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Frequency of surgical complications and recurrence rate after extracapsular dissection of benign tumors of the parotid.

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ABSTRACT… Objective: To determine surgical complications and recurrence rate in patients with benign lesions of the parotid undergoing extracapsular dissection. **Study Design:** Case Series. **Setting:** Department of Surgery, Rawalpindi Medical University, Rawalpindi. **Period:** January 2010 and December 2018. **Material & Methods:** The hospital records of all 50 patients who underwent extracapsular dissection with a diagnosis of either Pleomorphic adenoma or War thin tumor between reviewed retrospectively. Data regarding demographics, tumor, complications and recurrence was collected. **Results:** Out of 50 patients, 40 were males and 10 were females with age ranging from 26 to 52 years and mean age of 42 years. 44 of 50 parotid lumps were diagnosed as Pleomorphic adenoma and 6 were cases of Warthin tumor. The range of lesion size was 1.5 to 3 cm. 15 (30%) patients suffered from transient facial nerve weakness, whereas only 1 (2%) sustained a facial nerve injury which required repair. There was no case of Frey syndrome, sialocele and hematoma, however, salivary fistula was seen in 1 (2%) patient. Capsule rupture during surgery occurred in 15 (30%) patients and recurrence was seen in only 1 patient (2%). **Conclusion:** Extracapsular dissection has low recurrence rate, very few complications and is a safe and effective treatment for Pleomorphic adenoma and Warthin tumor.

Key words: Extracapsular Dissection, Pleomorphic Adenoma, Warthin Tumor.

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INTRODUCTION

Salivary gland tumors constitute 3% to 10% of all cancers in the head and neck region. Parotid gland is the most commonly involved salivary gland and fortunately majority of the parotid growths have a benign histology. Of the benign parotid lesions, Pleomorphic adenoma and Warthin tumor are commonly encountered.[1-3] Surgery has been the mainstay of treating such tumors, however, the surgical technique has changed over the years.

Enucleation was the standard treatment before 1940s, in which the capsule was left in situ and the facial nerve was not dissected. Since pleomorphic adenoma has a poorly developed capsule, growth protrusions often extend into the surrounding normal tissue. Simple enucleation thus resulted in incomplete removal of the growth, leaving behind some tissue. Therefore, recurrence following enucleation was very frequent. This led to the introduction of a new technique known as superficial parotidectomy in which a large portion of the gland was removed. Although recurrence rates minimized, complications such as facial nerve dysfunction, Frey syndrome and disfigurement of the facial contour became a major concern.[4]

In search of a less invasive surgical procedure which would have the benefits of all previous techniques together with fewer complications, Anderson[4] introduced extracapsular dissection of the parotid in 1975 which involves excision of the tumor with clear margins without dissecting the facial nerve. According to some recent studies[5,6] extracapsular dissection has similar success rate in terms of recurrence as superficial parotidectomy, but fewer complications. On the contrary, some evidence suggests a higher rate of recurrence in patients undergoing extracapsular dissection as

compared to superficial parotidectomy.[7]

Hence, it is still a matter of dispute that whether extracapsular dissection or superficial parotidectomy should be the preferred modality for the surgical management of benign tumors of the parotid. This led us to investigate the effectiveness and safety of extracapsular dissection in a tertiary health care unit of Pakistan.

MATERIAL & METHODS

This retrospective study was conducted in the Department of Surgery, Rawalpindi Medical University, Rawalpindi. Ethical approval for this study was taken from Institutional Research Forum. Sample size calculated using WHO calculator was 50.

50 patients who underwent extracapsular dissection between January 2010 and December 2018 with a diagnosis of either Pleomorphic adenoma or Warthin tumor were included in the study. Diagnosis of these benign tumors was established by ultrasound followed by FNAC. Any parotid swelling showing malignant histopathology was not included in the study group and hence was not treated by extracapsular dissection. Data regarding demographics (age and sex), tumor (size, site and relation to the facial nerve), complications (facial nerve injury, Frey syndrome, sialocele, salivary fistula, hematoma and rupture of capsule) and recurrence was collected. The mean duration of follow-up to assess post-operative complications and recurrence was 6 months. All the data was entered into SPSS version 23.

Surgical Technique

The operation was performed under general anesthesia with endotracheal intubation. A Lazy S incision was used to raise the skin flap consisting of facial, mastoid and cervical parts. Facial nerve was identified in all cases of extra capsular dissection after confirming the important anatomical landmarks used for identification of facial nerve; including posterior belly of digastric and bony pointer. Facial nerve stimulation was not used. In order to prevent rupture of the tumor capsule, a wide dissection of the parenchyma surrounding the tumor was employed. A Redivac Drain was placed after tumor dissection. All cases were operated by a single surgeon.

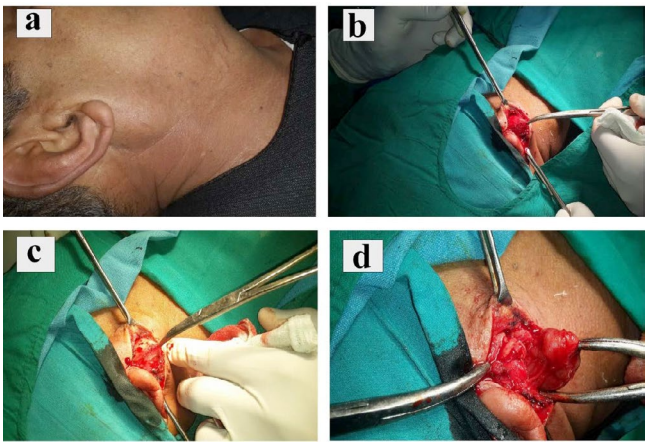

Figure-1. a Patient with benign parotid tumor. b Curved incision around the earlobe. c Tumor capsule being exposed. d Dissection extended through the healthy parenchyma surrounding the tumor.

RESULTS

A total of 50 patients underwent Extracapsular dissection. Out of 50 patients, 40 were males and 10 were females with age ranging from 26 to 52 years and mean age of 42 years. Table-I shows the pathological diagnosis of 50 parotid lesions. The range of lesion size was 1.5 to 3 cm. In 43 cases the tumor was related to the upper trunk of the facial nerve and in 7 patients the lesion was located near the lower pole of the parotid gland. Table-II shows the complications of extracapsular dissection. Recurrence was seen in only 1 patient (2%) and required revision surgery.

Type	No. (%)
Pleomorphic adenoma	44 (88)
Warthin tumor	06 (12)

Table-I. Histopathology of 50 parotid lesions.

Complication	No. (%)
Transient facial nerve weakness	15 (30)
Facial nerve injury requiring repair	1 (2)
Frey syndrome	0
Salivary fistula	1 (2)
Sialocele	0
Hematoma	0
Rupture of capsule	15 (30)

Table-II. Complications of extracapsular dissection (n= 50)

DISCUSSION

Surgery is the mainstay of management for benign parotid growths. Attempts have been made in the past century to develop a technique for treating these lesions with the least possible complications and low rates of recurrence.[4] Currently, extracapsular dissection and superficial parotidectomy are preferred over previous surgical procedures.[5] Ozturk et al.[5] have illustrated that both, extracapsular dissection and superficial parotidectomy, have similar results in terms of recurrence rate. Authors of a study conducted in Medical University of Vienna reported a higher recurrence rate (7.3%) in patients undergoing extracapsular dissection as compared to superficial parotidectomy (2.2%).[7] Our results show a recurrence rate of 2%, supporting the former claim. These differences could be explained by the fact that follow-up duration was not the same in all studies. Recurrence at long term follow-up can be attributed to capsule rupture during surgery. However, rate of capsule rupture was high (30%) in our series without affecting the recurrence rate. Short follow-up in our study could be a possible explanation.

The results of this study demonstrate that extracapsular dissection is associated with reduced morbidity and lower risks of complications as supported by previous work of many authors. A meta-analysis by Xie et al.[8] demonstrated reduced rates of permanent facial nerve weakness, transient CN VII injury and Frey syndrome in patients undergoing extracapsular dissection as compared to superficial parotidectomy. In our series only 1 patient (2%) suffered from facial nerve injury which required repair.

Frey syndrome is a complication of parotid surgery which occurs due to aberrant regeneration of the secretomotor nerve fibers carried in the auriculotemporal nerve. Literature illustrates that the risk of Frey syndrome after superficial parotidectomy is more as compared to extracapsular dissection.[9,10] Unlike extracapsular dissection, superficial parotidectomy exposes large raw surfaces of the gland to the subcutaneous layer, which could be a possible reason for this difference. Frey syndrome was not reported in any of our patients. Similarly, post-operative hematoma and sialocele were also not seen in our cases.

Since evidence points towards reduced complications after extracapsular dissection in addition to preservation of parotid salivary function and facial contour, many groups now consider superficial parotidectomy unnecessary for treating benign lesions of the parotid. However, extracapsular dissection is not recommended for malignant tumors of the parotid, making preoperative FNAC necessary to rule out malignancy before selecting the type of surgical intervention, as was done in our setting.[11]

Following the global trend of adopting minimally invasive surgical techniques, findings of our study illustrate that extracapsular dissection can replace superficial parotidectomy as a safe and effective treatment for benign parotid tumors in Pakistan, although further studies with longer follow-ups are recommended.

CONCLUSION

Extracapsular dissection of the parotid is associated with low recurrence rate, very few complications and is a safe and effective treatment for benign tumors of the parotid.

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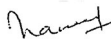
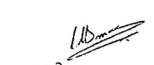
4	Naveed Akhtar Malik	4th Author	
5	Usman Qureshi	5th Author	
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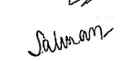
7	Salman Shafique	7th Author	
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