# Salivary Gland Tumors – A Prospective Surgical Audit

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**A record of surgical treatment of salivary gland tumors is presented. Out of twenty four patients, 13(58%) were male and 11 (42%) female with a mean age of 27 years. Palpable lump was the commonest complaint observed in 16 (66.6%) patients followed by symptoms and signs of facial nerve palsy recorded in 4(16.6%) cases. Superficial parotidectomy was the most frequent procedure performed in 10(41.6%) patients while benign mixed and Warthin's tumor were the commonest histological lesion found in 7(29.1%) cases each. Temporary facial nerve palsy was noted in 4 (16.6%) patients while permanent facial nerve palsy was encountered in 2(8.3%) cases. The predictive value of FNAC in the preoperative diagnosis of salivary gland tumors (95%) is further substantiated in this study.**

**Key words: Salivary Glands, Parotidectomy, Facial Nerve Palsy**

Salivary gland tumors are uncommon and their epidemiology has not been well established. The histological classification, localisation and origin of such tumors in independent topographical areas or in the same tissue are diverse[1].

This is a prospective, non-randomized study designed to measure the incidence of salivary gland tumors in general surgical practice along with assessment of various surgical procedures in view of the resectability rates, complications and outcome. Superficial parotidectomy has become the preferred method of treating space-occupying lesions of the parotid gland over the past 25 years[2]. Despite meticulous dissection and identification of certain landmarks, the incidence of facial nerve palsy is recognizable and this aspect of parotid gland surgery still needs to be addressed.

## Patients and methods

This is a prospective study conducted at Surgical Unit I, Jinnah Hospital Lahore from August 1998 to February 2001. Parameters taken into consideration were age, sex, presenting complaints, outcome of various surgical procedures, morbidity and follow-up. Physical findings of all patients were recorded. In addition to baseline investigations, fine needle aspiration and cytology of the salivary gland lesions was done in all patients. All operations were performed under general anesthesia. Subtotal parotidectomy was defined as any procedure that is less than a superficial lobectomy and where less than a full facial nerve is dissected[3]. In superficial parotidectomies, excision of the mass together with a surrounding rim of normal parotid tissue was carried out[4]. Facial nerve was identified close to its exit at stylomastoid foramen and then dissected peripherally. All the specimen were subjected to histopathological examination. Suction drains were placed in all the wounds which were primarily closed. Facial nerve damage was assessed according to modification of Patey's classification in which grade III is a major weakness affecting all branches, grade II is moderate weakness affecting either eye or mouth and grade I b is minimal weakness at the angle of mouth[5]. All patients were reviewed in surgical out patients at three monthly interval.

## Results

A total of twenty four patients formed this study group. Thirteen patients (58%) were male and eleven (42%) female while mean age of presentation was 27 years (Figure I). Sixteen (66.6%) patients presented with a palpable lump in salivary gland followed by 4(16.6%) cases with symptoms and signs of facial nerve palsy (Table I). 17(70%) patients had parotid gland tumors, 4 (16.6%) submandibular and 3(12.5%) had minor salivary gland lesions. Various operations performed in this study are outlined in Table II.

FIGURE-I

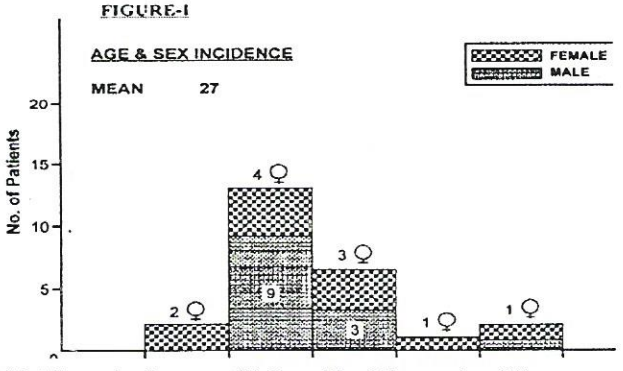


Table I Presenting Features of Salivary Gland Tumors (n = 24)

| Presenting Complaint | n = | %age |
|---|---|---|
| Palpable lump | 16 | 66.6 |
| Facial nerve palsy | 4 | 16.6 |
| Salivary fistula | 3 | 12.5 |
| Excruciating pain in the region of submandibular gland | 1 | 4.1 |

Table II Surgical Procedures For Salivary Gland Tumors (n = 24)

| Operations | n = | %age |
|---|---|---|
| Superficial parotidectomy | 10 | 41.6 |
| Subtotal parotidectory | 4 | 16.6 |
| Total parotidectomy | 3 | 12.5 |
| Excision of submandibular gland | 4 | 16.6 |
| Excision of minor salivary gland | 3 | 12.5 |

Benign mixed and Warthin's tumors were the most frequent histological lesions encountered in 58.2% (29.1% each) cases followed by adenocarcinoma of submandibular gland noted in 2 (8.3%) patients – Table III.

Table III. Diagnoses of Salivary Tumors (n = 24)

| Salivary Gland | Histological Diagnosis | n = | %age |
|---|---|---|---|
| Parotid 17 (70%) | Benign mixed | 7 | 29.1 |
| | Warthin's tumor | 7 | 29.1 |
| | Adenocarcinoma | 1 | 4.1 |
| | Lymphoma | 1 | 4.1 |
| | Monomorphic adenoma | 1 | 4.1 |
| Submandibular | Adenocarcinoma | 2 | 8.3 |
| 4(16.6%) | Adenoid cystic carcinoma | 1 | 4.1 |
| | Benign lymphoepithelial lesion | 1 | 4.1 |
| Minor Salivary | Benign mixed | 2 | 8.3 |
| Gland 3 (12.5%) | Lymphocytic | 1 | 4.1 |

Complications of all surgical procedures are presented in Table IV.

Table IV Complications of Salivary Gland Surgery (n = 24)

| Complication | n = | %age |
|---|---|---|
| Temporary facial nerve palsy | 4 | 16.6 |
| Permanent facial nerve palsy | 2 | 8.3 |
| Salivary fistula | 1 | 4.1 |
| Tumor recurrence | 3 | 12.5 |
| Skin flap necrosis | 1 | 4.1 |
| Frey's syndrome | 1 | 4.1 |
| Keloid | 1 | 4.1 |

Out of three patients with tumor recurrence, two had pleomorphic adenoma of the parotid gland which were excised completely at the second operation, while the remaining one had adenocarcinoma of submandibular gland treated subsequently with radiotherapy.

## Discussion

The propensity of pleomorphic adenoma of the parotid gland to recur is generally attributed to the biological nature of the tumor and surgery close to the capsule is perceived as undesirable[6]. The reported incidence of salivary gland tumors is described as 84.3% benign and 15.7% malignant lesions[7] while in this study it is 65.9% and 34.1% for benign and malignant tumors respectively. Benign mixed tumors occur more frequently in female patients whereas Warthin's and malignant tumors are found more frequently in male patients[8] though in the present study male and female patients were equally affected by these tumors. Despite great complexity of histological and cytological patterns of salivary gland tumors, FNAC has an established role in augmenting the diagnostic accuracy. The inadequacy rate as described by Cardilic MR is 10.3%[(9)] while Young et al[10] reported it as 17.7%. Bukland et al[11] has recommended ultrasound – guided cutting needle biopsy of the parotid masses particularly when FNAC had been inconclusive. The reported incidence of permanent facial nerve palsy varies between 0 to 17 percent[12,13,14,-15] (8.3% in this series). The published data of temporary facial nerve palsy rate is 11 – 82%[12,13,14,15] while it is 16.6% in the present study. It may be caused by nerve ischemia, fatigue from excessive stimulation, stretching or hematoma formation[4]. The effects of this complication are as distressing as a permanent palsy and needs social backup in addition to medical care. Thus in view of such debilitating complications, benign conditions of the parotid gland should be treated by more limited surgery which has a lower complication rate[16]. The reported incidence of Frey's syndrome varies between 2-43%[12,-13,14,15] (4.1% in this study). Although often dismissed lightly, the extent of the social incapacity ranges from regular mopping during eating to a virtually housebound existence.

In view of the complications, the surgical removal of a parotid tumor should be planned on the basis of pre-operative cytological diagnosis to enable surgery to be tailored appropriately and so reduce the complications of unnecessarily extensive procedures. This fact is substantiated in this study by performing subtotal parotidectomies based on the premises that adequate margins are necessary, that the procedure can be terminated when these margins are obtained and that the true margin is usually the tumor-to-nerve margin.

To conclude, salivary gland surgery needs selectivity, a conservative resection for benign lesions is adequate and the predictive value of FNAC (95%) augments diagnostic accuracy.

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