ISSN: 0975-1556

Available online on www.ijpcr.com

International Journal of Pharmaceutical and Clinical Research 2021; 13(6);508-512
Original Research Article

A Comprehensive Study with Regards to Quantity of Blood Loss and Post Operative Mortality and Morbidity

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Received: 08-09-2021 / Revised: 20-09-2021 / Accepted: 27-10-2021
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Conflict of interest: Nil

Abstract

Purpose: Maxillectomy is removal of all or part of maxillary bone (Upper jaw). This surgery is needed for both benign and malignant tumour of hard palate, nose, maxillary sinus or any tumour that has involve maxilla. Maxillectomy is a challenging surgery because it affects cosmesis and quality of life.

Maxilla is the most important bone of skull and face. It houses the upper teeth and forms portion of upper jaw. Removal of maxilla is a devastating procedure and affects the quality of life. Maxillary bone is supplied by maxillary artery which is terminal branch of external carotid artery. Hemorrhage is most important intra-operative complication of maxillectomy.

Purpose of this study was to know how ligatation of external carotid artery affects intra-operative hemorrhage during surgery and evaluate the amount of blood loss in preligated maxillectomy and compare it with those cases where ligation was not done.

Keywords: Anatomical abnormalities, Ehlers-Danlos syndrome, Marfan syndromes, Medial patellofemoral ligament, Patellar dislocation.

Introduction

Maxilla forms upper part of the jaw. Removal of maxillary bone on the face by surgical mean is called a maxillectomy. Maxillectomy is required in cases of malignant and benign tumour of maxilla.

Concept of maxillectomy was first described by LAZARS in 1826. SYME performed the first maxillectomy in 1829. Early maxillectomy attempts were unsuccessful primarily because of excessive blood loss and high mortality. In 1927 portmann suggested sublabial tansoral approach to remove maxilla. In 1950 weber ferggusson came out with lateral rhinotomy incision. In 1954 Smith demonstrated extended total maxillectomy. In 1977 Smith demonstrated medial maxillectomy with help of endoscope.

Types of maxillectomy:

- **Medial maxillectomy:** The part of the maxilla that is next to the nose is removed “medial wall of maxilla”.
- **Partial maxillectomy:** Removes the hard palate “roof of the mouth”, lower part of the maxilla.

- **Subtotal maxillectomy**: Removal of at least two walls of maxilla.
- **Total maxillectomy**: Removes the entire maxilla on one side (unilateral), as well as the hard palate and orbital floor (bone below eye).
- **Extended total maxillectomy:** Total maxillectomy with orbit exenteration

Indication for maxillectomy

- Mallignant tumors involving maxilla/ lateral nasal wall
- Fungal infections causing extensive destruction of sinuses
- Chronic granulomatous disease involving nose and sinuses

Indication for partial maxillectomy

- Inverted papilloma
- Benign nasophyryngeal Angiofibroloma
- Fungal sinusitis

Materials

This study was carried out at the Department of ENT & Head and Neck surgery, at Patna Medical College & Hospital. Patients' case files from year 2006 to 2012 were retrieved and reviewed. Data extracted for analysis included age, gender, site and size of lesion, and histological diagnosis; lesion were grouped as benign or malignant.

We have selected only those cases where tumors were limited to maxilla only. Metastatic lesions were not included in our study.

Total no. maxillectomy performed in PMCH between July 2006 to August 2012: - 31 cases

- Carotid artery ligated in 16 cases.
- Without ligation 15 cases.
- Sex ratio= 16 (Male) + 15 (Females)
- Age group = 40 to 60 years.

Methods and procedure

Types of maxillectomy done with Lateral Rhinotomy and Weber Fergusson incision.

Table 1: Carotid artery ligation in carotid triangle

Type	Portion removed	Total NO. of cases	With carotid artery Ligation	Without carotid artery Ligation	Incision adopted
Type I	Medial maxillectomy (medial wall of maxilla)	15	8	7	Lateral Rhinotomy Incision
Type II	Subtotal (Removal of two wall of maxilla)	1	1	1	Weber Fergusson
Type IIIA	Total (without orbital exenteration)	15	8	7	Weber Fergusson
Type IIIB	With orbital exenteration	0	0	0	0
Type IV	Orbito maxillectomy	0	0	0	0

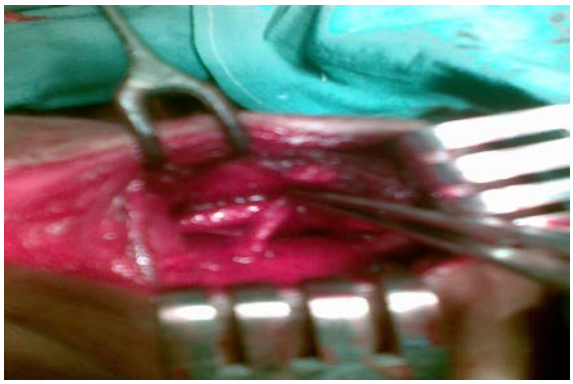


Figure 1: Carotid artery ligation in carotid triangle; Figure 2: ligation of external carotid

Figure 3: Removed maxilla

Table 2: Histopahology of Specimen obtained after maxillectomy and sent for histopathological examination and there by analyzed

Diagnosis	No of Cases
Angiofibroloma	12
Inverted papilloma	3
Squamous cell carcinoma	12
Adenoidcystic carcinoma	1
Adenocarcinoma	1
Nonspecific Lesion	2

All malignant tumors of maxilla SCC ACC and ADC were sent to radiotherapy for radiation and dental department for obturator prosthesis and Psychiatric department for further rehabilitation.

Observation result

Table 3: Result was observed in following parameters.

Parameters	With Ligation	Without Ligation
Blood loss	200-300cc	600- 700cc
Post –operative facial edema	More	Less
Woud healing	Slightly delayed	Uneventful
coma	None	None
Recurrence	None	2 cases

Figure 4: Weber Fergusson incision

Figure 5: External carotid artery ligated in carotid triangle

Conclusion

We examine and select 31 cases of maxillary growth both benign and malignant (Limited to maxilla only with no metastasis) and treated with surgery (maxillectomy) and radiotherapy (in cases of malignant tumors). Maxillary defects result in major functional and aesthetic abnormities dental obturator can provide good functional result but require constant patient care.

Two-year disease-free survival rate in our study is high in 95% cases. Overall

recurrence was less only two cases in two years.

After analyzing all the parameters, we have following information.

- Amount of blood loss depends upon site, size and type of lesion.
- Ligation of external carotid artery remarkably reduces blood loss.
- Maxillectomy is a Challenging but safe procedure.
- Maxillectomy can be performed without blood arrangement if external carotid artery is ligated.
- External carotid artery is ligation reduces intra operative hemorrhage and may improve surgical outcome decrease overall morbidity.
- Maxillectomy can be done in emergency situation

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