

Reconstruction of lower eyelid defect with mustarde flap: A 5 years retrospective study

Kabita Kalita¹, Dibyajyoti Bora², Sarabjot Singh Anant^{3*}, Ravneet Kaur⁴

¹Professor & Head, Department of Plastic Surgery, Guwahati Medical College & Hospital- Guwahati, Assam, India.

²Registrar, Department of Plastic Surgery, Guwahati Medical College & Hospital- Guwahati, Assam, India.

³Senior Resident, Department of Plastic Surgery Guwahati Medical College & Hospital- Guwahati, Assam, India.

⁴Senior Resident, Department of Dermatology, Guwahati Medical College & Hospital- Guwahati, Assam, India.

Received: 10-10-2022 / Revised: 09-12-2022/ Accepted: 29-01-2023

Abstract

Reconstruction of eyelids can be challenging after tumour excisions. Various reconstructive options are available but complete knowledge about the anatomy and its function is important. To restore the function and aesthetic outcome is critically important. Despite many surgical options available: in our paper we want to provide the most reliable and useful method of lower eyelid reconstruction by MUSTARDE flap. **Aim:** To evaluate the clinical outcome of Mustarde cheek rotation flap in reconstruction of large lower eyelid and cheek defects. **Materials and method:** It is a retrospective study conducted in the Department of Plastic Surgery, Guwahati, Assam, India Medical College, Guwahati, Assam, India. 7 patients who underwent Mustarde cheek rotation flap during a period from 1st July 2017 to 30th June 2022 are evaluated in this study. **Results:** All the 7 patients showed favourable outcome with good cosmesis. There was no major complication regarding the flap post operatively. One patient with basal cell carcinoma (BCC) of lower eyelid showed mild ectropion on follow up without corneal exposure. **Conclusion:** Mustarde cheek rotation flap is a versatile flap for reconstruction of large lower eyelid and cheek defects. It has good cosmetic outcome with minimal patient morbidity. **Keywords:** Mustarde cheek rotation flap, Basal cell carcinoma(BCC), Lower eyelid defect, Cheek defect.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

The incidence of Basal cell Carcinoma has increased from last few decades, owing to 70-80% of all skin neoplasms, mainly the eyelids. (1). Primary reconstructive goal of eyelid is to restore normal vision and protect eye. (2) Full thickness lower eyelid defects requires reconstruction with a skin flap along with mucosal and cartilage graft. Mustarde cheek rotation flap is a versatile skin flap for coverage of large lower eyelid defects as well as cheek defects. This flap was first described by Mustarde in 1971 and later on by Callahan and Callahan in 1980. (1,3) Other options available for reconstruction are transposition flaps, cheek advancement flaps, V-Y flaps, have been reported to repair the lower eyelid defects. (4) Now a day's patients expectations are increasing to meet the desire result. So mustarde flap is a good option to satisfy all the desired expectations. (5)

Materials and methods

It is a retrospective study done in the Department of Plastic Surgery, Gauhati Medical College, Guwahati. Seven patients admitted in the department from 1st July 2017 to 30th June 2022 are included in this study. Among these seven patients two had basal cell carcinoma(BCC) of cheek, one had BCC lower eyelid, one had BCC of lower eyelid and cheek, one had carcinoma of Meibomian gland one had post traumatic ectropion of lower eyelid, one patient had basal cell carcinoma of nose. BCC and Meibomian gland carcinoma patients underwent surgical excision of the tumour and the ectropion

*Correspondence

Dr. Sarabjot Singh Anant

Senior Resident, Department of Plastic Surgery, Guwahati Medical College & Hospital- Guwahati, Assam, India

E-Mail: sarabjot.singh48@gmail.com

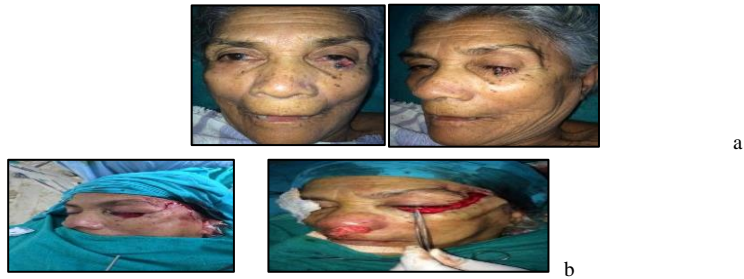
patient underwent release followed by coverage of the surgically created defect with Mustarde cheek rotation flap. Apart from the Mustarde flap nasal septal mucochondral graft was used for lining and support in two cases of BCC involving lower eyelid where full thickness lower eyelid defect occurred following tumour excision.

Surgical Technique: Surgeries were performed under general anaesthesia. First the tumour was outlined with 3-5 mm clearance margin in BCC and Meibomian gland carcinoma and then the flap marking was done. The ectropion patient first underwent release of ectropion. The final defect was made triangular with its base towards the lower eyelid eyelash margin and the apex pointing towards the cheek. Incision was initiated at the lateral margin of the base of the triangular defect and was carried out towards the lateral canthus and then upwards and outwards. The length of cheek incision and the amount of undermining was carried out on trial-and-error basis. Incision was extended inferiorly in front of the ear if required. Flap dissection was done in subcutaneous plan. After the dissection flap was anchored to the medial side of the defect. Posterior lamella of lower eyelid was reconstructed using nasal septal mucochondral graft in two patients having full thickness defect of the eyelid.

Case reports:

Case - 1.

A 65 years old female patient having BCC of left lower eyelid was admitted in the department. Under general anaesthesia, the tumour was excised. The resultant defect was reconstructed with Mustarde flap for outer skin coverage and nasal septal muco-chondral graft for posterior lamella. The flap looked well post operatively and on follow up with acceptable function.



Pre operative photos Intra operative photos showing
Fig 1:(a) the defect after tumour Excision
(b) Placement of septal muco-chondral graft and flap dissection



Fig 2:Intra operative photo after flap insetting Post operative and follow up photos

Case-2.

This 68 years old female patient presented with BCC of left lower eyelid and cheek. Tumour was excised under general anaesthesia and the resultant defect was reconstructed with Mustarde flap and nasal septal muco-chondral graft. The flap looked healthy post operatively and on follow up with acceptable function.



Fig 3(a):After tumour excision b): Intra operative photo showing the defect



c): Pre operative photos



Fig 4a): Post operative photos b)Follow up photos

Case- 3.

She was a 56 years old female patient with BCC of right cheek. The tumour was excised under general anaesthesia and the defect was reconstructed with Mustarde flap. The flap looked well post operatively and on follow up.



Fig 5a):Pre operative photos

b): Intra operative photos after flap inseting

Case- 4.

A 60 years old female patient having BCC of right cheek was admitted in the department. Under general anaesthesia, the tumour was excised. The resultant defect was reconstructed with Mustarde flap for coverage and nasal septal muco-chondral graft for posterior lamella. The flap was well post operatively and on follow up.



Fig 6a) Pre operative photos

b): Intra operative photo showing the defect after tumour excision



Fig 7a): Intra operative photos showing the defect

b):Post operative photos after tumour excision

Case-5.

This 52 years old female patient presented with carcinoma of Meibomian gland of right eye. Under general anaesthesia, the tumour was excised and the resultant defect was reconstructed with Mustarde flap. The flap was well post operatively and on follow up with good cosmesis.



Fig 8a)Pre operative photo

b): Intra operative photo showing the defect after tumour excision



Fig 8c):Post operative and Follow up photos

Case- 6.

A 28 years old male patient presented with post traumatic ectropion of left lower eyelid. Under general anaesthesia, ectropion was released and the resultant defect was reconstructed with Mustarde flap. The flap looked well post operatively and on follow up with acceptable function.



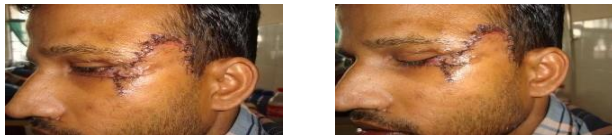
a



b

Fig 9:Pre operative photos

Intra operative photos showing (a) the defect after ectropion release (b) after flap inseting



c):Post operative photos

Case-7

A 25years old female patient was admitted in our department with biopsy proven basal cell carcinoma of nose(right lateral nasal wall). Patient got operated under general anaesthesia. The tumor was excised and the resultant defect was closed with MUSTARDE flap. Patient recovered well postoperatively and on follow up having good aesthetic outcome.



a)

b)

Fig 10:Preoperative Photos

intraoperative photos

a) after resection of tumour. b) after mustarde flap cover.



d) Post operative photo

Results and discussion

The reconstruction of the lower eyelid and cheek defects is a challenging task for Plastic Surgeons. The seven patients studied in this series showed good outcome of Mustarde flap with acceptable function and cosmesis. Deep dissection provides a tension free closure of the flap. There was no major complication regarding the flap like flap necrosis. One patient with BCC of lower eyelid showed mild ectropion on follow up without corneal exposure. Mustarde flap is a time tested one.(6)Mustarde cheek rotation flap lined either with nasal muco-cartilaginous graft or with conchal cartilage and buccal mucosa grafts is a reliable and versatile method for covering wide defects of the lower eyelid and cheek with satisfactory functional and aesthetical results. (7)Mustarde flap remains the first choice because it allows high functional and aesthetic quality in reconstruction.(8)Mustarde flap is associated with minor complications which can be managed very easily and it has very high patient's satisfactions.(9)

Conclusion

We experienced that cervicofacial rotation-advancement flap (MUSTARDE flap) is powerful tool to reconstruct lower eyelid and cheek junction defects. It is a versatile flap with good cosmetic outcome with minimal patient morbidity. Clinical assessment for true defect and preoperative planning is very important to execute the surgery. The stability of the flap and avoiding postoperative complications should be kept in mind. A single stage reconstruction should be the goal but not to compromise the functional and aesthetic outcome.

References

1. Al-Qarqaz F, Marji M, Bodoor K, Almomani R, Al Gargaz W, Alshiyab D, Muhaidat J, Alqudah M. Clinical and demographic features of basal cell carcinoma in North Jordan. *Journal of Skin Cancer*. 2018; 23: 3-8.
2. Rinaldi S, Marcasciano M, Pacitti F, Toscani M, Tarallo M, Fino P, Scuderi GL. Inveterate squamous cell carcinoma of the upper eyelid: A case report. *La ClinicaTerapeutica*. 2013; 1;164(3):e203-5.
3. Callahan MA, Callahan A. Mustarde flap lower lid reconstruction after after malignancy. *Ophthalmology* 1980; 87(4): 279-86
4. Brenner MJ, Moyer JS. Skin and composite grafting techniques in facial reconstruction for skin cancer. *Facial Plastic Surgery Clinics*. 2017; 25(3): 347-63.
5. Shields JA, Saktanasate J, Lally SE, Carrasco JR, Shields CL. Sebaceous carcinoma of the ocular region: the 2014 Professor Winifred Mao Lecture. *The Asia-Pacific Journal of Ophthalmology*. 2015; 4(4):221-7.
6. Subramanian N. Reconstruction of eyelid defects. *Indian J Plast Surg* 2011; 44(1): 5-13
7. Oana Roxana Grosu et al. Versatility of Mustarde cheek rotation prelaminate flap for reconstruction of the wide full thickness lower lid defects. *TMJ* 2007; 57(4): 249-54.
8. Asokan A et al. Basal cell carcinoma of the lower eyelid: reconstruction with the Mustarde flap. *JIPMER Journal of cancer* July 2014; 4(1): 56-58
9. Jain A et al. Mustarde's flap for post basal cell carcinoma excision lower eyelid reconstruction:Our experience. *J of Evidence Based Med & Healthcare*.2015; 2(26): 3924-28.

Conflict of Interest: Nil Source of support: Nil