Original Article

Sutureless and Glue-Free Conjunctival Autograft for Pterygium Surgery: A Preliminary Report about Libyan Experience

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Abstract

Aim: The aim of this study was to evaluate the efficacy and outcome of sutureless and glue-free conjunctival autograft for the management of primary pterygium in terms of complications such as loss of graft, graft dehiscence, and recurrence rate. **Materials and Methods:** A case series study was carried out in March 2015 at Nastaein private sanatorium, Zlitin, Libya. Twenty-seven eyes of 23 patients with primary pterygium were included in this study. Pterygium excision with conjunctival autografting without using sutures or glue was done to all patients. The patients were followed up postoperatively after 1 h, 1st day postoperatively, and then 1 week, 4 weeks, 3 months, 6 months, and 12 months. **Results:** The mean age of the patients was 55.9 ± 8.55 years (range: 43–71 years); 65% were male. Mean follow-up time was 10.2 ± 2 months. Changes of visual acuity were not noticed in any of these patients. Only one patient (3.7%) developed edge recession of the graft on the 1st postoperative day due to a wrong measurement of the size of the graft, and no other complications were noted. Cosmesis was excellent in all cases and no recurrence was noted. **Conclusions:** Sutureless and glue-free conjunctival autograft for primary pterygium surgery is a safe and effective way for the management of primary pterygium.

Keywords: Conjunctiva, pterygium, pterygium surgery, recurrence, sutureless and glue-free conjunctival autograft

Introduction

A pterygium is a triangular fibrovascular subepithelial growth of degenerative bulbar conjunctival tissue over the limbus onto the cornea.[1] Initially, the symptoms of irritation and redness can be controlled by lubricant eye drops, but when vision is affected by pterygium growth and astigmatism, surgery is considered.[2]

Pterygium surgery has changed significantly over time. Previous surgical procedures for the management of pterygium include bare scleral closure and simple conjunctival closure, which are simple and time-saving procedures but have a high recurrent rate,[3] and conjunctival autograft technique in which hemorrhage under the autograft, corneal delen near the limbus, and epithelial inclusion cysts were also reported.[4]

The major well-known postoperative complications of pterygium surgery are recurrence and infection and these are relatively common with the use of sutures.[5]

The use of fibrin glue improved postoperative patient comfort and resulted in lower recurrence rates compared with suturing.[6-8] However, in spite of these favoring effects, the fibrin glue causes the risk of transmitting infections and reactions.

All these led to the development of sutureless and glue-free conjunctival autografting. Pterygium excision with sutureless and glue-free conjunctival autografting is gaining popularity due to its simpler technique and recurrence-free nature.[9-11]

Materials and Methods

Patient selection

This case series study was carried out in 2015 in Nastaein private sanatorium Zlitin Libya. Twenty-seven eyes of 23 patients with primary pterygium were included in this study. Patients complained of marked discomfort and irritation unrelieved by

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medical management, rapid growth with cosmetic concerns, and encroachment of the pupillary area threatening the visual axis or blurred vision from induced astigmatism. According to the tenets of the Declaration of Helsinki for research in human subjects, written informed consent was obtained from all the patients before inclusion in the current study. Patients of all ages and of either sex presenting with primary nasal pterygia were included in this study, and detailed medical and ophthalmic history, including gender, age, and previous eye surgery, was taken. Exclusion criteria included recurrent pterygium, retinal pathology requiring surgical intervention, glaucoma, and a history of previous trauma or ocular surgery.

Preoperative ophthalmic evaluation included uncorrected and best-corrected visual acuity, slit-lamp examination, fundoscopy, and tonometry for all cases.

Surgical technique

The surgical approach adopted was similar to others that have been previously reported: [12-14] in each case, subconjunctival anesthesia and sedation were administered and a lid speculum was used. Local anesthesia (xylocaine 2%) was used to balloon the pterygium separating it from the sclera. The head of the pterygium was dissected from the cornea up to the limbal margin and excised using Westcott scissors. The fibrovascular tissue underlying the pterygium was then exposed by a blunt and sharp dissection, up to the point of insertion of the medial rectus muscle, and then excised. The corneal bed of the pterygium was scraped with a crescent knife and hemostasis was allowed to occur spontaneously without the use of cautery. The superior quadrant of bulbar conjunctiva was injected with 1 cc of local anesthesia (xylocaine 2%) to facilitate separation of the conjunctiva from Tenon's capsule, and then conjunctiva was dissected from 10 to 1 o'clock position in such a way that the graft becomes 1 mm larger than the bare sclera in all the directions (measured with Castroviejo calipers). The graft was placed on the bare sclera in such a way so as to maintain the original orientation of the juxtalimbal border toward the cornea. The scleral bed was observed through the transparent conjunctiva to certify that bleeding does not lift the graft. Small central hemorrhages were tamponaded with direct compression. The free graft was held in position for 15 min by the application of gentle pressure over it with a lens spatula. The stabilization of the graft was tested with a Merocel spear centrally and on each free edge to ensure that it is firmly adherent to the sclera. The patients were instructed to close the eye for 1 h and after examination eye bandage was applied for 24 h.

Postoperative care

All patients were examined after 1 h, and then eye bandage was applied for 24 h. After removal of the patch, the patients were advised not to rub the eye and a combination of topical antibiotics and steroids was administered 4 times a day for 2 weeks and tapered over the next 4 weeks. The patients were followed up postoperatively after 24 h, 1 week, 4 weeks, 3 months, 6 months, and 12 months. Visual acuity, slit-lamp examination, and tonometry were done to assess any hemorrhage, wound gape, graft shrinkage, chemosis, graft dehiscence, pterygium recurrence, and cosmetic result.

Statistical analysis

Statistical analysis was performed using Microsoft office Excel version 2016. Continuous variables are expressed as mean ± standard deviation. Categorical data are expressed as numbers and percentages.

Results

A total of 27 eyes of 23 patients were included in this study. The mean age of the patients was 55.9 ± 8.55 years (range: 43–71 years), of which 65% were male. The mean follow-up time was 10.2 ± 2 months. Changes of visual acuity were not noticed in any patient. Only one patient (3.7%) developed medial edge recession of the graft on the 1st postoperative day due to a wrong measurement of the size of the graft, and no other complications (graft retraction, dehiscence, or loss) were noted. Cosmesis was excellent in all cases and no recurrence was noted. Pterygium recurrence was defined as the presence of fibrovascular re-encroachment extending beyond the surgical limbus at any time during the study.[15]

Discussion

Although many surgical methods have been developed for the treatment of pterygium, the major concern about pterygium surgery is that there is no existing effective technique to prevent postoperative recurrence.

In this study, 27 eyes (of 23 patients) underwent sutureless and glue-free conjunctival autografting surgery. The mean follow-up time was 10.2 ± 2 months. The only complication occurred was medial edge recession of the graft that developed to one patient (3.7%) due to a wrong measurement of the size of the graft. No other complications were noted. Cosmesis was excellent in all cases and no recurrence was noted.

Generally, all recurrences after pterygium surgery appear within a year. Hirst *et al.* showed that there is a 50% chance for a recurrence after pterygium surgery to occur within 4 months and a 97% chance within 1 year.[16] In another article on recurrence time,[17] it was shown that 1-year follow-up is optimal, which is consistent with the follow-up time used in this study.

It was reported that the main disadvantage of sutureless and glue-free conjunctival autografting technique is the risk of graft loss in the immediate postoperative period.[18] No case of graft loss took place in this study.

In a study by Malik *et al*. done on forty eyes with pterygium, total graft dehiscence occurred in two eyes (5%), graft retraction in three eyes (7.5%), and recurrence was seen in one eye (2.5%).[19] In another study done on 21 patients, recurrence was observed in one patient (4.76%).[20] In this study, the only

complication seen was medial edge recession of the graft in one patient (3.7%) due to wrong measurement of the size of graft during surgery. No other complications were reported and the most important was that by the end of 1 year, no recurrence occurred and all patients were satisfied.

Conclusion

Sutureless and glue-free conjunctival autograft for primary pterygium surgery is cost-effective with less surgical time, fewer complications, more comfortable for patients, and easy to learn and teach. We recommend this technique to be the first choice for surgical treatment.

Limitation of the study

The main limitation of this study is the small number of patients. Larger number of patients are needed to confirm this conclusion.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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ملخص باللغة العربية

الطعم الذاتي للملتحمة لجراحة الظفرة بدون استعمال الغرز أو الغراء. تقرير أولي عن التجربة الليبية.

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الغرض من الدراسة: تقييم فعالية ونتائج الطعم الذاتي للملتحمة بدون استعمال الغرز أو الغراء لعلاج الظفرة الأولية من حيث المضاعفات مثل فقدان، تفكك الطعم ومعدل تكرارها.

المواد والطرق: تم إجراء دراسة عن سلسلة من الحالات في مارس 2015 في مصحة ناستايين الخاصة زليتين، ليبيا. تم تضمين 27 عين من 23 مريضا يعانون من الظفرة الأساسية في هذه الدراسة. تم استئصال الظفرة باستعمال الطعم الذاتي للملتحمة دون استخدام الغرز أو الغراء لجميع المرضى. تمت متابعة المرضى بعد العملية بعد ساعة، وبعد يوم، أسبوع، 4 أسابيع، 3 أشهر، 6 أشهر و12 شهراً بعد الجراحة.

النتائج: كان متوسط عمر المرضى 55.9±8.55 سنة (النطاق 43-71 سنة)، وكان 65٪ من المرضي ذكوراً. كان متوسط زمن المتابعة 10.2± 2. لم نلاحظ أي تغييرات في حدة البصر في أي مريض. فقط مريض واحد (3.7٪) عانى من حافة الركود للطعم في اليوم الأول بعد العملية الجراحية بسبب قياس خاطئ لحجم الطعم. ولم يلاحظ أي مضاعفات أخرى على المرضي طوال فترة المتابعة.

الاستنتاجات: الطعم الذاتي للملتحمة بدون استعمال الغرز أو الغراء هي طريقة آمنة وفعالة لعلاج الظفرة الأولية.

الكلمات المفتاحية: الظفرة، الملتحمة، جراحة الظفرة، التكرار، الطعم الذاتي الملتصق بدون الغراء أو الغرز.