

Methods of Repairing Eyelid Defects Experience of Military Hospital My Ismail of Meknes (About 23 Cases)

A. El Ouafi*, F. El Alami, A. Bouzidi, M. Moumine
Military Hospital My Ismail, Meknes, Morocco

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*Corresponding author
A. El Ouafi

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Abstract: The repair of eyelid needs a good knowledge of reconstruction techniques. The goal of this work is to study epidemiological and technical aspects of eyelid defects in our context, and to evaluate their functional and aesthetic repair. We report cases concerned by loss of eyelid tissue operated between September 2011 and September 2016. Epidemiological, clinical and histo-pathological aspects are described, the repair processes and various surgical techniques are discussed. Among the identified cases of eyelid defects, 74% were malignant tumoral pathology, while 26% were benign. The repair techniques used were suture, direct healing, skin graft, flap of Mustardé with mucous chondro graft, frontal flap and sub-mental flap. The eyelid defects need functional and aesthetic valid repair, the various reconstruction means should begin from the simple ones to more complex.

Keywords: Substance loss, submental flap, maxillofacial surgery.

INTRODUCTION

Eyelids are complex structures and pose a challenge for reconstruction. They play an important role in protecting the globe from trauma, excessive light, and in maintaining the integrity of tear films and moving the tears toward the lacrimal drainage system. The beauty and expression to the eye is given by the lids and muscles in it. Upper and lower eyelids have been formed for their specific functions by Nature.

Various lesions can break this anatomical, aesthetic and functional harmony of the eyelids, among which the losses of substances: these losses of substances can be tumoral, traumatic or other.

So eyelid surgery must obey the guiding principles of plastic surgery, taking into account this palpebral architecture and the topographical situation of these mutilations. The overall goal of our work is, through a literature review and a case study, to describe the various palpebral loss repair techniques and their evaluation.

MATERIALS AND METHODS

This is a retrospective study, within the department of stomatology and maxillofacial surgery of the military hospital Moulay Ismail Meknes spread over a period of 5 years, from September 2011 to September 2016, it concerns 23 patients who have undergone palpebral reconstruction. We have retained in our study all losses of eyelid substance whatever the etiology. The sources that made this study possible were: the register of hospitalized patients, the operative reports, and a pre-established questionnaire.

The collection of data was based on the data available in the patients' medical files, according to a

pre-established operating file. For each patient, we mentioned: epidemiological data (age, sex, antecedents, risk factors), clinical data (clinical examination of eyelid loss), therapeutic data (the therapeutic protocol, the type of reconstruction) and prognostic data (occurrence of complications, functional and aesthetic results).

RESULTS

The average age at the time of tumor discovery was 52 years with extremes ranging from 30 to 90 years, the third and fourth decade represent the largest contingent with 13 cases (56.5%).

Our series consists of 15 men (65%) and 8 women (34%), so the sex ratio M / F was 1.85.

In our series, etiologies of palpebral loss are mainly dominated by malignant and benign tumoral pathology. Thus basal cell carcinoma constituted 95.2% of the etiologies labeled, compared to 4.8% for squamous cell carcinoma.

CLINICAL RESULTS

Location of Tumors

In our series, the right eye was reached in 16 cases (69.5%), the left eye in 7 cases (30, 4%). Also, the lower eyelid was the most affected, with 13 cases so 56.5% of our patients, the second location in order of frequency was the upper eyelid: 8 cases. The internal Canthus was involved in only 2 cases (8.6%), no case was detected for the external canthus. Two of our patients have tumors that take both the lower eyelid and the inner canthus.

Substance Loss Size

Among the 23 patients, we have size data for 12 cases, a percentage of 52%. A single case of exenteration was found, two cases of loss of substance estimated at half, eight cases estimated at one-third, and a single case of loss of substance affecting one-quarter.

Reconstruction

The reconstruction of eyelid loss involves a variety of procedures, ranging from relatively simple techniques to more complex means of graft and flaps. Depending on the size of the loss of substance and its

location, the reconstruction performed: 26, 1% benefited from simple sutures, 8.7% were left for directed healing, and a total skin graft taken from mastoid or supraclavicular skin were used in 17.4%. The use of local and loco-regional flaps was 26.1% with Mustardé temporojugal flap with palatal chondromucosa graft for the conjunctival plane. 8.6% had a paramedian frontal flap. The reconstruction was performed by a distance flap for 4.3% by a sub-mental flap and for 4.3% by a translational flap, and then by a frontal flap of Mac Gregor associated with a musculo-cutaneous flap Pectoralis Major for an exenteration case representing 4, 3%.

The Postoperative Follow-Up

The postoperative follow-up was simple for all our patients: no infection, no hematoma, and no flap necrosis, one case of ectropion was found. Follow-up was possible for twenty-two patients.

Surveillance

Monitoring was carried out by regular checks at 01 month, 03months, 06months then 12 months.



Fig-1: Immediate Postoperative Appearance After Tumor Excision And Placement Of Oblique Frontal Flap



Fig-2: Skin Graft

DISCUSSION

Epidemiological Data

In our five-year retrospective study about twenty-three patients; the average age was 52 years with extreme variations between 30 and 90 years. Staub G *et al.*, [1] found an average age of 64 years.

Messaoudi R *et al.*, [2] also reported an average age of 62, 7 years. As for El Halimi R *et al.*, [3] the average age found was 60 years old. In their study conducted in 2015 at IBN Rochd Chu of Casablanca [4], Z. Khtibari *et al.*, Found an average age of 62 years with extremes of 9 to 100 years. For the study carried out at the plastic

and reconstructive surgery department at Avicenne Medical Center of Rabat and the otorhinolaryngology and cervicofacial surgery department at CHU II of Fez by A. Echchaoui, A. Houssa, and their collaborators [5], the average age was 60 years with extremes ranging from 33 to 96 years. In a study conducted in Tunisia in 2014 [6] by L. Knani *et al.*, the average age was 64 (64 ± 14 years). In another study carried out at Hédi Raies Institute of Ophthalmology in Tunisia by A. Chebbi [7], the average age was 50 years with extremes ranging from 30 years to 70 years. In our series as in other studies we find a male predominance with a sex ratio of 1.85, this is consistent with the studies of Z. Khtibari, L. Knani and A. Chebbi where the sex ratio was respectively 1.77 and 0.82 and 1, 2. As for the study of A. Echchaoui, they found a female predominance with a sex ratio of 1.56.

Clinical Data

In our series the right eye was more affected than the left eye with a rate of 69.5% against 30.4%. In the series of Ducasse [8] we find the same observation, as opposed to Bonnay [9].

The location is in order of frequency at lower eyelid, upper eyelid and the inner canthus; the outer canthus rarely being touched. They are compared with those in the literature.

In our series, the etiology of substance loss is dominated by basal cell carcinoma 95.2% which is consistent with most studies around the world. It is the most common malignant palpebral tumor in the Maghreb countries [10, 11]. This tumor is rare in black Africa [12, 13]. Indeed, basal cell carcinoma represents only 1 / 10th of palpebral carcinomas in Africans [14], due to protection by strong melanic pigmentation [15]. In France, a prospective 3-year study of 172 palpebral tumors showed that basal cell carcinoma was the most common tumor (29.65%) [9, 5].

In Asia, the incidence of basal cell carcinoma is between 30-40% and that of squamous cell carcinoma and sebaceous carcinoma between 20-30% [16], with the exception of Singapore where basal cell carcinoma is by far the tumor the most common (84%) [17].

In Japan, the number of cases of eyelid cancer recorded between 1976 and 2004 was 774 cases, with a slight predominance of basal cell carcinoma with 39.5%, followed by sebaceous carcinoma with 27% and then squamous cell carcinoma with 21.8% [16]. China and Korea are similar to Japan [18, 19]. In India, basal cell carcinoma accounts for 29.8-38.8% of cases of eyelid cancers, sebaceous carcinoma 27.1-32.6% and squamous cell carcinoma 22.4-28.1% [20, 21].

No studies have been found for South America and the incidences are getting closer between Mexico,

USA and Canada, again basal cell carcinoma is much more common with 80.4-91.3%, squamous cell carcinoma is second (2.4-8.6%) [22, 23]. In Australia: basal cell carcinoma also was the most important malignant palpebral tumor with 89.7%, the other histological types do not exceed 10% of all cases [24].

Reconstruction

The palpebral reconstruction techniques obey certain rules as mentioned before. In our series, 26.1% benefited from simple sutures, 8.7% were left for directed healing, we had recourse to a total skin graft taken from mastoid or supraclavicular skin in 17.4%.

The use of local and loco-regional flaps was 26.1% with Mustardé temporo-jugal flap with palatal chondro-mucosa graft for the conjunctival plane. 8.6% had a paramedian frontal flap. The reconstruction was performed by a distance flap for 4.3% by a sub-mental flap, for 4.3% by a translational flap and by a frontal flap of Mac Gregor associated with a musculo-cutaneous flap Pectoralis Major for a case exenteration representing 4, 3%. For L. Knani [4] the reconstruction was done by flaps (66.8%) followed by sutures (23, 9%) grafts (9%) and directed scarring (0.6%) For A. Chebbi [5] it was made by flaps (65.8%), sutures (23.5%) and directed scarring (5.8%). In the Z. Khtibari study [2] only two techniques were used; skin grafts (54.5%) and skin flaps (45.5%). Finally, for the A. Echchaoui series [3], the palatal fibro-mucous graft for the posterior lamella (25%), the total skin graft (28%), the Mustardé temporo-jugal flap (31%) and the semicircular flap of Tenzel (13%) were the most used means. In the exenteration cavity, a Mac Gregor frontal flap associated with a musculocutaneous flap Pectoralis major were used, for the Benazzou series [23] the cavity was covered by a flap of temporal muscle with total skin graft.

Follow-up

In the short term, postoperative follow-up was simple in most cases no infection was observed, no surgical revision was necessary.

In the medium term, the restored palpebral function was considered satisfactory in the majority of cases, particularly for palpebral opening. The results concerning upper eyelid dynamics were good. One case of lower eyelid retraction responsible of cicatricial ectropion was noted.

As for the aesthetic result, which must be put in the context of the deteriorations indicating this type of reconstruction, the results were judged moderately satisfactory for most patients (except for the exenteration). The average duration of follow-up was 15 months with extremes ranging from 8 to 42 months.

Eyelid reconstruction surgery must respect several architectural and functional considerations.

There are many surgical possibilities to treat the various losses of eyelid substance. The real discussion is in the choice between these multiple possible techniques to treat the same case.

CONCLUSION

The use of healthy eyelids as a source of tissue to treat the loss of substance has the advantage of respecting the principle of identity and being more simply accepted by the patient, by limiting the number and the heaviness of the interventions.

It also allows the use of tissues immediately adapted to the recipient site, by reconstructing the conjunctiva and tarsal support. The dogma of not using the upper eyelid to reconstruct the lower eyelid is no longer relevant.

The disadvantage however lies in the alteration of the remaining healthy eyelid. In contrast, reconstructions bringing tissue from neighboring regions are heavier to perform, require adjustment times and sometimes secondary retouching. They remain necessary when the local possibilities have been exceeded. In 1952, Fox concluded: "The plethora of techniques available to the surgeon is an interesting development, but it is confusing".

"As in other areas, each surgeon tends to use the techniques that have worked well in his hands, and favor those that seem to him the simplest". It is therefore up to each surgeon, depending on his experience, the advantages and disadvantages of each of the techniques to make the optimum choice.

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