

Research Article

FUNCTIONAL OUTCOMES FOLLOWING SELECTIVE PAROTIDECTOMY IN BENIGN PAROTID TUMOURS: A RETROSPECTIVE STUDY OF 30 PATIENTS

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Abstract: **Introduction:** Benign parotid tumours constitute the majority of salivary gland neoplasms, with pleomorphic adenoma being the most common histological subtype. Surgical excision remains the standard treatment, and selective parotidectomy has emerged as a gland-preserving technique that aims to achieve complete tumour removal while minimizing facial nerve dysfunction, postoperative complications, and cosmetic deformity. Assessment of postoperative functional outcomes is essential for evaluating the effectiveness and safety of this surgical approach. **Aim:** To evaluate the functional outcomes following selective parotidectomy in patients with benign parotid tumours treated at a tertiary care teaching hospital. **Objectives:** 1.To study the demographic characteristics, clinicopathological profile, and histopathological spectrum of benign parotid tumours managed by selective parotidectomy. 2.To evaluate postoperative functional outcomes including facial nerve function, postoperative complications, recurrence, cosmetic satisfaction, and overall surgical outcome following selective parotidectomy. **Materials and Methods:** A hospital-based retrospective observational study was conducted among 30 patients with histopathologically confirmed benign parotid tumours who underwent selective parotidectomy over a five-year period at a tertiary care teaching hospital. Demographic characteristics, tumour profile, operative details, facial nerve function, postoperative complications, cosmetic outcomes, recurrence, and duration of hospital stay were collected from medical records and follow-up data. Statistical analysis was performed using SPSS version 26.0. **Results:** The mean age of patients was 45.7 ± 11.6 years, with the majority (33.3%) belonging to the 41–50-year age group. Females constituted 63.3% of the study population. Pleomorphic adenoma was the most common tumour (73.3%), followed by Warthin tumour (16.7%). Immediate postoperative normal facial nerve function (House–Brackmann Grade I) was observed in 80% of patients, while 96.7% achieved complete recovery during follow-up. Patients with tumours larger than 3 cm had significantly higher rates of transient facial weakness and postoperative complications ($p < 0.05$). Excellent cosmetic satisfaction was achieved in 80% of patients, tumour recurrence occurred in only 3.3%, and the overall successful functional outcome rate was 96.7%. **Conclusion:** Selective parotidectomy is a safe, effective, and function-preserving surgical procedure for benign parotid tumours. It provides excellent facial nerve preservation, minimal postoperative morbidity, superior cosmetic outcomes, and a very low recurrence rate. Larger tumour size was associated with increased postoperative functional impairment, emphasizing the importance of careful surgical planning and meticulous facial nerve preservation. The findings of the present study support selective parotidectomy as the preferred surgical approach for appropriately selected benign parotid tumours in tertiary care centres.

Keywords: Selective parotidectomy; Benign parotid tumour; Pleomorphic adenoma.

INTRODUCTION

The parotid gland is the largest of the major salivary glands and contributes significantly to salivary secretion, oral lubrication, digestion, and maintenance of oral health. Tumours of the parotid gland constitute approximately 3–10% of all head and neck neoplasms and nearly 70–80% of salivary gland tumours. Approximately 75–80% of parotid tumours are benign, with pleomorphic adenoma being the most common histological subtype, followed by Warthin tumour. Although benign, these lesions require complete surgical excision because of their progressive enlargement, cosmetic deformity, compressive symptoms, risk of

recurrence after incomplete excision, and the possibility of malignant transformation, particularly in long-standing pleomorphic adenomas.¹ Globally, advances in diagnostic imaging, ultrasonography-guided fine-needle aspiration cytology (FNAC), magnetic resonance imaging (MRI), and improved histopathological classification have enabled earlier diagnosis and more accurate preoperative planning for parotid gland tumours. Surgical management has simultaneously evolved from conventional superficial and total parotidectomy toward more conservative procedures such as selective parotidectomy, partial superficial parotidectomy, and extracapsular dissection in carefully selected benign lesions. These gland-preserving

approaches aim to achieve complete tumour excision while minimizing postoperative facial nerve dysfunction, Frey's syndrome, contour deformity, sensory deficits, and cosmetic morbidity without increasing recurrence rates.^{2,3}

Preservation of facial nerve function remains the principal objective of parotid surgery because the facial nerve traverses the gland and is intimately related to most parotid tumours. Even transient facial weakness can significantly impair speech, mastication, eye closure, facial expression, and overall quality of life. Consequently, modern parotid surgery increasingly emphasizes functional outcomes rather than merely tumour clearance. Functional assessment includes postoperative facial nerve function, incidence of Frey's syndrome, salivary fistula formation, sensory disturbances involving the greater auricular nerve, cosmetic appearance, recurrence, and patient-reported quality of life. These parameters provide a more comprehensive evaluation of surgical success and have become essential endpoints in contemporary head and neck surgical practice.⁴

Several international studies have demonstrated that selective parotidectomy offers oncological outcomes comparable to conventional superficial parotidectomy while reducing postoperative morbidity. Meta-analyses have shown lower rates of permanent facial nerve paralysis, Frey's syndrome, and contour deformity following limited resections in appropriately selected benign tumours. Improvements in surgical magnification, intraoperative facial nerve monitoring, meticulous capsular dissection, and standardized postoperative rehabilitation have further enhanced functional recovery. Nevertheless, careful patient selection remains crucial because tumour size, location, proximity to the facial nerve, and histopathological characteristics significantly influence surgical planning and postoperative outcomes.⁵

In India, benign parotid tumours represent a substantial proportion of patients presenting to otorhinolaryngology and head-and-neck surgery departments of tertiary care hospitals. Pleomorphic adenoma remains the predominant benign neoplasm, followed by Warthin tumour and basal cell adenoma. With increasing availability of advanced imaging, cytopathology, and specialized head-and-neck surgical services, selective parotidectomy has gained wider acceptance as an effective treatment option for benign parotid lesions. However, published Indian literature evaluating postoperative functional outcomes remains relatively limited, particularly regarding facial nerve recovery, cosmetic satisfaction, recurrence, and quality-of-life measures following selective gland-preserving procedures.⁶

Retrospective institutional studies are valuable for assessing demographic characteristics,

clinicopathological spectrum, operative techniques, complication profiles, and long-term functional outcomes in patients undergoing selective parotidectomy. Such analyses help validate the safety and efficacy of conservative surgical approaches, identify factors associated with postoperative morbidity, and facilitate comparison with international standards. Evaluation of institutional experience also contributes to continuous quality improvement, refinement of surgical techniques, and evidence-based decision-making in the management of benign parotid tumours.⁷

Therefore, the present study entitled "Functional Outcomes Following Selective Parotidectomy in Benign Parotid Tumours: A Retrospective Study of 30 Patients" was undertaken to comprehensively evaluate the demographic profile, clinicopathological characteristics, operative details, postoperative facial nerve function, complications, cosmetic outcomes, recurrence, and overall functional recovery in patients undergoing selective parotidectomy at a tertiary care centre.

Aim

To evaluate the functional outcomes following selective parotidectomy in patients with benign parotid tumours treated at a tertiary care centre over a retrospective study period.

Objectives

1. To study the demographic characteristics, clinicopathological profile, tumour characteristics, and histopathological spectrum of benign parotid tumours managed by selective parotidectomy.
2. To evaluate the postoperative functional outcomes, including facial nerve function, postoperative complications, recurrence, cosmetic satisfaction, and overall surgical outcome following selective parotidectomy.

MATERIALS AND METHODS

Study Design

Hospital-based retrospective observational study.

Study Population

Patients diagnosed with benign parotid tumours who underwent selective parotidectomy during the study period.

Sample Size

A total of 30 patients were included in the study.

Sampling Technique

Universal sampling (all eligible patients during the study period).

Inclusion Criteria

- Patients aged ≥ 18 years.
- Histopathologically confirmed benign parotid tumours.
- Patients who underwent selective parotidectomy.

- Availability of complete operative and follow-up records.

Exclusion Criteria

- Malignant parotid tumours.
- Revision parotid surgery.
- Patients undergoing total or radical **parotidectomy**.
- Incomplete medical records.
- Follow-up less than 6 months.

Data Collection

Patient records, operative notes, histopathology reports, and outpatient follow-up records were reviewed using a structured proforma.

Statistical Analysis

Data were analysed using SPSS Version 26.0. Continuous variables were expressed as Mean $\pm$ Standard Deviation. Categorical variables were expressed as Frequency and Percentage. Chi-square test/Fisher's Exact test was used for categorical variables. Independent Student's t-test was used for comparison of continuous variables. P value <0.05 was considered statistically significant.

RESULTS

Table 1. Demographic characteristics of study participants (n=30)

Variable	Frequency	Percentage
Age group (years)		
21–30	4	13.3
31–40	7	23.3
41–50	10	33.3
51–60	6	20.0
>60	3	10.0
Mean age	45.7 $\pm$ 11.6 years	
Gender		
Male	11	36.7
Female	19	63.3

Interpretation

Most patients were aged 41–50 years (33.3%), with a mean age of 45.7 $\pm$ 11.6 years. Females predominated (63.3%), indicating that benign parotid tumours were more common among women in this study.

Table 2. Clinicopathological profile of benign parotid tumours

Variable	Frequency	Percentage
Side involved		
Right	17	56.7
Left	13	43.3
Histopathology		
Pleomorphic adenoma	22	73.3
Warthin tumour	5	16.7
Basal cell adenoma	2	6.7
Oncocytoma	1	3.3
Mean tumour size	3.1 $\pm$ 1.0 cm	

Interpretation

Pleomorphic adenoma (73.3%) was the commonest benign tumour, followed by Warthin tumour (16.7%). Right-sided lesions were slightly more common.

Table 3. Facial nerve function following selective parotidectomy

Facial nerve outcome	Number	Percentage
Normal (House-Brackmann Grade I)	24	80.0
Transient weakness (Grade II–III)	5	16.7
Permanent weakness (Grade IV or above)	1	3.3
Complete recovery at 6 months	29	96.7

Interpretation

Normal facial nerve function was preserved in 80% of patients immediately after surgery. Only one patient (3.3%) had persistent facial weakness, while 96.7% achieved complete recovery during follow-up, demonstrating excellent functional outcomes.

Table 4. Postoperative complications according to tumour size

Complication	Tumour ≤3 cm (n=18)	Tumour >3 cm (n=12)	P value
Transient facial weakness	1 (5.6%)	4 (33.3%)	0.041*
Seroma	1 (5.6%)	2 (16.7%)	0.314
Salivary fistula	0	1 (8.3%)	0.212
Frey's syndrome	0	1 (8.3%)	0.212
No complications	16 (88.9%)	5 (41.7%)	0.008*

*Significant

Interpretation

Patients with tumours larger than 3 cm experienced significantly higher postoperative complications, particularly transient facial weakness (p=0.041) and overall complication rates (p=0.008).

Table 5. Functional surgical outcomes following selective parotidectomy

Outcome	Frequency	Percentage
Excellent cosmetic satisfaction	24	80.0
Good cosmetic satisfaction	5	16.7
Poor cosmetic satisfaction	1	3.3
Recurrence during follow-up	1	3.3
Overall successful functional outcome	29	96.7

Interpretation

Excellent cosmetic satisfaction was achieved in 80% of patients. Tumour recurrence occurred in only 3.3%, and an overall successful functional outcome was observed in 96.7% of patients, indicating that selective parotidectomy is a safe and effective surgical procedure for benign parotid tumours with excellent preservation of facial nerve function.

DISCUSSION

The present retrospective study evaluated the functional outcomes following selective parotidectomy in 30 patients with benign parotid tumours. The study demonstrated excellent preservation of facial nerve function, low postoperative morbidity, high cosmetic satisfaction, and a very low recurrence rate. These findings support the growing evidence that selective parotidectomy is a safe and effective surgical technique for appropriately selected benign parotid tumours, while minimizing functional impairment and preserving quality of life.⁸ The mean age of patients in the present study was 45.7 ± 11.6 years, with the highest proportion (33.3%) belonging to the 41–50-year age group. Similar findings were reported by McGurk et al., who observed a mean age of approximately 46 years among patients undergoing conservative parotid surgery for benign lesions.⁹ Likewise, Foresta et al. reported that benign parotid tumours predominantly affected patients in the fourth and fifth decades of life, reflecting the typical age distribution of pleomorphic adenoma and Warthin tumour.¹⁰ These observations indicate that benign parotid tumours primarily affect middle-aged adults. Females constituted 63.3% of patients in our study, demonstrating a female predominance. Similar findings were reported by Dell'Aversana Orabona et al., who observed female patients accounting for approximately 60% of benign parotid tumours.¹¹ The female predominance has been consistently reported in patients with pleomorphic adenoma and is likely related to hormonal and genetic factors influencing tumour development. Pleomorphic adenoma represented 73.3% of all tumours in our study, followed by Warthin tumour (16.7%). Comparable

findings were reported by Quer et al., who found pleomorphic adenoma accounting for nearly 70–80% of benign parotid neoplasms, while Warthin tumour represented 10–20% of cases.¹² Similar histopathological distributions have also been reported in Indian tertiary care centres, confirming pleomorphic adenoma as the predominant benign salivary gland neoplasm.

An important objective of selective parotidectomy is preservation of facial nerve function. In the present study, 80% of patients had immediate normal facial nerve function (House–Brackmann Grade I), while 96.7% achieved complete recovery during follow-up. Only one patient (3.3%) had persistent facial weakness. These results are comparable to those reported by Lee et al., in which 88.2% of patients had normal facial nerve function immediately after extracapsular dissection and 100% recovered during follow-up without permanent major nerve deficits.¹³ These findings support the concept that limited parotid surgery can achieve excellent functional preservation without compromising tumour clearance. Transient facial weakness occurred significantly more frequently among patients with tumours larger than 3 cm (33.3% vs 5.6%, p=0.041). Larger tumours often require wider dissection and prolonged manipulation of the facial nerve, thereby increasing the likelihood of temporary neuropraxia. Similar observations were reported by Lee et al., who found no increase in permanent nerve injury but noted higher transient weakness in technically more demanding resections involving larger or deeper tumours. The present study demonstrated low rates of postoperative seroma, salivary fistula, Frey's syndrome,

and wound-related complications. These findings agree with the meta-analysis by Foresta et al., which demonstrated that conservative procedures such as extracapsular dissection and selective parotidectomy were associated with significantly lower incidences of transient facial nerve palsy and Frey's syndrome compared with conventional superficial parotidectomy, while maintaining similar recurrence rates.

Excellent cosmetic satisfaction was achieved in 80% of our patients, while only one patient reported poor cosmetic results. Limited gland excision preserves normal parotid tissue and reduces contour deformity compared with more extensive resections. Similar cosmetic outcomes have been reported in studies evaluating selective and extracapsular parotidectomy, where preservation of facial contour significantly improved postoperative quality of life.¹⁴

Only one patient (3.3%) developed tumour recurrence during follow-up in our study. This recurrence rate is consistent with previous reports demonstrating recurrence rates below 5% following appropriately performed selective parotidectomy for benign tumours. Foresta et al. concluded that recurrence following extracapsular dissection was comparable to, or even lower than, superficial parotidectomy when meticulous capsular dissection was performed.

Overall, 96.7% of patients in the present study achieved a successful functional outcome. Similar favourable outcomes were reported by Witt et al., who emphasized that careful patient selection, complete tumour excision with intact capsule preservation, and meticulous identification of facial nerve branches were the major determinants of long-term success.¹⁵ Likewise, recent long-term retrospective studies involving more than 250 patients have shown that conservative parotid surgery results in lower morbidity, shorter operative time, excellent facial nerve preservation, and recurrence rates comparable to conventional superficial parotidectomy.

The findings of the present study therefore support the increasing preference for selective parotidectomy in carefully selected benign parotid tumours. Excellent facial nerve preservation, minimal postoperative complications, superior cosmetic outcomes, and very low recurrence observed in our series are consistent with contemporary international evidence. These results reinforce that selective parotidectomy is an effective gland-preserving surgical technique that provides favourable long-term functional outcomes while maintaining oncological safety in benign parotid neoplasms.⁸⁻²⁰

CONCLUSION

Selective parotidectomy proved to be a safe and effective surgical procedure for the management of benign parotid tumours in the present study. Benign parotid tumours predominantly affected middle-aged individuals, with a

female preponderance, and pleomorphic adenoma was the most common histopathological diagnosis. Excellent postoperative facial nerve preservation was achieved in the majority of patients, with only a small proportion developing transient facial weakness and very few experiencing permanent deficits. The incidence of postoperative complications such as seroma, salivary fistula, Frey's syndrome, and recurrence was low, while cosmetic satisfaction was high. Larger tumours were associated with a significantly greater risk of postoperative functional impairment and complications. Overall, selective parotidectomy provided excellent functional outcomes with minimal morbidity, excellent cosmetic results, and a very low recurrence rate, supporting its role as the preferred gland-preserving surgical technique for appropriately selected benign parotid tumours.

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