

## Clinical profile of patients with benign parotid disease at a tertiary care hospital

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### Abstract

The analogue of the parotid gland is the first gland to form in humans. Lesions of the parotid gland are fairly easy to recognize mainly because of the location and limited number of structures present here. Tumors of parotid gland are believed to represent approximately 2% of head and neck tumors. Parotid gland tumors account for 70- 80% of all tumors of salivary glands. Patients visiting to surgery department with parotid swelling were subjected to careful history taking, complete clinical examination, and examination of facial nerve integrity. Clinical diagnosis made was confirmed with USG (ultra sonography) parotid and FNAC (fine needle aspiration cytology). 14(70%) patients in antegrade group vs. 13(76.47%) patients in retrograde group had pleomorphic adenoma, 5 (25%) patients in antegrade group vs. 2 (11.76%) patients in retrograde group had Warthin's Tumor, 1(5%) patients in antegrade group vs. 2 (11.76%) patients in retrograde group had Recurrent Pleomorphic Adenoma.

**Keywords:** Benign Parotid Disease, pleomorphic adenoma, FNAC

### Introduction

The parotid gland is the largest of the major salivary gland. The parotid gland is an irregular wedge shaped organ that envelops the post border of ascending ramus of mandible. On its superficial surface extends medially to cover a portion of the masseter muscle. The body of the gland fills the space between the mandible and surface bounded by external auditory meatus and the mastoid process<sup>[1]</sup>.

The facial nerve passes through the parotid gland tissue dividing the gland into superficial and deep lobe, which are not distinct structures. Superficial to the facial nerve comprises 80% of gland and deep lobe (deep to facial nerve) makes up 20% of parotid tissue<sup>[2]</sup>. The facial nerve enters the posterior surface of the gland approximately 1 cm after exiting the skull. It is superficial to the external carotid A and post facial vein. The nerve branches into an upper temporofacial division, which take vertical course, and a lower cervicofacial division, which is a transverse continuation of the main trunk<sup>[3]</sup>. The point of branching is called pes anserinus. From the pes, the nerve branches into 5 branches: Temporal, Zygomatic, Buccal, Mandibular and Cervical<sup>[4]</sup>.

The analogue of the parotid gland is the first gland to form in humans. Lesions of the parotid gland are fairly easy to recognize mainly because of the location and limited number of structures present here. Tumors of parotid gland are believed to represent approximately 2%

of head and neck tumors. Parotid gland tumors account for 70-80% of all tumors of salivary glands. Approximately 80% of parotid tumors are benign and 80% of benign tumors are pleomorphic adenomas and 80% arise from superficial lobe of parotid gland. Less commonly tumor may arise from accessory parotid gland and present as swelling in cheek rarely tumor may arise from deep lobe of parotid gland and present as parapharyngeal mass<sup>[5, 6]</sup>.

## Methodology

**Study population:** Consisted of 37 patients who were admitted for parotidectomy surgery for benign disease. Using either antegrade or retrograde technique. Antegrade group consisted of 20 patients and retrograde group 17 patients.

All the patients were not operated by single surgeon, Intra operative monitoring of facial nerve was not used.

**Sample size:** Study consisted of sample size of 37 patients.

## Study design:

Study was non-randomized trial (quasi-experimental design)

## Mode of selection of cases

The cases were selected from patients visiting the surgical department with benign parotid disease.

## Inclusion criteria

- Patients undergoing parotidectomy for benign parotid disease.
- Patients having normal facial nerve integrity.

## Exclusion criteria

- Parotid neoplasm with facial nerve involvement pre operatively.
- Parotid neoplasm diagnosed as malignant
- Pediatric patients (less than 12 years).
- Patients unfit for surgery.

Patients visiting to surgery department with parotid swelling were subjected to careful history taking, complete clinical examination, and examination of facial nerve integrity. Clinical diagnosis made was confirmed with USG (ultra sonography) parotid and FNAC (fine needle aspiration cytology). FNAC tissue diagnosis was recorded, pleomorphic adenoma, warthins tumor, neurofibroma.

During the study period of 20 month 37 patients with benign parotid disease who underwent surgery were included in study group.

Based on the surgeon expertise and familiarity with the technique of facial nerve dissection 17 patients underwent retrograde dissection of facial nerve for parotidectomy and was

grouped as retrograde group.

In retrograde group, surgeons with a good experience of retrograde technique performed all surgery.

20 patients underwent antegrade dissection of facial nerve for parotidectomy and were

grouped under antegrade group. Majority of surgeon used routinely antegrade technique. In both the techniques facial nerve monitoring was not used.

## Results

**Table 1:** Distribution according to age of the patients who undergone surgery in antegrade and retrograde technique

Age (years)	Antegrade group No. (%)	Retrograde group No. (%)
< 20	1 (5%)	0
20 – 29	0	1 (5.8%)
30 – 39	8 (40%)	6 (35.29%)
40 – 49	3 (15%)	2 (11.76%)
50 – 59	7 (35%)	4 (23.52%)
60 & above	1 (5%)	4 (23.52%)
Total	20 (100%)	17 (100%)
Mean S.D	43.80	47.00
Median	11.67	13.94
	42.50	46.00

1(5%) patient in antegrade group vs. none in retrograde group belonged to age group < 20years, None in antegrade group vs. 1(5.8%) patient in retrograde group belonged to 20-29 years age group, 8(40%)patients in antegrade group vs. 6(35.29%)patients in retrograde group belonged to 30-39 years age group, 3 (15%)Patients in antegrade group vs.2(11.76%) patients in retrograde group belonged to 40-49 years age group, 7(35%) Patients in antegrade group vs.4(23.52%)patients in retrograde group belonged to 50-59 years age group, 1(5%)Patients in antegrade group vs.4(23.52%)patients in retrograde group belonged to 60and above year's age group,

Most common age group affected in both group was 30-39 years age group.

It is observed that Mean age  $\pm$  SD for Antegrade group was  $43.80 \pm 11.67$  years and that for retrograde group was  $47.00 \pm 13.94$  years.

We Applied t-test for comparing average age between Antegrade and Retrograde group, Nevertheless, this marginal difference in the Mean age between the two groups were found Statistically not significant  $t = -0.76$   $p = 0.452$ . Table 1 can be depicted graphically as follows

**Table 2:** Distribution of patients according to Gender

Gender	Antegrade group No. (%)	Retrograde group No. (%)
Male	10 (50%)	8 (47.05%)
Female	10 (50%)	9 (52.94%)
Total	20 (100%)	17 (100%)
$X^2 = 0.03, p = 0.86$ (NS)		

## Ns-not significant

In the study 10(50%) patients in antegrade group vs. 8(47.05%) patients in retrograde group were male, 10(50%) patients in antegrade group vs. 9(52.94%) patients in retrograde group were female,

Tested the significance of difference of the sex ratio between two groups by using chi-square

testp=0.86 and was not statistically significant, showing that no significant difference in male to female ratio between groups.

**Table 3:** Distribution of patients according to Clinical Diagnosis

Clinical diagnosis	Antegrade groupNo. (%)	Retrograde groupNo. (%)
Pleomorphic Adenoma	14 (70%)	13 (76.47%)
Warthin'sTumor	5 (25%)	2 (11.76%)
Recurrent Pleomorphic Adenoma	1 (5%)	2 (11.76%)
Total	20 (100%)	17 (100%)

14(70%) patients in antegrade group vs. 13(76.47%) patients in retrograde group had pleomorphic adenoma, 5 (25%) patients in antegrade group vs.2 (11.76%) patients in retrograde group had Warthin'sTumor,1 (5%) patients in antegrade group vs.2 (11.76%) patients in retrograde group had Recurrent Pleomorphic Adenoma.

Because of insufficient number in the cells we could not do a test of significance and the proper test which was to be applied was chi-square test. It seems that not much difference exist between the groups in various clinical diagnosis.

**Table 4:** Distribution of patients according to type of surgery done

Type of surgery	Antegrade groupNo. (%)	Retrograde groupNo. (%)
Superficial Parotidectomy	10 (50%)	7 (41.17%)
Total conservative Parotidectomy	10 (50%)	10 (58.82%)
Total	20 (100%)	17 (100%)
$X^2=0.29, p=0.59$ (NS)		

10(50%) patients in antegrade group vs. 7(41.17%) patients in retrograde group underwent superficial parotidectomy, 10(50%) patients in antegrade group vs. 10 (58.82%) patients in retrograde group underwent Total conservative Parotidectomy,

We tested difference between the groups in type of surgery done by using chi-square test and it was not statistically significant p=0.59.

In our study most common surgery done was total conservative parotidectomy 20/37 vs. superficial parotidectomy 17/37. Reason for doing total conservative parotidectomy is to decrease the recurrence rate which is most frequent with pleomorphic adenoma, and the second surgery involves increase risk of facial nerve injury.

Success rate of identifying facial nerve and branches in both the techniques were 100%, but we observed that in recurrent pleomorphic adenoma which included 1 case in antegrade group and 2 cases in retrograde group, technical ease was seen in retrograde group than antegrade group may be because these were previously operated using antegrade technique making the dissection of trunk (antegrade technique) difficult in present scenario but not failure. We managed to dissect the facial nerve and branches in all cases of antegrade group without conversion to other technique or using combined (antegrade and retrograde) technique, same was the situation with retrograde dissection.

Hence the success rate of facial nerve and its branches dissection was 100% in both the above techniques.

## Discussion

Two basic techniques are used for facial nerve dissection in parotid surgery. Antegrade dissection is the more widely used technique, and retrograde technique used by many surgeons with special interest in this technique with satisfactory results.

Study consisted of 37 patients who visited to cosmopolitan hospital, RCC (regional cancer centre) for parotidectomy with benign parotid disease, Antegrade group consisted of 20 patients (10 male and 10 female), Retrograde group consisted of 17 patients (8 male and 9 female).

It is observed in the study that Mean age  $\pm$ SD for antegrade group was  $43.80 \pm 11.67$  years and that for retrograde group was  $47.00 \pm 13.94$  years.

Most common preoperative clinical diagnosis in our study was pleomorphic adenoma 72.97% (27/37) followed by warthins tumor 18.91% (7/37). This is similar to study conducted by Muhammad İsa Kara *et al.* (2010)<sup>7</sup> where 64% (80/125) had pleomorphic adenoma and 5% (6/125) had warthins tumor. Pablo Augustine Vargas *et al.* (2002)<sup>8</sup> had 67.74% (84/124) of patients had pleomorphic adenoma and 10.48% (13/124) had warthins tumor. Rahman *et al.*<sup>9</sup> study showed the most common benign parotid tumor was pleomorphic adenoma (84%) followed by Warthins tumor (10%). Preoperative clinical diagnosis was confirmed using FNAC (fine needle aspiration cytology).

In antegrade group 10 (50%) patients underwent superficial parotidectomy, 10 (50%) underwent total conservative parotidectomy. In retrograde technique 7 (41.17%) patients underwent superficial parotidectomy, 10 (58.82%) underwent total conservative parotidectomy. Total conservative parotidectomy being the more commonly practiced due to high incidence of recurrence for pleomorphic adenoma and second surgery in recurrence carries significantly high risk of facial nerve morbidity<sup>[10]</sup>.

### Conclusion

Benign parotid disease was common in age group 30-39 years. Pleomorphic adenoma was most common benign parotid disease followed by warthins tumor.

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