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ORIGINAL ARTICLE

Effectiveness of Superficial Parotidectomy and Partial Superficial Parotidectomy for Benign Parotid Tumors

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ABSTRACT

Background: Bening parotid tumors are noncancerous growth occurring in parotid gland with various types. The treatment option varies from surgical excision (superficial and partial parotidectomy), observatory or radiation therapy.

Objective: To compare the effectiveness of superficial parotidectomy and partial superficial parotidectomy for benign parotid tumors.

Study design: Prospective study

Place and duration of study: Department of ENT Head & Neck Surgery, Bolan Medical College, Quetta from 1st January 2023 to 1st August 2023.

Methodology: One hundred and fifty patients post-diagnosis of benign parotoid tumors through Magnetic resonance imaging, echography, fine-needle biopsy, and computed tomography were enrolled. The patients were divided into two groups each with 75 patients in it depending upon superficial parotidectomy and partial superficial parotidectomy respectively. Surgical excision was performed according to superficial parotidectomy or partial superficial parotidectomy protocol. The hospital stay, operation time and complications formed and the complication rate was compared within both groups.

Results: The mean age of the patients was 54.0±9.9 in superficial parotidectomy and 51.2±7.5 years in partial superficial parotidectomy group. The patient age was between 18-75 years with majority of the patients been males than females in both groups. Among the total patients enrolled a prolonged hospital stay was observed in superficial parotidectomy cases in comparison with partial superficial parotidectomy patients with a value of 6.6±2.2 vs 4.3±2.1 days respectively. The mean operative time was found to be significantly higher in superficial parotidectomy cases verses partial superficial parotidectomy with a value of 134.1±22.3 vs 93.1±20.9 minutes. There were 5.3% patients in superficial parotidectomy group which had a recurrence of tumor while only 2.6% of the partial superficial parotidectomy patients had recurrence occurred.

Conclusion: Partial superficial parotidectomy is comparative more effective than superficial parotidectomy with reduced complication risk and decreased hospital and operational time.

Keywords: Superficial parotidectomy, Partial superficial parotidectomy, Benign parotid tumors.

INTRODUCTION

Benign tumors of the parotid gland, specifically pleomorphic adenomas, are the most common neoplasms encountered in this salivary gland.[1-3] These benign tumors can lead to significant morbidity, and thus prompting the need for surgical intervention. Among the surgical procedure options available, superficial and partial superficial parotidectomy stand out as two primary approaches and each of them have their own unique indications, challenges and benefits.[4]

Superficial parotidectomy (SP) and partial superficial parotidectomy (PSP) are surgical techniques used to remove benign tumors from the parotid gland. Superficial parotidectomy involves the complete removal of the superficial lobe of the parotid gland, including the tumor.[5-7] On the other hand, partial superficial parotidectomy involves the removal of a portion of the superficial lobe while preserving more glandular tissue.[8]

Both methods have been shown to be effective, but they differ only in terms of postoperative outcomes, extent of resection, and potential complications. Superficial parotidectomy tends to have lower recurrence rates for benign tumors, whereas PSP may be suitable for less aggressive or smaller tumors., both procedures tend to aim to preserve facial nerve function, but the extent of nerve dissection is also differed for both surgical procedures.[9]

In addition, recovery times are generally similar, but partial resection may allow for quicker return to normal function due to less tissue trauma and minimal removal of lobe.[10] The present study was aimed to compare the effectiveness of superficial parotidectomy and partial superficial parotidectomy for benign parotid tumors. The results of this study provided most appropriate and effective option for benign tumor removal which facilitated in patients early and reliable treatment.

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MATERIALS AND METHODS

This prospective study was conducted at Department of ENT Head & Neck Surgery, Bolan Medical College Quetta from 1st January 2023 to 1st August 2023. A total of 150 patients were enrolled in this study post diagnosis of benign parotoid tumors through Magnetic resonance imaging, echography, fine-needle biopsy, and computed tomography. Those patients who were having malignant findings and or were autoimmune deficient having comorbidities were excluded from the study. All patients were enrolled post gaining the written informed consent from the patients. The sample size was calculated using WHO available online sample size calculator software which applied 95% CI, 80% power of test and 5% margin of error for estimating the sample size. The patients were divided into two groups each with 75 patients in it depending upon superficial parotidectomy (SP) or partial superficial parotidectomy (PSP) respectively. The division was decided under double blinding technique. The skin incision begins in the preauricular area, travels to the ear lobe, reaches the internal margin of the tragus, and then moves 2 to 3 cm posteriorly on the mastoid. The greater auricular nerve is recognized and preserved, and the superficial muscular aponeurotic system is elevated. Lastly, the parotid's posterior side is isolated and dissected. When the facial nerve has been identified, then its common trunk was dissected, isolated, and controlled by faradic stimulation. Following tumor excision, non-resorbable sutures are used to seal the skin, sew the fascial planes, and provide hemostasis. After making the same incision as a superficial parotidectomy (modified Blair incision), the surgeon carefully dissects the tumor while protecting and maintaining the tumor capsule. With a 1.5-cm margin, this approach simply removes the portion of the gland that contains the tumor, partial superficial parotidectomy was conducted in similar manner with partial removal of the parotoid gland. The hospital stay, operation time and complications formed and the complication rate was compared within both groups. A well-structured questionnaire was used for documenting the variables

of the study. The statistical analysis was then performed using SPSS version 26.0. Statistical difference between surgical techniques in terms of recurrence rate and complications were evaluated through Chi-square test and 't' test using p-value >0.05 as significant.

RESULTS

The mean age of the patients was 54.0±9.9 in superficial parotidectomy and 51.2±7.5 years in partial superficial parotidectomy group. The patient age was between 18-75 years with majority of the patients been males than females in both groups. There was no significant difference within the age or gender within groups (Table 1). Around 42 and 46 of the SP and PSP cases had pleomorphic adenoma type followed by 28 and 31 cases suffering from Warthin tumor. There was insignificant number of myoepithelioma and lipoma cases within both groups (Fig. 1).

Among the total patients enrolled a prolonged hospital stay was observed in superficial parotidectomy cases in comparison with partial superficial parotidectomy patients with a value of 6.6±2.2 vs 4.3±2.1 days respectively. The mean operative time was found to be significantly higher in SP cases verses PSP with a value of 134.1±22.3 vs 93.1±20.9 minutes (Table 2).

The comparativecomplication results of SP and PSP groups clarifies a higher risk of complications in patients who underwent superficial parotidectomy in comparison with those undergo partial superficial parotidectomy. Transient facial nerve weakness was the most reported complication. There were 5.3% patients in SP group which had a recurrence of tumor while only 2.6% of the PSP patients had recurrence occurred (Table 3). The overall complication rate was found as 34.6% in superficial parotidectomy while it was presented as 17.3% in partial superficial parotidectomy operated patients (Fig. 2).

Table 1: Demographic distribution of age and gender within superficial parotidectomy (SP) and partial superficial parotidectomy (PSP) groups (n=150)

Variable	SP	PSP	P value
Age (years	54.0±9.9	51.2±7.5	0.532
Gender			
Male	44 (58.6%)	45 (60%)	0.987
Female	31 (41.3%)	30(40%)	0.767

Table 2: Hospital duration and operative Time in superficial parotidectomy (S)) versus partial superficial parotidectomy (PSP) group (n=150)

Variable	SP	PSP	P value
Hospital stay (days)	6.6±2.2	4.3±2.1	0.05
Mean operative time (minutes)	134.1±22.3	93.1±20.9	0.04

Table 3: Comparison of complications between superficial parotidectomy (SP) and partial superficial parotidectomy (PSP) groups (n=150)

Variable	SP	PSP	P value
Capsular rupture	2 (2.6%)	1 (1.3%)	0.65
Transient facial nerve weakness	13 (17.3%)	7 (9.35)	0.04
Facial paralysis	3 (4%)	1 (1.3%)	0.33
Frey syndrome	4 (5.3%)	2 (2.6%)	0.35
Recurrence	4 (5.3%)	2 (2.6%)	0.52

Fig. 1: Comparison between various type of parotid tumor in SP and PSP patients

Fig. 2: Comparison of complication rate within groups

DISCUSSION

Common lesions of the salivary glands are benign parotid tumors which are mainly composed of pleomorphic adenomas. The most effective treatment is still surgical excision. Two surgical methods used to treat these tumors are superficial parotidectomy (SP) and partial superficial parotidectomy (PSP). While PSP entails a more restricted excision of the tumor with a margin of normal tissue, SP entails the removal of the parotid gland's superficial lobe.[11]

The goal of these treatments is to strike a compromise between cosmetic results, facial nerve preservation, and oncologic safety.[12] Superficial parotidectomy offers a higher cure rate whereas PSP provides better cosmetic outcomes and potentially reduced facial nerve injury risk. This study was specifically designed to determine the effectiveness of superficial parotidectomy and partial superficial parotidectomy for benign parotid tumors.[13-15]

The benign parotid tumors are reported to have complication risk when opted for a surgical excision. However, the parotidectomy extent as well as the stripping of facial nerve is determined through size/location of the tumor. Operative parotid procedure requires facial nerve preservation as a main objective during resection. This also involves minimal efforts of complication development including facial palsy, Frey syndrome or salivary fistula.[16-17]

It is evident to report that the extent of the PSP is much lesser than SP. Witt et al[18] stated tin their research than recurrence rate is associated with the extent of normal tissue removal (1 cm). This might be the reason why the recurrence rate in PSP is significantly lower than in SP cases as reported in present study results as well as other related literature.[19,20]

CONCLUSION

Partial superficial parotidectomy is comparatively more effective than superficial parotidectomy with reduced complication risk and decreased hospital and operational time.

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