Use of Sutureless Dehydrated Amniotic Membrane to Treat Corneal Scares (About A Case)

W. Akioud, M. Khamaily, Y. Mozari, A. Oubaaz

ABSTRACT

The human amniotic membrane has been known to help treat a variety of ocular surface diseases thanks to its different components and properties. The amniotic membrane implantation needed the use of sutures or glue in an operating room. Nowadays, the introduction of in-office sutureless amniotic membranes has made it simpler and easier for practitioners to use amniotic membranes in their daily practice.

Dehydrated amniotic membrane is a type of in-office sutureless membrane that doesn't need much preparation nor time and with the same efficiency as the other types of amniotic membranes.

We present the case where we used a sutureless dehydrated amniotic membrane to treat difficult corneal opacities on a teenager's eye.

Keywords: Cornea, dehydrated amniotic membrane, ocular surface, scares.

I. INTRODUCTION

Human amniotic membrane is widely used to treat a variety of conjunctival and corneal diseases. This procedure normally requires an operating room and the use of sutures or glue to transplant the amniotic membrane graft on the ocular surface to be treated.

The new arrival of sutureless dehydrated amniotic membrane had made it easier and faster to treat ocular surface pathologies in office and with the same efficiency as the regular method.

We present a case of in-office sutureless application of dehydrated amniotic membrane on corneal scare of a young teenager.

II. CASE STUDY

Mr O. G. is a 14 years old teenager who presented to our department for blurred vision of the right eye. His medical history shows an old episode of severe herpetic keratitis of the right eye that was treated leaving post infectious corneal scars (Fig. 1 and 2).

The ocular examination of the right eye showed a BCVA of 8/10 and three corneal opacities:
- A superficial superior corneal scare reaching the limbus and affecting the epithelium and part of the anterior stoma (Fig. 3).
- A superficial temporal corneal and limbic scaring affecting the epithelium and the anterior stroma (Fig. 4).
- A deep nasal scaring reaching the limbus, affecting the epithelium and extending to the posterior stroma (Fig. 5). On the surface of the nasal opacity lies a large new blood vessel.

The rest of the ocular exam is strictly normal, as well as the left eye’s exam.

Upon these clinical findings we proceeded by steps in order to help the cornea heal at best.

First we gently peeled the fibrosed scarred tissue of the corneal opacities, then we conducted a sub conjunctival injection of anti-VEGF next to the new blood vessel on the nasal scare.

Afterwards, we applied a dehydrated human amniotic membrane (Amnio-TEK®) that we rehydrated using sterile saline solution, then we covered it up with an overlying bandage contact lens (Fig. 6).

After two months follow-up, the two superficial scars (temporal and superior) have completely healed, while the deep nasal opacity have reduced its size and condensation (Fig.7 and 8).
Fig. 1. Three corneal scares of the right eye: Superior, Nasal and temporal with new blood vessels on the nasal opacity.

Fig. 2. Same eye with Fluoresceine dye.

Fig. 3. Anterior segment OCT scan of the nasal opacity: the scare affects the epithelium, anterior and posterior stroma.

Fig. 4. Anterior segment OCT scan of the Superior opacity: the scare affects the epithelium and anterior stroma.

Fig. 5. Anterior segment OCT scan of the Superior opacity: the scare affects the epithelium and anterior stroma.

Fig. 6. Applying the dehydrated amniotic membrane and a bandage lens.

Fig. 7. One month follow-up: healing of the superior and temporal scaring. Disappearance of the new blood vessels.

Fig. 8. Two months follow up: complete healing of superior and nasal scare. The temporal scare reduced its size and density.
III. DISCUSSION

Human amniotic membrane (AM) is known to provide considerable help in treating some ocular surface diseases. With its three layers (epithelial, basement and stromal) the AM helps regenerate the epithelium, inhibits fibroblast ingrowth and reduces inflammation.

Traditionally, AM is transplanted on the surface to be treated using sutures or biological glue in operating rooms. Nowadays, the in-office sutureless AM have come in handy as a less invasive method than the traditional way allowing instant application of the AM with promising results [1].

There are currently, two types of AM available for in-office use: cryopreserved and dehydrated.

While the cryopreserved AM needs to be stored in a -80°C freezer before use and requires the positioning of a holding ring that would be removed later by the practician, the dehydrated AM can be kept in room temperature and its application is simpler and less time consuming than the other types of AM [2].

The efficiency and safety of the different methods of applying the AM is quite similar, with the dehydrated AM being more tolerated, much simpler and less vision blurring for patients [3].

IV. CONCLUSION

The many therapeutic benefits of AM help treating different kinds of ocular surface diseases. The advantage of having an in-office, simply preserved and used AM, the dehydrated AM, would certainly revolutionize the treatment algorithm and help to improve patient’s compliance their outcome.

REFERENCES