divergent technique by following landmarks (Figure 3).

Digastric muscle- the nerve is immediately superior to the posterior belly of the digastric. Tragal pointer- the facial nerve trunk is commonly found 1 cm inferior and 1 cm deep to the tragal pointer.

Careful blunt dissection immediately on the epineurium of the nerve with slow advancement and spreading action had been done. The same had been followed till identify all branches.

Anatomical integrity of the facial nerve with its all branches had been maintained in 19 (90%) cases, in 17 cases of superficial parotidectomy and 2 cases of total parotidectomy. In 1 case upper buccal branch could not be saved and in 1 case marginal branch was sacrificed.

In the postoperative period in which we preserved anatomical integrity, we had seen 3 cases of grade III (House Brackmann) facial palsy and 2 cases of grade IV (House Brackmann) facial palsy, which was recovered in 4 cases in 1 month and 1 case in 3 months with injectable followed by oral steroid and facial physiotherapy.

Figure 3: Facial nerve and its branches.
Arrows 1st facial nerve main trunk, 2nd retromandibular vein.

DISCUSSION

In the present study, the sensitivity of FNAC is 100%, specificity is 75%, [positive predictive value is 94.45% and negative predictive value is 100%] whereas accuracy is 95.24%, compared with other authors.

Table 6: Comparison with other studies.

References	Cases	Sensitivity (%)	Specificity (%)	Accuracy (%)
Cajulisetal[4]	151	95.4	91	96
Boccatoetal[5]	841	98	98	97
Stewartetal[6]	341	92	100	98
Present study	21	100	75	95

Among benign tumors, pleomorphic adenoma was the most common and which is consistent with the literature. Being benign it is easily removable with a good prognosis. In our study, we found that FNAC and HPE were the same in 11 cases.

The result of FNAC varies according to the examiner`s experience and diagnostic skill, a good understanding between an otolaryngologist and pathologist results in the outcome.[7]

In our study, we preserved the posterior branch of GAN in 19 (90%) cases.

In Christensen and Jacobsen`s opinion, the posterior branch could be preserved in 71% of patients.

Surgical excision is the mainstay of treatment either benign or malignant lesions of the parotid gland. According to national multidisciplinary guidelines published in 2016 from the United Kingdom, all benign tumors must undergo complete excision making every effort to preserve facial nerve.[8,9]

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(House Brackmann) facial palsy and 2 cases of grade IV (House Brackmann) facial palsy which was recovered in 4 cases in 1 month and 1 case in 3 months.

In this study, 19 (90%) cases show preservation of the Facial nerve with 2 cases in which involvement of one branch of the facial nerve was seen.

The most significant complication is facial nerve dysfunction which can appear as paralysis (complete loss of function) or paresis (partial loss).[10,11]

In the literature, the percentage of facial postoperative paralysis varies from 10% to 70% for transient involvement, and from 0 to 19% for definitive involvement.[12-18]

CONCLUSION

It seems that maximal GAN preservation when feasible may offer a better quality of life after surgery to the patient. Despite the high incidence of postoperative facial paresis, the prognosis is good due to preserved anatomical integrity.

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