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Amniotic Membrane Transplant: About A Case in Mali

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Abstract **Case Report**

The amniotic membrane graft consists of suturing a fragment of membrane on the de-epithelialized area with a few separate stitches. We report a case of amniotic membrane transplant on keratitis following the local use of a traditional treatment in Mali. It was of a case of amniotic membrane transplant performed in Mali in the management of bilateral keratitis occurring following eyewash with a decoction made from cooked tamarind leaf in a 36-year-old man. We used a 3cm/3cm square AMTRIX® Amniotic Membrane from the Banque de Tissus de France. The membrane was grafted in Patch on the two eyes of our patient, this allowed us to have good healing and improved visual acuity. The use of the amniotic membrane in the management of keratitis gives good functional and anatomical results. She is now possible, However, its availability and cost remains a challenge for our developing countries.

Keywords: Amniotic membrane, graft, keratitis.

I-INTRODUCTION

The amniotic membrane graft consists of suturing a fragment of membrane on the de-epithelialized area with a few separate stitches. It is then naturally integrated into the underlying stroma and covered by the adjacent epithelium [1].

Amniotic membrane transplantation is essential in the management of pathologies of the ocular surface. It is used in the treatment of trophic corneal ulcers in particular, but also infectious and post-infectious. As for the suturing technique, there are differences depending on the articles: depending on the indications, the amniotic membrane is used as a graft or as a patch (Figure 1) [2].

The use of amniotic membranes is old, since they had been used in general surgery since 1950 and the first tests had been carried out in 1910 [3].

In ophthalmology it was not until 1940 that De Roth used them in conjunctival alterations [3-5], then Sors by and Symons [6, 7] in 1946 and 1947, used for conjunctival reconstruction in the context of symblepharon and chemical burns of the conjunctiva. Recently, Kim and Tseng (1995) [8] used the membrane as a substrate for reconstruction of limbus in the absence of limbal stem cells in rabbits. Based on these animal experiments, Lee and Tseng (1997) [9] were the first to propose the use of human amniotic membrane in the treatment of defects of the corneal epithelium, associated with an ulcer. Subsequently, many studies have confirmed the interest of this technique [5]. The first transplant was performed in France at the Hôtel-Dieu in Paris on November 10, 1999 [3]. It is estimated that 500 patients per year can benefit from this treatment in France [3].

Very little data exists on membrane grafting in sub-Saharan Africa generally and for Mali specifically. This is why we wanted to present this case which will not be the last because there are many cases which present indications but whose main handicap remains the availability of a graft.

We bring back this case of amniotic membrane transplant performed in Mali. It is a perforated bilateral keratitis which occurred following ocular washing with a decoction made from cooked tamarind leaf.

II-OBSERVATION

This is a 36-year-old man, gardener who consults in September for ocular pruritus evolving for 1 week. Visual acuity was 1/10 in the right eye and 2/10 in the left eye. The slit lamp examination revealed keratitis with corneal perforation of approximately 4-5 millimeters with iris hernia in the right eye and 2-3 millimeters in the left eye with the onset of irido-corneal.

The interrogation revealed, an eye wash with a decoction of boiled tamarind leaf. A blood test was requested to look for inflammatory syndrome which turned out to be negative. Thereafter the indication of amniotic membrane graft was posed.

We used a 3cm/3cm square AMTRIX® Amniotic Membrane freeze-dried amniotic membrane from the Banque de Tissus de France. We split the only graft we had for both eyes. A patch of amniotic membrane was done in both eyes during the same operation. We sutured with 8.0 vicryl absorbable suture in separate stitches on both eyes (Figure 2). The patient was put on topical antibiotic ointment and eye drops for 6 weeks. We saw the patient again at D1, D4, D8, D15, D30, D45 and 6 months.

The patient presented with conjunctival hyperaemia, foreign body sensation with tingling. We observed a clear regression of signs between D8 and good healing of the left eye and beginning of healing of the right eye on D15 At D30 both corneas were well healed and the eyes were calm (Figure 3). Visual acuity was 6/10 in both eyes.

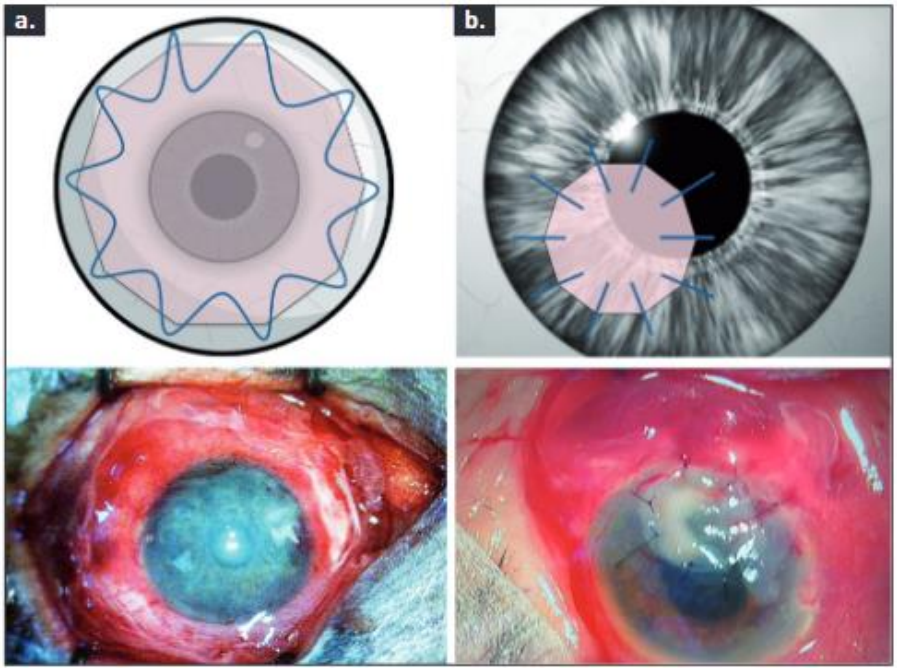

Figure 1: To. MAH in patch or "overlay" (epithelium down). b. MAH in graft or "inlay" technique (epithelium up). (N. Bonnin *et al*., 2014)

Figure 2: Immediate postoperative aspect Days 1

Figure 3: Postoperative aspect Days 60

III-DISCUSSION

Harmful eye practices, in particular the use of home remedies and methods drawn from traditional medicine, are widely used throughout the world to treat eye diseases and in particular acute inflammation in the case of red eyes. These remedies are often heavily contaminated, which can cause secondary infections. Other processes use substances that cause chemical burns [10]. Our patient's case was eye wash with a decoction made from cooked tamarind leaf 10 days before the consultation for painful red eyes which caused perforated keratitis. These lesions seem close to a burn lesion.

The extent of these practices is not well known, but according to some data from African countries, they could be responsible for a significant proportion of cases of childhood blindness (26% in Malawi, 20% in the United Republic of Tanzania). In general, these remedies are applied to both eyes and their effects are observed in the form of secondary infection of the cornea. The diagnosis of these lesions is often difficult to make, because the patient is reluctant to reveal the treatment applied to him [3]. The case of our patient was bilateral and it was during the second consultation that he notified us of the ocular washing with the decoction. The indications for amniotic membrane transplantation areulcers (aseptic, by burns, the sequelae of infections, by anesthesia of the cornea) not responding to conventional treatment and severe destruction of the surface of the cornea (burns by acid and by base, Lyell's syndrome, Stevens' syndrome - Johnson, bullous pemphigoid) [3]. Our surgical indication waskeratitis with bilateral corneal perforation.

The amniotic membrane in graft or “inlay” technique, consists in suturing the epithelium upwards. It serves as a substrate for corneal epithelial regrowth. It is used in the treatment of trophic corneal ulcers in particular, but also infectious and post-infectious. The amniotic membrane in the patch technique is sutured down to the epithelium in order to deliver a maximum concentration of biological factors. It is used in inflammatory situations of the ocular surface such as burns in the acute stage, particularly [2]. We used a 3cm/3cm square AMTRIX® Amniotic Membrane freeze-dried amniotic membrane from the Banque de Tissus de France. We split the only graft we had for both eyes. We did a patch graft in both eyes in our patient.

Lee [9] reports the results of 11 chronic corneal ulcers (evolving for an average of 17 weeks) treated by amniotic membrane graft and followed up for an average of 9 months. Ten healings are obtained after an average delay of 4 weeks and one case of failure. In Tseng's study [11], ten eyes with a moderate form of limbic insufficiency were treated with amniotic membrane transplantation alone. Visual acuity was improved in all cases. Shimazaki [12], combined an amniotic membrane graft and a limbic graft at the same time. He reports seven successes among seven eyes operated on for chemical or thermal burns with an average follow-up of 12 months. Our patient's eyes were healed after 4 weeks. We observed an improvement in visual acuity in the eyes of our patient. This could be explained by the fact that the lesions were not located on the visual axis.

Amniotic membranes ares safe, freeze-dried, sterile and room-temperature ophthalmological membranes, composed of one, two or three layers, maintaining their structural and biological properties [13] or stored on nitrocellulose in corneal banks at -80°C which will be thawed 30 minutes before use in the operating room [14].

The prognosis of amniotic membrane transplantation depends on the underlying pathology, the quality of the ocular surface and conversely on the degree of local inflammation [2].

CONCLUSION

The use of the amniotic membrane in the management of keratitis allowed us to have a very good result. Amniotic transplantation is a relatively simple and easy surgical technique. However, the acquisition of freeze-dried membrane and its high cost remains a real problem in developing countries.

There is no conflict of interest.

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