



COMPLICATIONS OF PAROTIDECTOMY- OUR EXPERIENCE

ENT

Srimanti Kundu

Debabrata Das* *Corresponding Author

Anurag Pradhan

Debasis Barman

ABSTRACT

Aim: The aim of the study was to determine the possible predictive intra-operative factors that may lead to post-operative complications and to identify, describe and manage the various complications of parotidectomy.

Background: Parotidectomy, whether it be superficial or total, may be associated with a complication. It may range from a total transection of facial nerve trunk to a simple wound infection. The aim of this study is to identify and manage these complications of parotidectomy encountered in our setup.

Materials and methods: A prospective study was done in 22 patients who had undergone superficial parotidectomy (19 cases) and total parotidectomy (3 cases) in our hospital from 1/10/2016 to 31/9/2017. The patients were observed post operatively for development of any complications and were kept under follow-up for a period of 1 year.

Results: Following this study, we observed that 22.72% of patients had facial nerve injury, 13.63% of patients developed salivary fistula, 13.63% of patients developed Frey's Syndrome, 18.18% of patients had ear numbness, 9.09% of patients developed skin flap necrosis and recurrence was seen in 4.54%. There was no reported case of postoperative wound infection, hematoma, and seroma formation.

Conclusion: It was seen that marginal mandibular nerve paresis followed by ear numbness were the most commonly encountered complication following parotidectomy. Skin flap necrosis, hematoma and postoperative infection were less common complications.

KEYWORDS

INTRODUCTION:

Parotidectomy is a surgical procedure of excision of the parotid gland which is mainly of two types, namely superficial and total parotidectomy^[1]. Like any other surgical procedure parotidectomy is also associated with many intra-op and post-op complications like facial nerve injury, Frey's syndrome, salivary fistula, ear numbness, hematoma and seroma formation, skin flap necrosis and last but not the least post-operative wound infection^[1]. Hence pre-operative counselling and proper planning of operation is essential for any parotid surgery.

The aim of this study is to determine the possible predictive intra-operative factors that may lead to post-operative complications and to identify, describe and manage the various complications of parotidectomy.

MATERIALS AND METHODS:

It is a prospective study of 1-year duration from 1/10/2016 to 31/9/2017 done in a rural based hospital. The subjects were adult patients with parotid swelling requiring parotidectomy with FNAC showing benign or malignant lesion. A total of 22 patients was included in this study.

INCLUSION AND EXCLUSION CRITERIA:

All patients of both sex, who were fit for general anaesthesia and were willing to give consent were included. FNAC proved both benign and malignant lesions were included in this study. Whereas patients those who were not fit for general anaesthesia or those who were not willing to give consent were excluded from this study.

STUDY PROCEDURE:

Patients with a lump in the parotid region attending the OPD of our department were subjected to a detailed ENT examination followed by a radiological and histological examination by means of USG/CT/MRI & FNAC. After confirming the diagnosis of a parotid lesion the patients were explained in details about the disease they were suffering from and the need for operative intervention. They were also explained in details regarding the complications that may arise from the procedure. After receiving their consent, the patient was prepared for operation.

The details of the steps for parotidectomy we followed in our set-up are as follows:

- 1) After proper dressing and draping of the area, a modified Blair's incision is used to elevate the anterior and posterior skin flap. The posterior flap is elevated first in the sub-platysmal layer to visualize the sternocleidomastoid and the greater auricular nerve. the anterior flap is then elevated, first in the neck following the same plane as the posterior flap, up to the anterior border of the parotid gland keeping the same thickness as the neck flap and leaving a layer of subcutaneous fat both above and below the flap.
- 2) Then the facial nerve trunk is identified following the technique of convergence, using the tragal pointer and the superior border of the posterior belly of digastric as our landmarks.
- 3) After the facial nerve trunk has been identified we proceed in the anterograde manner to dissect out the facial nerve branches and excise the superficial parotid tissue.
- 4) In cases of total parotidectomy deeper part of gland was removed after mobilisation of nerve branches to avoid tractional damage.
- 5) Following the removal of the gland we use the sternocleidomastoid rotation flap to cover the facial nerve & the bed of the parotid.
- 6) Finally, a suction drainage is placed in situ and the wound is closed in layers.

RESULTS AND ANALYSIS:

It was seen that the mean age of our study population was 41.11 years (from 22 to 60 years) and male to female ratio was 1.25:1.

In our study, majority of the patients 90.9% had benign tumour & 9.09% cases were malignant. A total of 19 patients underwent superficial parotidectomy and 3 patients underwent total parotidectomy.

Age Group (in years)	No of Patients	%
18-30	4	18.18
31-40	6	27.27
41-50	8	36.36
51-60	4	18.18

Following this study, we observed that 22.72% of patients had injury to one of the branches of facial nerve, 13.63% of patients developed salivary fistula, 13.63% of patients developed Frey's Syndrome, 18.18% of patients had ear numbness, 9.09% of patients developed skin flap necrosis. There was no reported case of postoperative wound infection, hematoma, and seroma formation.

COMPLICATION	NUMBER OF PATIENTS (n=22)	PERCENTAGE OF PATIENTS
Branches of facial nerve palsy	5	22.72
Frey's syndrome	3	13.63
Ear numbness	4	18.18
Salivary fistula	3	13.63
Skin flap necrosis	2	9.09
Recurrence	1	4.54%
Postoperative wound infection	NIL	0
Haematoma and seroma formation	NIL	0

It was seen that out of the branches of the facial nerve that underwent palsy only the marginal mandibular nerve was involved. There were no reported cases of palsy to other branches of the facial nerve. In one case there was permanent marginal mandibular nerve injury after total parotidectomy where the others recovered within 1 month.

Out of the total number of patients developing ear numbness due to greater auricular nerve palsy 1 was permanent and 3 were temporary.

Branches	No of patients (n=22)	Percentage
Temporal	0	0
Zygomatic	0	0
Buccal	0	0
Marginal mandibular	5	22.72
Cervical	0	0

NUMBNESS OF EAR LOBULE	NUMBER OF PATIENTS	PERCENTAGE
TEMPORARY	3	13.63
PERMANENT	1	4.54

MANAGEMENT OF COMPLICATIONS:

- 1) Those having marginal mandibular nerve paresis were advised for facial nerve exercises and were also given a 2 weeks course of oral steroid therapy. Following which almost all patients recovered within a period of one month except one patient who still had marginal mandibular nerve palsy even after 1-year follow-up.
- 2) Among those patients that had developed paresthesia of the ear lobule due to greater auricular nerve injury almost all recovered within a period of one month except one patient who still complained of paresthesia even after 1 year of follow up.
- 3) Management of salivary fistula was done by infiltration of the fistulous tract with 3% NaCl solution locally in a twice weekly basis. Regular dressing with povidone iodine solution twice daily along with a proper antibiotic coverage was given for two weeks. All patients who developed salivary fistula recovered within 4-5 weeks.
- 4) Patients coming for follow-up with signs and symptoms of Frey's syndrome were diagnosed using the Minor's starch-iodine test⁽¹⁾. There are many drugs (both topical and oral) mentioned in various literatures for the management of Frey's syndrome, for example oral and topical anticholinergics and injection of botulinum A toxin. But due to unavailability and high cost of such drugs we did not use such drugs. Instead the patients were managed by using a topical antiperspirant containing Aluminium chloride and by simply using a handkerchief during the time of feeding. We had also planned for tympanic neurectomy in some patients and we explained the option but patients didn't agree to underwent operation again.
- 5) The two patients that had developed skin flap necrosis were managed conservatively in indoor basis by proper antibiotic coverage and regular dressing after which the wound healed by secondary intention



Picture showing marginal mandibular nerve paresis



After 7 Days Post-op

At 1 Month After 3% NaCl Infiltration



Minor's starch-iodine test to detect Frey's Syndrome Patient with skin flap necrosis

DISCUSSION:

The mean age group of 41.11 years was consistent with previous studies Ashim Kumar Biswas et al⁽²⁾ found the mean age of 44.1yrs (14-65 years) in their study.

There was a slight male preponderance with the ratio of 1.25:1. Nader M. Albsoul et al⁽³⁾ found in their study Male: Female = 0.97:1.

The marginal mandibular branch of the facial nerve was the most commonly injured nerve (22.72%) in our study and this is also consistent with studies conducted by other authors^(4,5). This branch seems to be traumatised easily because it is thin, slender and more superficial and is easily damaged by mishandling.⁽¹⁾

The second most common complication was Greater Auricular Nerve(GAN) palsy (18.18%). Ashim Kumar Biswas et al⁽²⁾ reported 26.66% of GAN palsy in his study. Ear numbness can still occur even after careful preservation of the posterior branch of GAN due to paresis caused by excessive traction or thermal injury by cautery.

After the initial incidence of 3 cases (13.63%) of Frey's Syndrome, we started giving sternocleidomastoid muscle rotation flap to cover the facial nerve and parotid bed following which there was no reported incidence of Frey's Syndrome. The clinical incidence of Frey's Syndrome after parotidectomy has been reported as high as 50% in some studies⁽⁶⁾.

Salivary fistula seen in three patients in our study were managed by local infiltration of 3% NaCl⁽⁷⁾ and all recovered completely within 4-5 weeks.

Skin flap necrosis was seen in 2 patients. Most of the studies have reported skin flap necrosis as a rare complication.⁽⁶⁾

CONCLUSION:

Even after meticulous dissection and anatomical preservation of nerves and vessels complication can still occur even after an uneventful surgery. A surgeon should promptly and vigorously manage these complications using his full resources.

For parotidectomy the following procedures can be done to decrease the incidence of complications as noted in our study:

- 1) Occurrence of Frey's Syndrome and salivary fistula can be reduced by use of Superficial Musculoaponeurotic System Advancement (SMAS)⁽⁸⁾ and Sternocleidomastoid flap⁽⁹⁾
- 2) We should be very careful regarding elevation of anterior skin flap and avoidance of undue traction to prevent paresis of marginal mandibular nerve.
- 3) Meticulous dissection with preservation of posterior division of Greater Auricular Nerve should be done whenever possible.
- 4) To prevent skin flap necrosis, we should not extend the incision posteriorly up to mastoid tip to prevent acute angulation. Also the anterior skin flap which tends to get thin and devoid of its blood supply, especially in large tumors can be trimmed to ensure that the edge bleeds well.⁽¹⁰⁾

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