

A REVIEW OF 27 PATIENTS TREATED WITH PAROTIDECTOMY AT AL-YARMOUK TEACHING HOSPITAL



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Abstract

Background

Parotid gland tumors are the majority of tumors which arise in the salivary glands. Recommended treatment for parotid pathologies is surgical excision. Injury of the facial nerve is the most common complication encountered after parotid surgery.

Objective

Analyzing the clinical presentations, histopathology and complications following parotid surgery.

Methods

Patient's documents were reviewed for those underwent parotidectomy between September 2006 to June 2012. Diagnosis and surgical procedure were standardized in all cases. All patients were monitored thoroughly specially for facial nerve injury and they were followed up for six months.

Results

27 patients underwent Parotidectomy with a mean age of 51 years, with male to female ratio 2.8:1. There were two false negative (FN) and one false positive (FP) reported cases by fine needle aspiration cytology (FNAC) with sensitivity of 50% and a specificity of 95.65%. Pleomorphic adenoma was the commonest benign pathology (55.56%). Postoperative facial nerve injury encountered in (37.04 %). 80% of cases were completely recovered in 6 months.

Conclusion

FNAC should be performed in all patients but regarded only as a helpful investigation for management. And the risk of facial nerve palsy is related to the type, size and extend of the tumour and radicality of the resection done.

Key words: *Parotid tumours, fine needle aspiration cytology, facial nerve injury.*

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INTRODUCTION

Parotid gland is one of the major salivary glands located on the lateral aspect of the face⁽¹⁾. Neoplasms of the Parotid gland represent a wide spectrum and a big group of tumours of the neck and head region⁽²⁾. About 2% of all neck and head tumours are located in the salivary glands. Approximately 85% of these are found in parotid gland. The majority of parotid tumours are benign (70%), mostly affected by pleomorphic adenoma, which shows varying incidence between 60.6% and 76.2% in regards to other parotid tumors⁽³⁾. The main cornerstone of treatment of malignant and benign lesions of the parotid gland is parotidectomy⁽⁴⁾. The terminal branches of the facial nerve are in intimate contact to the parotid gland identification. Protection and preservation of facial nerve is the basics for any successful parotid surgery⁽⁵⁾. Identification of the nerve trunk may be so difficult even in the hands of an experienced surgeon, especially when operates on large tumors, obese patients or during revision surgery⁽⁶⁾. The anti-grade approach is a good conventional technique for identification and dissection of the facial nerve⁽⁷⁾. It is usually regarded as the standard procedure for all levels of experience⁽⁸⁾. A higher risk of injury reported in retrograde technique⁽⁵⁾. Mandatory preservation of the facial nerve is performed when benign tumors and inflammatory conditions of the parotid gland are found, as involvement of the facial nerve is rarely happens⁽³⁾. However; malignant parotid tumor may invade the facial nerve, which can lead to weakness or facial nerve paralysis even before surgical intervention have been conducted⁽⁴⁾. The aim of the study was to analyze the clinical presentations, histopathology and complications following parotid surgery .

MATERIAL AND METHODS

Patient's documents were reviewed for those underwent parotidectomy between September 2006 and June 2012 at Al-Yarmouk Teaching Hospital. Diagnosis and surgical procedure were standardized in all cases. All patients were monitored thoroughly specially for facial nerve injury and they were followed up for six months. Preoperative evaluation included thorough medical examination, FNAC, computed tomography (CT) and/or Magnetic Resonance (MRI) for all patients. Skin incision and flap were standardized in all cases. An incision was made which starts in the preauricular

area and curved behind the ear lobe to the mastoid process and then carried out in about 5 cm below the mandible away from marginal mandibular branch of facial nerve. Two methods of identification of facial nerve were used during the operation, depending on how difficult it was the identification of the nerve trunk and its branches. The first method was standard anti-grade technique which involved identification of the facial nerve trunk as it leaves the stylomastoid foramen. This is accomplished through identification of the nerve trunk via its relationship with the tympanomastoid suture and the posterior belly of the digastrics. The second method was retro-grade approach which involved identification of the peripheral branches of the facial nerve, using soft tissue landmarks with the aid of the facial nerve stimulator. Dissection of parotid tissue at a plane superficial to the facial nerve trunk and its branches were then carefully performed using mosquito artery forceps. Postoperative complications including facial nerve dysfunction associated with parotidectomy were studied. Follow up was done weekly for those patients who developed facial nerve dysfunction for up to 6 months. Permanent palsy was considered if dysfunction remains (clinically and by postoperative electroneurographic facial nerve monitoring) more than 6 months.

RESULTS

A total of 27 patients underwent parotidectomy with their ages ranged between (35-60) years with a mean age of 51 years, 20 males (74.07%) and 7 females (25.93%) with a ratio of 2.8:1. All patients presented with palpable mass in the parotid region and only one had also pain. Most of the tumors were in right side of the face (18 patient which made 66.66%). FNA cytology was the mean cornerstone in pre-operative diagnosis with 2 false negative and 1 false positive with the sensitivity of 50% and specificity of 95.65%. Based on the CT scan and/or MRI findings, the type of operation was decided. As a results 25 patients have superficial parotidectomy, 2 patient have total parotidectomy (Table 1).

Histopathological results show 23 benign pathologies with a mean age of 49.9 years. Of these pleomorphic adenoma was found in 15 patients (55.56%), Warthin's tumour in 3 patients (11.11%) and 2 patients proved to have inflammatory lesions (7.41%). In the remaining cases one showed recurrent pleomorphic adenoma (3.7%), one hemangioma

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(3.7%) and one monomorphic adenoma (3.7%). Malignant pathologies found in 4 cases (14.82%) with a mean age of 57 years. Half of the cases were mucoepidermoid carcinoma (7.41%). Adenoid cystic

carcinoma and acinic cell carcinoma represent the other half (7.41%) as shown in (Table 2).

Table 1. Patients' Demographic, Clinical and Operative.

Patients	Male	Female	Total
Number	20	7	27
Age (mean)	54	43	51
Side of tumour (left/right)	7\13	2\5	9\18
Histopathology (benign/malignant)	17\3	6\1	23\4
FNAC (benign/malignant)	18\2	6\1	24\3
FNA (TN\FN-TP\FP)*	16\2-1\1	6\0-1\0	22\2-2\1
Parotidectomy (superficial/total)	18\2	7\0	25\2

*TN (true negative), FN (false negative), TP (true positive), FP (false positive).

Table 2. Histopathological Diagnosis with Mean Age and Gender.

Type	N=27		Mean age	Male : female
	no.	%		
Benign	23	85.18	49.9	17:6
Pleomorphic adenoma	15	55.56	47.3	12:3
Warthin's tumour	3	11.11	59.6	2:1
Recurrent pleomorphic adenoma	1	3.70	60	0:1
Hemangioma	1	3.70	46	1:0
Monomorphic adenoma	1	3.70	51	1:0
Inflammatory lesions	2	7.41	51.5	1:1
Malignant	4	4.82	57	3:1
Mucoepidermoid carcinoma	2	7.41	59	2:0
Adenoid cystic carcinoma	1	3.70	60	0:1
Acinic cell carcinoma	1	3.70	50	1:0

Operative findings with MRI decided the type of operation. The most common type (85.18%) was superficial parotidectomy with facial nerve preservation for both benign and malignant. Two patients (one benign and one malignant) had partial facial nerve resection with anticipation of permanent facial nerve injury during the operation. No patient had total parotidectomy with partial facial nerve resection in this study (Table 3).

Postoperatively 10 patients had nerve injury (37.04%), in which 6 of them resolved within two weeks, 2 improved within 8 weeks and then completely

resolved within 6 months. Only 2 patients (7.40%) had permanent nerve defect as it persisted for more than 6 months in which both anticipated by the type of surgery done (superficial parotidectomy with partial facial nerve resection). The marginal branch involvement found in all patients whom had facial nerve injury, two of them associated with frontal nerve weakness also. The facial nerve injury noticed within the first 24 hours post operatively and treated with Post-operative massage of effected site with advising chewing gum and steroids (Table 4).

Table 3. Types of Parotidectomy.

Type	Benign N=23		Malignant N=4		Total N=27	
	No.	%	No.	%	No.	%
Superficial parotidectomy with facial nerve preservation.	21	77.78	2	7.41	23	85.18
Superficial parotidectomy with partial facial nerve resection.	1	3.70	1	3.70	2	7.41
Total parotidectomy with facial nerve preservation.	1	3.70	1	3.70	2	7.41
Total parotidectomy with partial facial nerve resection	0	0.00	0	0.00	0	0.00

Table 4. Complications of Parotid (Surgery change to operation).

Complications	N=27	
	No	%
Facial Nerve Palsy	10	37.04
Benign	7	25.93
Malignant	3	11.11
Permanent facial Palsy	2	7.41
Benign	1	3.7
Malignant	1	3.7
Transient facial Palsy	8	29.63
Benign	6	22.22
Malignant	2	7.41
Hematoma	1	3.7
Wound Infection	2	7.41
keloid	1	3.7
Frey's Syndrome	1	3.7

DISCUSSION

The mean age of presentation was 51 years and was comparable with other studies⁽⁹⁻¹¹⁾. Right side tumors were more common than the left side tumors, this was similar to a literature⁽¹²⁾. Male preponderance was reported, similar studies shows different predominance but most of them had a male predominance^(9,12). The correlation between the histopathological finding with clinical finding regarding the age, sex, presentation, and the size of the tumors were very difficult to discuss as almost all the studies show only the histopathological type of the tumor without details^(9, 13, 14, 15). FNAC was used in the diagnosis of these patients with a sensitivity of 50% and specificity of 95.65%, different studies had different values (27%-97% for sensitivity, 84% -100% for specificity) and all agreed on that. FNAC was useful in planning for surgery. However, most patients had operated upon using clinical judgment and FNAC was used as a helpful investigation for management and guidance only^(9,13). Benign tumours represented 85.18% of the pathologies, while; malignant tumours 14.82% of the pathologies. Most studies had similar percentages (80%-85% for benign, 16%-27% for malignant) with pleomorphic adenoma being the most common benign pathology and Warthin's tumour as 2nd most common, in all studies including the current work. Convergent percentages was be seen for benign tumors and similar number was noticed for the malignant tumors⁽¹³⁻¹⁵⁾. Major concerns of patients undergoing parotidectomy is facial nerve injury. Transient nerve weakness following parotidectomy is not uncommon; however, recovery is expected in most of the patients within six months after operation⁽¹⁶⁾. Temporary postoperative facial nerve weakness occurred in 8 cases (29.63%) in this study. While, reported incidence of temporary facial nerve injury varied between 18-27% with complete recovery in 6 months. In the other hand, permanent injury rate varied between 0 and 4%, observing that we had a slightly higher injury rate in our hospital (7.40%), This may be due to small sample of patients in this study⁽¹⁷⁻¹⁹⁾. The marginal branch of the facial nerve is the branch which is most at risk for injury during parotidectomy. This may be due to its length and the mobilization commences from below⁽¹³⁾.

In conclusion, NAC was compatible with the results of other centers. Therefore, FNAC should

be performed in all patients but regarded only as a helpful investigation for management. In parotid surgery, the risk of facial nerve palsy is related to the type, size and extend of the tumour and whether the resection done radicality or not.

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