Comparative Study Between Extracapsular Dissection and Superficial Parotidectomy in Treatment of Benign Parotid Tumors

Mohamed Mohamed Atya Mohamed Ayad 1*, Msc, Mohamed Ibrahim El-Anany 2 MD, Ahmed Abd El Aal Sultan 3 MD, Mohamed Salah Elfeshawy 3 MD

*Corresponding Author: Mohamed Mohamed Atya Mohamed Ayad drmohamedayad230@gmail.com

Received for publication November 23, 2021; Accepted April 16, 2022; Published online April 16, 2022.

Copyright The Authors published by Al-Azhar University, Faculty of Medicine, Cairo, Egypt. Users have the right to read, download, copy, distribute, print, search, or link to the full texts of articles under the following conditions: Creative Commons Attribution-Share Alike 4.0 International Public License (CC BY-SA 4.0).

doi: 10.21608/aimj.2022.107677.1681

1Surgical oncology Department, fakus cancer centre sharki, Cairo, Egypt.
2General Surgery Department, Faculty of Medicine, Al-Azhar University Cairo, Egypt.
3Diagnostic Radiology Department, Faculty of Medicine, Al-Azhar University Cairo, Egypt.

ABSTRACT

Background: In the treatment of benign parotid tumours, extracapsular dissection (ECD) and superficial parotidectomy (SP) were compared.

Aim of the work: Comparing the outcomes of ECD and SP in the surgical removal of a benign parotid tumour and the rate of recurrence.

Patients and methods: This study was conducted on 100 patients with benign parotid tumours who were admitted to the general surgery department of AL-Azher university hospitals and fakus cancer centre between May 2017 and July 2020. After completing a full history and clinical examination, the patients were divided into two groups: the first 50 patients had an ECD. A benign tumour with a diameter of less than 4 cm, no deep lobe invasion, and another 50 individuals were included in the study SP was performed with a one-year follow-up to determine the rate of recurrence in both groups.

Results: The follow up period was 12 months. In terms of complain, operation time, tumour size, and recurrence the most common complain in both groups is preauricular swelling; the time of operation in ECD is 42.80±5.54 minutes compared to 127.36±16.36 minutes in SP; the tumour diameter in ECD is less than 5 cm compared to more than 5 cm in SP; the most common pathological type in both groups is pleomorphic adenoma. In SP 5 patients had disease recurrence, while in ECD, 3 patients had disease recurrence.

Conclusion: In terms of recurrence rates, conservative parotidectomy was comparable to superficial parotidectomy.

Keywords: Parotidectomy; tumours; parotid.

Disclosure: The authors have no financial interest to declare in relation to the content of this article. The Article Processing Charge was paid for by the authors.

Authorship: All authors have a substantial contribution to the article.

INTRODUCTION

A benign Parotid gland tumour appears as a slowly developing preauricular lump in the superficial lobe of the Parotid gland 1. The pleomorphic adenoma of the Parotid gland that manifests as a single, movable, well-defined border, and is not painful. and The Warthin's tumour is a second form. 2, superficial parotidectomy, is performed with removal of the superficial lobe and preservation of the facial nerve. 3 Extracapsular dissection is performed with a cruciate incision above the tumour and a rim of 2mm normal tissue including the capsule is then removed 4

PATIENTS AND METHODS

This prospective study included 100 cases with benign parotid tumours who were admitted to the general surgery department of AL-Azher university hospitals and fakus cancer centre between May 2017 and July 2020. After a full history and clinical examination, the patients were divided into two groups: the first 50 patients had ECD done with careful dissection of the tumour and its capsule, and the second 50 patients had SP done. The inclusion criteria were benign mass, no invasion of the deep lobe, and a diameter of less than 5 cm, as well as another 50 patients with facial nerve dissection who were included in SP. Following surgery, the drain was removed, and stitches were removed on day 7, with follow-up every month for a year and recurrence documented. Exclusion criteria include malignant histology and tumour placement in the deep lobe. Patients agreed to participate in the trial and gave their informed permission.

Superficial Parotidectomy. In a preauricular create a modified Blair incision was made that ran down into the subcutaneous tissues and platysma muscle. Elevate the anterior flap to the anterior side of the gland superficial to the larger auricular nerve and the parotid fascia. The peripheral facial nerve branches are carefully avoided. To reveal the parotid gland's tail, a posterior and inferior flap is also raised. The flaps are retracted using silk suture after elevation. Dissect the parotid gland's tail is exposed from the sternocleidomastoid, followed by the posterior belly of the digastric muscle. To open the preauricular space divide the parotid gland attachments to the cartilaginous external auditory canal by blunt dissection. This plane of dissection exposes the tragal cartilage allowing anatomic landmarks such as the posterior belly of the digastric muscle the tragal pointer and the tympanomastoid suture to be used to identify the facial nerve. It also divides the parotid gland superficial to
General Surgery

Omar et al – Benign Parotid Tumors surgery

The facial nerve. A dissector is used to travel along the facial
Surgical Technique of Extracapsular parotidectomy. In a
preauricular crease a modified Blair incision was made that
rung down into the subcutaneous tissues and platysma muscle. 
Elevate the anterior flap to the front of the gland just beneath
the larger auricular nerve and the parotid fascia. palpate
Above it was a tumour and a cruciate incision. locate and
erase it and then spread it gently.
dissect the a loose areolar plane surrounding the bulk without
rupturing the capsule appley Four artery clips are attached to
the parotid fascia at the cruciate incision's centre to retract the
parotid fascia and allow for blunt dissection into the
parenchyma until the tumour is seen. Edges of the cruciate
incision were re-approximated and sutured together.

![Fig. 1: Exploration of facial nerve](image1)

![Fig. 2: A standard modified blair incition](image2)

![Fig. 3: The mass is identified and a cruciate incision is made above the lesion](image3)

RESULTS

<table>
<thead>
<tr>
<th></th>
<th>Superficial parotidectomy Group</th>
<th>Extra-capsular parotidectomy Group</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Years</td>
<td>36.86±7.21</td>
<td>38.94±7.51</td>
<td>1.411</td>
<td>0.161</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>29</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>58.0%</td>
<td>52.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>21</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>42.0%</td>
<td>48.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>100.0%</td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Age and sex distribution between studied groups

Table 2: This table shows that there was no significant difference between groups and the majority of both groups were unilateral
Table 2: Side and laterality distribution between studied groups

Table 3: No significant difference between group regard swelling or pain distribution and swelling was the main complaint in both groups

Table 4: Regarding distribution of pathology between groups there was no significant difference and the majority were Pleomorphic adenoma

Table 5: Operation duration was distributed between studied groups as 127.36 ±16.36 and 42.80±5.54 respectively between Superficial parotidectomy Group and Extra-capsular parotidectomy Group and Superficial parotidectomy was significantly longer regard duration
The parotid gland is the most prevalent location for salivary gland tumours, accounting for 60-75 percent of all occurrences with 85 percent of parotid tumours occurring in the superficial lobe 11 percent in the deep lobe and 1% in the accessory lobe. The superficial parotidectomy involves locating the facial nerve trunk, dissecting along all of its branches and removing the parotid's superficial lobe.

Extracapsular dissection (ECD) occurs when the tumour is removed with only the immediate pseudocapsule and the facial nerve branches are not identified or dissected. In our research, we discovered that 29 patients (58%) in the superficial parotidectomy group were male, 21 patients were female with a mean age of 38.94 ± 7.21 years. In the extracapsular dissection group, there were 26 patients (52%) male and 24 patients (48%) female, with a mean age of 36.86 ± 7.21 years. In our research, the risk of recurrence was significantly increased in the extracapsular group. The first finding in patients with parotid was painless swelling (79%) followed by pressure feeling (10%) and pain (3%). The most frequent pathological type in SP pleomorphic adenoma 40 patients (80%) and warthin tumour 3 individuals in our study (6 percent). Patients with parotid lymph node 3 (6%), and patients with basal cell adenoma 1 (1%), oncocytoma patients (2%), cavernous hemangioma 2 patients (4%), patients (4%), and ECD pleomorphic adenoma 40 patients (80%) and warthin tumour 4 individuals (8 percent). Patients with parotid lymph node 2 (4%), basa cell adenoma 2 (4%), oncocytoma 1 (2%), cavernus haemangioma 1 (2%). (table 4) Pleomorphic adenoma is the most prevalent benign tumour, accounting for 60.9 percent of all cases, followed by Warthin's tumor (30.4%). Basal cell adenoma (6.5%) and hemangioma (2.2%). In terms of tumour size, SP 5.12 ± 1.62 cm and ECD 3.42 ± 0.64 cm are comparable. ECD PT was dramatically decreased when compared to that of SP (127.36) minutes vs. ECD 42.80 ± 5.54 minutes. This was expected because to the time it took to first locate the FN stem and then dissect its many branches during SP. The follow up for one year with clinical examination and Imaging studies (ultrasound and MRI) to detect complications. The occurrence of recurrence in SP 5 patients (10 percent), patients with ECD 3 patients (6 percent). (table 7) This is distinct When comparing ECD with superficial parotidectomy, a study from a high-volume parotid facility found no statistically significant difference in capsule rupture (3.4 vs. 1.8 percent). A total of 176 patients were tracked for 52 months in this study. When ECD was compared to superficial parotidectomy, the risk of recurrence was 4.5 percent against 3.6 percent. In our study in SP the Permanent facial nerve dysfunction is 2%.
transient dysfunction 20 % and Frey’s syndrome 20% and in ECD the Permanent facial nerve dysfunction is (0 %) transient dysfunction 10 % Frey’s syndrome 4 % this differ from results in sp the Permanent facial nerve dysfunction is reported 4 %, transient dysfunction 25 % and Frey’s syndrome 17 % and in ECD the incidence Permanent facial nerve dysfunction is (2 %) transient dysfunction 11 % and Frey’s syndrome 3 %.17

Summary

Pleomorphic adenoma is the most common benign parotid tumour, followed by Warthin tumour and, less commonly, oncocytoma and basal cell adenoma. The majority of cancers begin in the superficial lobe and manifest as slow-growing masses under the ear. The initial non-invasive method for localising superficial tumours, differentiating solid masses from cystic collections, and guiding fine-needle aspiration biopsy is Ultrasound The superficial parotidectomy is a technique that involves the complete removal of the superficial lobe, dissection and preservation of the main trunk of the facial nerve and its branches, while ECD is a technique that involves a whole excision of the mass. Without planned dissection of the main trunk of the facial nerve, it is surrounded by healthy parotid gland tissue. In our research, we performed ECD on 50 patients and followed them up for a year to determine the recurrence rate and compare it to 50 other patients PS is done. We used SP to identify recurrence rate after one year after surgery and discovered that ECD had a lower recurrence rate than SP.

**CONCLUSION**

Conservative parotidectomy has a comparable recurrence rate to superficial parotidectomy and may be a suitable alternative in the treatment of benign parotid tumours that are situated in the superficial lobe, mobile, and tiny (the diameters are less than 5cm).

**REFERENCES**


