

## Original Research Article

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# A profile on parotid surgeries

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## ABSTRACT

**Background:** A study of the various parotid swellings that underwent surgery in a tertiary care hospital was conducted. Different parameters like preoperative investigations including fine needle aspiration cytology (FNAC) and radiological investigations, modified aesthetic incision, type of surgery and outcome following surgery were assessed.

**Methods:** This was a prospective institutional based study. A total of 19 cases of parotid swellings were considered. A new aesthetically acceptable incision was used in all patients. Post operatively, facial nerve and other complications were assessed. A comparison between FNAC diagnosis and histopathology diagnosis was made.

**Results:** The FNAC and histopathological examination results were same in 15 of the 19 cases considered. All patients were followed up for a period of 6 months and the post-operative scar was well accepted by all patients.

**Conclusions:** Pleomorphic adenoma, one of the most common causes of parotid swelling, is well diagnosed by FNAC. Ultrasonography is a useful tool to diagnose benign parotid tumours. The modified incision used gives an imperceptible scar post operatively.

**Keywords:** Parotidectomy, New incision, Histopathology, FNAC

## INTRODUCTION

Parotid tumour is the most common salivary gland tumour.<sup>1</sup> These tumours are mostly benign.

The most common complaint that brings a patient with a parotid tumour to the doctor is the cosmetically disturbing, visible lump below and in front of the ear. Malignant tumours of the parotid can mimic a benign tumour with slow rate of growth and sometimes a similar appearance.

Principles of parotid surgery now focus on preserving the disease-free tissue, approach the gland in a way so as to give the best cosmetic results without compromising on surgical exposure and to preserve the functions of facial nerve encountered during surgery.<sup>2</sup>

## Aims and objectives

The aims and objectives were to study the profile of cases of parotid swellings that underwent surgery in our institution between May 2017 to July 2019.

## METHODS

The study was commenced following the approval by institutional ethical committee. 19 patients who presented to our tertiary care hospital, McGann Teaching District Hospital, Shivamogga with parotid swellings and underwent surgery were considered in the study. It is a prospective institutional based study. Cases operated from May 2017 to July 2019 were included in the study.

### Inclusion criteria

All benign and malignant parotid tumours as confirmed by FNAC that presented to our hospital from May 2017 to July 2019

### Exclusion criteria

Inflammatory lesions of parotid and patients who were unfit for surgery were excluded.

There were a total of 12 female and 7 male patients. The youngest in this case series is aged 18 years and the oldest being 70 years.

Clinically, 15 patients were diagnosed to have a benign parotid tumour and 1 patient was diagnosed to have a malignant tumour. 3 parotid swellings were clinically diagnosed as parotid cysts.

All the patients underwent preoperative investigations including ultrasonography and fine needle aspiration cytology (FNAC). A computerized tomographic scan (CT scan) was requested in cases of suspected malignancy and involvement of deep lobe to know the exact extent of tumour.



**Figure 1: Gangadhara- Sridhara incision.**



**Figure 2: Exposure of facial nerve.**

Out of these patients, 14 patients underwent superficial parotidectomy, 2 patients underwent parotid cyst excision and 3 patients underwent total parotidectomy.

In our surgical series, an incision was put starting just anterior to the root of helix extending downwards along the free edge of tragus, running behind the lobule posteriorly towards occipital hairline (Gangadhara-Sridhara incision). This is a modification of all the previous incisions of parotid surgery. This incision was designed for cosmetic acceptability especially in young patients.<sup>3</sup>



**Figure 3: Post-operative scar-almost imperceptible.**

The incision gave a good exposure in all cases. The facial nerve was exposed well in all cases. It was preserved well in all cases except in one case where it had to be sacrificed due to tumour involvement. The specimens delivered out were sent for histopathological examination (HPE). The wound was closed in two layers. Finer sutures were used over the face and thicker sutures and staples were used posteriorly. Sutures were removed between the 10<sup>th</sup> to 13<sup>th</sup> post-operative days, depending on wound healing.

For statistical analysis, numerical data was entered in tables and calculated.

### RESULTS

The male-female distribution of cases is given in Table 1. The age wise distribution of the patients is given in Table 2. Preoperative clinical diagnosis of the patients were given in Table 3.

**Table 1: Male-female distribution of cases.**

Gender	No. of patients
<b>Males</b>	7
<b>Females</b>	12
<b>Total</b>	19

**Table 2: Age wise distribution of patients.**

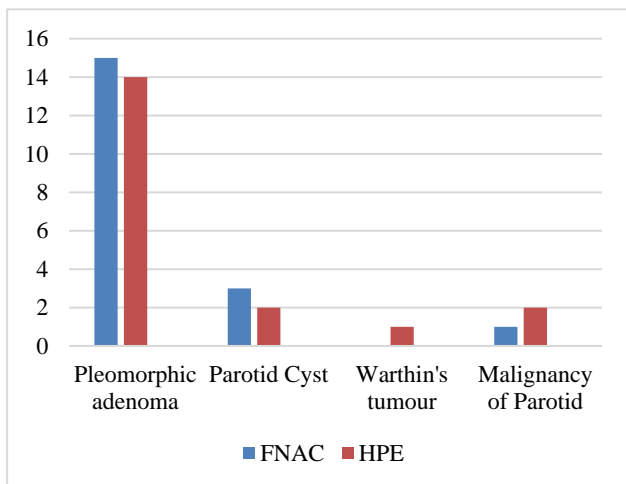
Age in years	No. of patients
10-20	2
20-30	5
30-40	3
40-50	5
50-60	2
>60	2

**Table 3: Preoperative clinical diagnosis.**

Preoperative clinical diagnosis	No. of patients
Benign tumour of the parotid	15
Parotid cyst	3
Malignancy of the parotid	1

During surgery, Gangadhara- Sridhara incision was used in all cases (Figure 1) and facial nerve was well exposed (Figure 2).

In our study, the FNAC and histopathological diagnosis were different in 4 out of 19 cases. One case of malignancy was missed in FNAC. The comparisons are given in Table 4 and Figure 4.

**Figure 4: FNAC and HPE diagnosis.**

Two of the 19 cases were found to be malignant and both these patients were females.

The ultrasonography was accurate in all but one patient, where a pleomorphic adenoma was misinterpreted as enlarged lymph node.

The facial nerve was involved by the tumour in one patient and had to be sacrificed. In rest of the cases, the nerve was preserved. 3 patients showed paresis of marginal mandibular nerve post-surgery which improved with physiotherapy.

The final HPE diagnosis is depicted in Table 5. All the patients were followed up for a period of 6 months. The

scar was almost imperceptible at the end of 6 months period (Figure 3). Thus, the new incision gave a satisfactory scar that was accepted even by young patients.

**Table 4: Comparison of FNAC and HPE diagnosis.**

S. no.	Age (years)/ sex	FNAC diagnosis	Histopathology diagnosis
1	18/M	Pleomorphic adenoma	Pleomorphic adenoma
2	38/M	Pleomorphic adenoma	Pleomorphic adenoma
3	48/M	Pleomorphic adenoma	Pleomorphic adenoma
4	42/F	Mucous retention cyst	Mucoepidermoid Carcinoma
5	54/F	Pleomorphic adenoma	Pleomorphic adenoma
6	47/F	Pleomorphic adenoma	Pleomorphic adenoma
7	45/F	Pleomorphic adenoma	Warthin's tumour
8	19/M	Pleomorphic adenoma	Pleomorphic adenoma
9	55/F	Benign cystic lesion of parotid	Pleomorphic adenoma
10	22/F	Pleomorphic adenoma	Pleomorphic adenoma
11	30Y/F	Benign tumour arising from accessory salivary gland	Parotid epidermal cyst
12	27/M	Pleomorphic adenoma	Pleomorphic adenoma
13	25/M	Pleomorphic adenoma	Pleomorphic adenoma
14	42/M	Pleomorphic adenoma	Pleomorphic adenoma
15	28/F	Pleomorphic adenoma	Pleomorphic adenoma
16	70/F	Parotid epidermal cyst	Parotid cyst
17	27/F	Pleomorphic adenoma	Pleomorphic adenoma
18	36/F	Pleomorphic adenoma	Pleomorphic adenoma
19	62/F	Mucoepidermoid carcinoma	Squamous cell carcinoma

**Table 5: Final HPE diagnosis.**

HPE diagnosis	No. of patients
Pleomorphic adenoma	14
Parotid cyst	2
Warthin's tumour	1
Mucoepidermoid carcinoma	1
Squamous cell carcinoma	1

No patient had any significant complications in the post-operative period.

## DISCUSSION

In a study conducted by Gudmundsson et al, over a period of 10 years, 126 parotid masses were resected and retrospective chart reviews of 114 patients were performed. The results of FNAC and final histopathological diagnosis was compared. Overall accuracy of detecting parotid mass was 95%. The final histological evaluation in the study revealed 11 malignant tumours and 103 benign parotid tumours. The most common neoplasm was found to be pleomorphic adenoma.<sup>5</sup>

According to a review article done by Lee et al, the role of imaging in salivary gland tumours is to define intra-glandular vs. extra-glandular location, detect malignant features, assess local extension and invasion, detect nodal metastasis and systemic involvement. It is mentioned that ultrasound is an ideal tool for lesions in superficial parotid. If deep tissue extension is suspected or malignancy confirmed on cytology, an MRI or CT is mandatory to evaluate tumour extent, local invasion and perineural spread.<sup>6</sup>

In an article by Thielker et al titled contemporary management of benign and malignant parotid tumours, it has been mentioned that a tendency of more limited resections for benign parotid tumours is developing over the last two decades. When deciding on the extent of surgery for benign parotid tumours, the main factors to be considered are location of the tumour, size of the tumour, and the histological phenotype.<sup>7</sup>

In a study by Bron et al, between 1987 and 1995, 248 patients underwent 259 parotidectomies. The facial nerve was intentionally sacrificed in 28 operations. In patients who had normal functioning of the facial nerve prior to the surgery, the incidence of initial post-operative facial nerve weakness was 29%, this was more so with deep tumours and malignancies, the recovery of normal facial movements occurred within 6 months in 46 of the 67 patients who had developed initial weakness.<sup>8</sup>

In our study, 16 out of the 19 patients were accurately diagnosed by FNAC. Only one case had permanent facial nerve palsy post-surgery secondary to nerve sacrifice during surgery. The final histopathological study revealed 17 benign lesions and 2 parotid malignancies. A new aesthetic incision (Gangadhara-Sridhara incision) was well appreciated by all patients in terms of imperceptible post-operative scar.

## CONCLUSION

Pleomorphic adenoma is the most common parotid swelling which in most cases, is accurately diagnosed by

FNAC. Imaging techniques like ultrasonography and CT scan are useful adjuvant tools in the evaluation of parotid tumours. Superficial parotidectomy is the most common parotid surgery and total parotidectomy is reserved for malignant cases and for benign tumours with deep lobe involvement. The new modified aesthetic incision is a novelty in terms of imperceptible post-operative scar with good patient satisfaction. It does not compromise facial nerve dissection and tumour exposure.

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