



Original Article

Clinical Presentation and Surgical Outcome of Parotid Gland Tumors- Experience in ENT Department of Rajshahi Medical College Hospital

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Abstract

Objective: To assess the clinical presentation and outcome of surgical treatment of various parotid gland diseases requiring parotidectomy.

Setting & design: this was a retrospective study conducted of all patients who underwent different types of parotidectomy in the Department of ENT of Rajshahi Medical College Hospital between January, 2014 to December, 2017.

Materials & Methods: Patients presenting with parotid gland disorders requiring various range of parotidectomy admitted in ENT dept. RMCH were included in this study. The location of the tumor and diagnosis was confirmed in every case by advising ultrasound of the parotid region and/or computed tomography scan/MRI along with fine needle aspiration cytology of the swelling. Data regarding age, gender & histology, operative procedure and post-operative complications were meticulously entered in a previously prepared questionnaire for this purpose. Patients were followed up for about two years.

Results: Out of 68 patients, 37 (54.4 %) were male and 31 (45.6 %) were female with age ranging from 26 to 63 yrs. with a mean age of 39.5 years. All of them presented with painless parotid lump. 55 Fifty Five Patients (80.9%) had benign pathology while 13 patients (19.1%) had malignancy. Superficial parotidectomy was alone in 48 patients (70.6%), total parotidectomy in 18 (26.5%) patients and extended parotidectomy was performed in 2 cases (2.9%). The most common post-operative complication was numbness of ear lobule (gradually improving with time) in 8 patients (11.8 %), followed by transient facial nerve paresis in 7 patients (10.3%). There was no hospital mortality.

Conclusion: Parotid gland disorders affect each gender almost equally. Most of the patients present with benign pathology, superficial parotidectomy is the commonly offered surgical management. All parotid surgeries are safely performed in Department of ENT with minimum morbidity.

Key words: Parotid gland, pleomorphic adenoma, facial nerve, superficial parotidectomy.

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Introduction

The parotid gland is primarily a serous gland that is located high in the neck in the pre-auricular area extending towards the cheek. The extra-temporal facial nerve and its branches pass through the parotid gland and supply motor innervations to the muscles of facial expression.¹

The parotid gland is the most common site for salivary gland tumors. The majority of tumors arise in the superficial lobe and present as slowly growing masses below the ear, in front of the ear or sometimes in the upper aspect of the neck. Less commonly, they arise from accessory parotid tissue and then present as swelling in the cheek. Rarely tumors arise from the deep lobe and then present as parapharyngeal masses with a diffuse bulge in the soft palate & tonsillar region.² About 80% of salivary gland tumors occur in parotid gland. The annual incidence of parotid gland tumors is 1 in 1,00,000.³⁻⁴ In 80% of cases, it is pleomorphic adenoma while Warthin's tumors accounts for 10%. Among the malignancies, mucoepidermoid carcinoma is the most common followed by adenoid cystic carcinoma.³⁻⁵ The facial nerve traverses through the parotid gland, dividing into various branches and thus divides the parotid into a large superficial lobe and a smaller deep one. Positive identification and preservation of the facial nerve is essential for preventing inadvertent facial nerve injury.

The important pointers to the facial nerve are the mastoid process, the inferior portion of the cartilaginous canal and the tragal pointer, this is termed Conley's pointer and indicates the position of the facial nerve, which lies 1cm deep and inferior to its tip. The upper border of the posterior belly of the digastric muscle is another very important pointer. The main trunk of the facial nerve is located at a point where the mastoid process, the cartilaginous portion of the auditory canal and the superior belly of the digastric muscle meet.⁶ Neoplasms are the most common indication for parotidectomy. The vast majority of primary parotid tumors are benign, but approximately 20% are found to be malignant. In addition, regional and distant disease can metastasize to the parotid and necessitate removal for diagnosis or cure.

Inflammatory process (e.g. chronic parotitis, deep salivary calculi, or parotid abscess) are occasionally treated with total parotidectomy. Sialorrhoea is rarely treated with parotidectomy.

Fine needle aspiration cytology is one of the most important investigations for parotid disorders. Ultrasonogram, CT scan, MRI are also important investigation for meticulous anatomical observation.

Superficial parotidectomy is the most common surgical procedure in parotid pathology. Total parotidectomy are done in some benign and malignant conditions, extended parotidectomy is done in a few malignant conditions.⁷⁻¹⁰ Important complications of parotid surgery are hematoma formation, flap necrosis, wound infection, temporary facial nerve weakness, the transaction of the nerve with permanent damage, sialocele formation, permanent numbness of the ear lobule due to transaction of the greater auricular nerve, Frey's syndrome, facial asymmetry and tumor recurrence.

The present study was conducted to assess the clinical presentation and surgical outcome of various parotid gland disorder that necessitated parotidectomy of ENT department of Rajshahi Medical College Hospital.

Materials and Methods

This was a retrospective study conducted of all patients who underwent various range of parotidectomy in ENT department, Rajshahi Medical College Hospital between January, 2014 and December, 2017.

The location of the tumor and diagnosis was confirmed in every case by ultrasound of the parotid region and/or CT scan, MRI along with FNAC of the swelling.

The operative procedure was designed according to the type and extent of the disorder. Superficial parotidectomy was performed for all benign tumors confined to the superficial lobe. Total parotidectomy was performed for benign tumor involving deep lobe and for malignant parotid tumor confined within the gland. Extended parotidectomy was performed for locally advanced

malignant tumors. In every case facial nerve was identified and all the branches were traced, no nerve conductor was available in the hospital. All surgeries were performed by us in ENT Operation Theater.

The profile of the patient, presenting, feature, benign/malignant nature of the disease, FNAC report, USG report, scan report, types of surgical procedure instituted, complication encountered and histopathology reports of surgical specimens were all recorded in a previously prepared form.

Results

A detailed study of 68 patients showed that 37 (54.4%) patients were male and 31 (45.6%) female, with age ranging from 26 to 63 years with a mean age of 39.5 year. The majority of the patients (66%) were in the third and fourth decades of life. The mean age in cases of malignant tumors was 46.7 years.

Swelling or lump in the parotid region constituted the most frequent presenting feature, found among all the patients. It was followed by facial palsy 4.4% (n=3) and ulceration over the lump 1.5% (n=1) cases. 80.9% (n=55) patients had benign pathology while 19.1% (n=13) had malignancies. The deep lobe was involved in 7.35% (n=5) cases, while 8.8% (n=6) cases were recurrent. Table-1 shows histopathological variations of the study-

Table-1: Histopathological diagnosis among the patients (N=68)

Diagnosis	Number of the Pt.	Percentage
Pleomorphic adenoma	48	70.6%
Mucoepidermoid Carcinoma	5	8.8%
Warthin's Tumour	3	4.4%
Adenoid cystic carcinoma	4	5.9%
Monomorphic adenoma	2	2.9%
Carcinoma ex-pleomorphic adenoma	3	4.4%
Chronic sialadenitis	1	1.5%
Haemangioma	1	1.5%

The most common surgical procedure performed was superficial parotidectomy in 70.06% (n=48) patients, total parotidectomy was done in 26.5% (n=18) patients and extend parotidectomy was

done in 2.9% (n=2) cases. Table 2 shows different operative procedure in benign & malignant parotid disorders.

Table 2: Different operative procedure in benign and malignant parotid disease

Type of parotid disease	Type of surgical procedure	Number (Percentage)
A. Benign disease	Superficial parotidectomy	48 (70.6%)
	Total	7 (10.3%)
	Parotidectomy (in both superficial & deep lobe involved)	
B. Malignant disease	Total	11 (16.2%)
	Parotidectomy	
	Extended parotidectomy	2 (2.9%)

In postoperative two years follow-up we found greater auricular nerve paresis in 11.8% (n=8) patients, transient facial nerve palsy in 10.3% (n=7) patients, facial palsy in 1.45% (n=1) patient. In 3 cases (4.4%) facial nerve was deliberately sacrificed due to its involvement by the tumor.

Table 3: Table to calculate diagnostic accuracy of FNAC for diagnosing malignancy in parotid gland (n=68)

Histopathology	FNAC		Total
	Positive for malignancy	Negative for malignancy	
Positive for malignancy	12	1	13
Negative for malignancy	1	54	55
Total	13	55	68

Sensitivity = 92.3%

Specificity = 98.18%

Positive predictive value = 92.3%

Negative predictive value = 98.18%

Diagnostic accuracy = 97.05%

The value of FNAC as a diagnostic tool was also assessed and was found to have 98.18% specificity and 92.3% sensitivity. The overall diagnostic accuracy was 97.05% (table-3)

Discussion

Parotid gland tumors comprise a morphologically diverse group of tumors. Their multifaceted clinical presentation, varied morphological configuration and relatively unpredictable prognosis attract significant medical interest. This series focused on parotid gland disorders which is the commonest site for diseases among the salivary glands. It is involved by rarity of different benign and malignant conditions for which a wide range of surgical procedures are available.^{10, 12-14}



Fig: Parotid tumours preoperative and per-operative view showing branches of the facial nerve.

Patients usually present with a painless, slow growing mass. The duration of symptoms is variable. Although progression is slow, left untreated, the tumor can cause significant morbidity & rarely, death. Involvement of the facial nerve at initial presentation almost always indicates malignancy. The likelihood of malignant transformation increases with the duration of the lesion.¹⁵ Very rarely these tumors can metastasize.¹⁶

In our study, the mean age of parotid disorder was 39.5 years confirming to several published studies.^{14, 17-19} However, several western studies reported these disorders to be more common in relatively advanced age group.^{3,4} In this study, there was male predominance (54.4%). Several published studies have reported similar more frequent involvement of male than female.¹⁷ Some published studies shows female predominance.^{15, 18, 19}

In this study, pleomorphic adenoma constituted the commonest pathology affecting the parotid gland (70.6%). Most of the published literature has reported pleomorphic adenoma to be the commonest pathology affecting the parotid gland.^{14, 17-21}

In our study, incidence of malignant disease was 19.1%. Different studies have reported variable percentage of malignancies in their patient, Kera et al, have reported 24% malignancies in parotid gland disorder.¹⁵ Takahoma et al. have reported even higher frequency of malignancies at 40%.³ In this series the commonest malignant tumors was mucoepidermoid carcinoma followed by adenoid cystic carcinoma. These findings confirm to what is reported by most of the published literature.²²⁻²⁵ In this study, FNAC was found to be very useful for cytological diagnosis having 98.18% specificity & 92.3% sensitivity. These findings confirm to what is reported by Awan et al and Hartimath et al. who have reported similar diagnostic accuracy of FNAC in parotid gland tumors.^{26,27} Superficial parotidectomy was alone in all our benign parotid disease involving superficial lobe as advocated by many authors.²⁸⁻³¹ Benign parotid disease involving deep lobe and malignant parotid disease were treated with total parotidectomy preserving facial nerve.

In this study, facial nerve transient paresis occurred in 10.3% cases while 1.45% cases had facial nerve palsy. These finding conforms to most of the reported studies, however, some studies have reported as high frequency as 39% of these complications.^{15,32,33}

Conclusion

Relatively young individuals of both genders are affected by parotid gland tumor that needs surgical management. Majority of the patients present as a painless lump in parotid region, most of them have benign pathology, while a small percentage have malignancy. Superficial parotidectomy is the most commonly offered surgical procedure. Parotid surgeries are safely performed in ENT department with minimum morbidity.

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