SUPERFICIAL PAROTIDECTOMY – OUR EXPERIENCE

Probal Chatterji¹, Surajit Lahiri²

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ABSTRACT: Pleomorphic adenoma is the commonest tumor of the parotid gland and mostly arises from its superficial lobe. The best operation for this tumor is superficial parotidectomy. In clinical practice this procedure can be performed by general surgeons, oto-rhinolaryngologists as well as maxillofacial surgeons. Whatever the specialty, the surgeon must be well acquainted with the course of the facial nerve for good surgical results. Also of equal importance is the ability to remove the tumor with a wide healthy margin in order to reduce the chance of local recurrence. We performed a study at K.P.C. Medical College & Hospital where 19 cases were operated in a period of 30 months with the aim to study the complications of surgery and chance of recurrence of the tumor on follow up. Cases were selected from patients attending the OPD with complaint of swelling of the parotid region. The diagnosis was confirmed pre-operatively by FNAC and USG. After routine work-up, patients were operated by a standard procedure and the surgical specimen was sent for histopathological examination in each case. The results have been analyzed in detail and also compared with the available literature. In conclusion we find that our results compare well with other series.

INTRODUCTION: Parotid surgery was previously considered to be in the exclusive domain of general surgeons. But nowadays as the boundaries between the various specialties are getting blurred, these surgeries are also routinely being performed by ENT surgeons as well as maxillofacial surgeons with extremely good results.

The commonest indication for parotid surgery is pleomorphic adenoma. The facial nerve traverses through the substance of the gland dividing it into a major superficial and smaller deep part¹. The pleomorphic adenoma usually involves the superficial lobe and therefore the operation of choice in these cases is superficial parotidectomy. There are two primary points of caution during surgery. Firstly, the facial nerve trunk and its branches must be identified and preserved in order to prevent post-operative facial palsy. Secondly, the tumor must be excised with a sleeve of healthy parotid tissue to reduce the risk of local recurrence.

The department of ENT in association with the department of General Surgery has undertaken a study where 19 cases of pleomorphic adenomas arising from the superficial lobe of the parotids were diagnosed and operated by superficial parotidectomy over a 30 month period (December 2007 to May 2010). We present the study in detail below.

AIMS & OBJECTIVES: To study the results of superficial parotidectomy for pleomorphic adenomas on the basis of the following points –

- Complications of surgery in the post-operative period
- Recurrence of tumor on follow-up
- Comparison of results with available literature

MATERIALS AND METHODS: Patients were chosen from the OPD on the basis of clinical findings and the diagnosis of pleomorphic adenoma was confirmed by USG of the parotid region and FNAC from the swelling. The latter is a safe alternative compared to open biopsy of major salivary glands for a proper pre-operative diagnosis. Evidence suggests that if the needle gauge does not exceed 18G, there is no risk of seeding viable tumor cells during the procedure².

After diagnosis, the patients were then counselled regarding the need for surgery and its possible complications. After routine investigations they were prepared for operation under general anesthesia. Necessary consent from patients as well as the hospital authorities was taken prior to the study.

Our study was done between December 2007 and May 2010 during which we performed 19 such operations. Of the 19 cases, 12 were male and 7 were female patients with the age of patients ranging between 28 to 53 years.

A standard surgical protocol³ was followed in our department and is described in detail –

After giving the standard incision, the skin flap was raised forward up to the anterior border of the masseter muscle. Posteriorly the parotid gland was separated from the cartilaginous external auditory meatus down to its lower border where the sterno-cleidomastoid muscle was identified. Next, the gland was elevated off the sterno-cleidomastoid muscle and dissection was carried out in a deeper plane to expose the upper border of the posterior belly of digastric which comes in at an angle to attach itself to the mastoid notch on the medial side of the mastoid process. The facial nerve trunk was then carefully located by blunt dissection as it emerges from the stylomastoid foramen immediately above the attachment of the posterior belly of digastric muscle and along the anterior border of the mastoid process. It is usually located at a depth of about 1.5 cm from the outer surface of the mastoid process and when exposed has a glistening pearly white appearance and measures about 2 to 3 mm in diameter.

After identifying the nerve trunk and keeping it under constant vision, the superficial part of the gland along with the tumor was progressively dissected in forward direction. In this region the nerve trunk is seen to divide into its main branches (temporo-zygomatic & cervico-facial) either immediately before it enters the substance of the parotid or more commonly immediately after it enters it, followed by further division into various branches within the substance of the gland. By using a mosquito artery forceps, the individual branches were carefully followed by progressively lifting, spreading and cutting the strands of overlying parotid tissue. Finally, after the tumor mass was removed, the facial nerve and its branches could be seen lying over the deep part of the parotid gland (Fig 1). The bleeding points were controlled using adrenaline soaked cotton balls and judicious use of bipolar diathermy. The wound was irrigated with normal saline and a corrugated rubber drain was introduced through a separate incision lower down. Lastly the wound was closed in layers and a pressure bandage applied.

All the specimens were routinely sent for histo-pathological examination for confirmation of the diagnosis.

Post-operative protocol – Some patients developed a variable degree of facial palsy in the immediate post-operative period. We have prescribed a 14 day course of oral steroids in tapering doses to these patients to aid the recovery of nerve function unless otherwise contra-indicated (one patient each was diabetic & hypertensive and hence not given steroids). Antibiotics and pain killers

were also given. The drain was removed between 48 to 72 hours after surgery depending on the amount of collection. The stitches were removed on the 5th or 6th post-operative day.

RESULTS OF SURGERY:

- ❖ Facial nerve palsy – A total of 7 patients (36.8%) had partial facial nerve weakness in the immediate post-operative period of which 6 cases (31.5%) were transient in nature and showed full recovery within a maximum period of 6 weeks (Fig 2). 1 patient (5.2%) had permanent partial weakness due to injury to the marginal mandibular branch of the facial nerve.
- ❖ Frey's Syndrome – It developed in 11 cases (57.9%) between 5 – 10 weeks after surgery. Of these, 9 showed spontaneous improvement over 4 - 6 months with no residual complaints. 2 patients (10.5%) continue to have the problem but of much lesser proportions than in the immediate post-operative period.
- ❖ Tumor recurrence – Of the 19 cases, 4 have been lost to follow up but the remaining 15 patients have not shown any sign of tumor recurrence up to a minimum of 3 years and a maximum of 5 years of follow-up.
- ❖ Parotid fistula – 3 cases (15.7%) developed transient signs & symptoms of parotid fistula but completely recovered with parenteral feeding & pressure dressing within 3 to 4 weeks.
- ❖ Anesthesia involving the lower half of the pinna and pre-auricular skin – It is an inevitable sequelae of this operation because of division of the greater auricular nerve. The area of numbness diminished gradually over 6 months with no major complaint in any case.
- ❖ Trimus– Again an insignificant complication, it was seen in most cases in the immediate post-operative period but improved over 2 weeks.

DISCUSSION: The major complications of this procedure are discussed separately in detail below:

- ❖ Facial nerve palsy – It is the most dreaded complication of superficial parotidectomy and may occur due to inadvertent injury to the main trunk of the facial nerve or one or more of its major branches. Clinically there may be variable weakness of one half of the face with the inability to close the eye, inability to wrinkle the forehead, asymmetry of the angle of the lip etc. depending on the branch involved. More commonly, even though the branches of the nerve remain intact, the nerve may not function properly in the immediate post-operative period due to the effect of manipulation and stretching during surgery. This leads to a weakness of one half of the face which may last a few weeks to months with full recovery eventually.

As indicated above, 6 cases (31.5%) in our series developed transient facial nerve weakness with full recovery within 6 weeks. A recently published case series of 156 patients who underwent partial superficial parotidectomy for pleomorphic adenomas however puts the figure at only 15% with no case of permanent weakness⁴. Only 1 out of our 19 cases (5.2%) had permanent partial facial nerve palsy due to injury to the marginal mandibular division of the facial nerve. Incidentally, this division of the nerve is most vulnerable for inadvertent injury during parotid surgery⁵.

When parotid surgery is being done for recurrent pleomorphic adenoma, the situation is however entirely different. Such a condition clearly increases the risk of sacrificing one or

more branches of the facial nerve to entail complete tumor removal. This is due to the locally infiltrative character of the tumor and also due to fibrous adhesions from previous surgery⁶.

In order to minimize the risk of facial nerve injury, some advanced centres advocate the use of facial nerve monitors routinely during surgery⁷. It is not available in our setup, but we feel that if basic anatomical landmarks are sought and dissection carried patiently under direct vision, the final outcome is quite acceptable. A large study involving 63 patients with benign tumors arising from the superficial lobe of the parotid also concludes that lack of facial nerve monitoring should not be considered as a contraindication of surgery⁸.

- ❖ Frey's Syndrome – This syndrome is characterized by sweating in front of the ears whenever the patient eats. It is thought to occur due to the re-growth of the secreto-motor parasympathetic fibers of the auriculotemporal nerve (which supplies the parotids) into the distal cut ends of the sympathetic fibers that supply the sweat glands & blood vessels of the skin. According to Stell & Maran, this complication may develop in up to 50% cases following superficial parotidectomy⁷. Our result of 11 cases (57.9%) developing it is quite close to their observation. However, the recently published large series of 156 cases cited above reported its incidence as low as 4% only⁴.
- ❖ Tumor recurrence – In this context it must be noted that the tumor capsule of a pleomorphic adenoma is frequently incomplete with tumor tissue projecting through the dehiscence⁹. Hence the tumor must be removed with a sleeve of normal parotid tissue around it to bring down the chance of recurrence to less than 5% compared to simple enucleation which has been abandoned due to a high long term failure rate of up to 40%. In our present series, no recurrence has been noted up to a minimum of 3 years and a maximum of 5 years of follow-up. But considering the fact that this is a very slow growing tumor, we can only be more definitive about the success after further follow-up in the coming years.

CONCLUSION: In our country, the discipline of Otorhinolaryngology has made large strides in the past decade. We are now routinely doing surgeries that were considered to be in the exclusive domain of general surgeons & maxillofacial surgeons. Parotid surgery is a case in point. The study conducted by our department in association with the department of General Surgery shows encouraging results with acceptable complications rates. However, the follow-up period is inadequate for identifying tumor recurrences and only the coming years will give a complete picture.

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Fig 1- Operative Photograph

Fig 2- Same Patient At 6 Weeks After Surgery

AUTHORS:

1. Probal Chatterji
2. Surajit Lahiri

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of ENT, K.P.C. Medical College & Hospital, Jadavpur, Kolkata.
2. Associate Professor, Department of General Surgery, ESI-PGIMSR & Medical College, Joka, Kolkata.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Probal Chatterji,
Flat – M301, Fortune City,
155, Old Jessore Road,
Kolkata – 700132.
Email – probalch@hotmail.com

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