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The Comparison Of Conjunctival Autograft Method With Fibrin Glue And Sutured Conjunctival Autograft Method In Terms Of Vision, Refraction And Corneal Topography

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Abstract

Purpose: To compare the results of pterygium surgery done by using the conjunctival autograft method with suture and the outcomes of pterygium surgery done by using the conjunctival autograft method with fibrin glue in terms of visual acuities, corneal astigmatism and corneal topography changes.

Methods: 20 eyes were included in this prospective study. The patients were divided into two groups. Sutured conjunctival graft were performed to the first group. Conjunctival graft with Tisseel fibrin glue were performed to the second group. 10 eyes have been assigned for each group. The best corrected visual acuities, slit lamp and corneal topographic (Orbscan II, Bausch&Lomb) examination were performed. Patients were followed up postoperative day 1, in the 1.week and 1. month.

Results: . The mean age of patients was 56. It has not been observed that there is a significant difference between the group in which the autograft method with suture has been used and the group in which fibrin glue has been used in terms of postoperative refractive astigmatism(p=0.96) and corneal topographic astigmatism(p=0.93).

Conclusions: Sutured conjunctival autograft and fibrin glue methods for pterygium surgery have similar results in terms of visual acuity, refractive and corneal topographic changes. Both methods could be used safe end effective.

Key words: pterygium, astigmatism, topography

INTRODUCTION

Pterygium is defined as a degeneretaive ocular surface disorder(1,2). It is characterised by fibrovascular growth of bulbar conjunctiva and subconjonctival tissue extending onto cornea(1-3). The development of pterygium is strongly assoiciated with ultraviolet B exposure. Especially, those being exposed to ultraviolet B more than average at early ages carry a higher risk of pterygium development at later ages(4,5).

Small pterygium causes little irritation, cosmetic blemish and little hyperemia. When the pterygium progresses, it may cause visual impairment. When it invades the cornea, it causes corneal opacity(6).

To evaluate the effects of the pterygium on eyes, a lot of studies have used the computerized corneal topography systems(1,7,8,9). The studies indicate that pterygium commonly generates corneal flattening and with-the-rule astigmatism(9,10). Additionally, it is found out that the size of pterygium is related to the spherical power,

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astigmatism, surface regularity index and surface asymmetry index(1, 11). The surgical excision of the pterygium typically causes corneal topographic changes(9, 10, 12). The conjunctival autograft method with suture that is used most commonly and can be absorbed can enable recovery on the postoperative sphero cylindrical power, astigmatism and topographic disorders(7, 9, 13).

Many surgical techniques are suggested for pterygium treatment(14, 15, 16). Limbal conjunctival autograft is the most popular technique in this period(17, 18). Glue has found a large usage area thanks to its advantages such as easy fixation of graft, short period of operation, decrease in complications and postoperative disorders. The most common autograft fixation method is saturation(2).

The aim of the study is to compare the outcomes of pterygium surgery done by using the conjunctival autograft method with suture and the outcomes of pterygium surgery done by using the conjunctival autograft method with fibrin glue in terms of visual acuities, corneal astigmatism and corneal topography changes.

MATERIALS AND METHODS

20 eyes have been used for this prospective study. The operations were performed by the same surgeon (HK) in private hospitals “Kutahya Kent Hospital” and “Inci Eye Hospital”. Informed consent form has been taken from all patients. The study has been shaped based on the principles of Helsinki Declaration.

. The patients were divided into two groups. Sutured conjunctival graft were performed to the first group. Conjunctival graft with Tisseel (Tisseel Lyo) fibrin glue were performed to the second group. 10 eyes have been assigned for each group.

The patients who have temporal pterygium, recurrent pterygium and glaucoma, whose pterygium has been progressed until the pupillary limit, and who have experienced ocular surgery or trauma have not been taken into the study.

The best corrected visual acuities, slit lamp and corneal topographic (Orbscan II, Bausch&Lomb) examination were performed. Patients were followed up postoperative day 1, in the 1.week and 1. month.

Surgical technique

Eyelids and skin have been disinfected with %5 povidone-iodine. Eyelids and the skin have been covered with sterile plastic drape. Lidocaine with adrenalin has been injected under the pterygium body in subconjunctival way. The body of pterygium has been dissected from 4 mm behind the limbus in the way that sclera is denuded. The head of the pterygium has been peeled from the cornea. The thickened portion of conjunctiva and the immediate adjacent Tenon’s capsule were excised. Haemorrhages have been tamponed. It has been avoided from the cauterization as far possible as. Graft has been prepared in the way that it will be 1 mm bigger than the area which the pterygium tissue has been removed. Grafts have been taken out of superotemporal conjunctiva. When graft has been taken out, it has been tried to leave no Tenon tissue on graft. Haemorrhages in the area of which graft has been taken out have been tamponed and the area has been desolated without suture.

Then, in the patients to whom the autograft method with suture has been applied, conjunctival has been shifted to graft position and sutured with interrupted 8.0 vicryl suture. The knots have been buried and the suture tips have been cut. 8 sutures were required.

On the other hand, in the patients to whom the autograft method with fibrin glue has been applied, scleral bed has been dried. Bleeding has

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been tamponaded. Fibrin glue has been applied to both scleral bed and graft tissue. Graft tissue has been slipped to scleral bed prepared beforehand. Manipulation has been performed on graft tissue for 30 seconds. Graft tissue has not been touched for 3 minutes. After 3 minutes, the excess fibrin glue has been dried.

It is especially told all the patients in each group not to rub their eyes in the postoperative period. A day after the operation, the eyes have been unpadded. The patients have been said that they should use gutt with antibiotic Moksifloksasin (Vigamox) for 1 week and gutt with steroid Dexametazon(Maxidex) for 1 month. Sutures in the patients have not been removed.

Preoperatively and postoperatively, 1st day, 1st week and 1st month tests of the patients have been done but preoperative and postoperative tests of 1st month have been compared in terms of the results. Snellen visual acuities and anterior segment tests have been performed. Corneal topographies have been taken. For cornea topographies, Orbscan device has been used.

Data analysis

Data was recorded using Microsoft Excel. Wilcoxon matched pairs test and Mann-Whitney U test were used for data analysis.

RESULTS

In total, 20 eyes were included in the study. The patients who have not come for the postoperative controls have been expelled from the study. 13 of the cases (%65) have been female and 7 of them (%35) have been male. 6 of 10 cases (%60) that Tissel fibrin glue has been used have been female and 4 of them (%40) have been male. The mean age of patients was 53.5. Their average of age has been 56. 7 of 10 cases (%70) that Vicryl suture has been used have been female and 3 of them (%30) have been male(Table 1).

Table 1: General features of patients

Parameter	Sutured autograft group	Fibrin glue group
Age	56	53.5
Gender	7 f (70%)/ 3 m (30%)	6 f (60%)/ 4 m (40%)

f: female, m: man

The average preoperative BCVA in the group in which the autograft method with suture has been used has been 0,87 (0.06±0.09 logMAR). In the group in which fibrin glue has been used, the average preoperative BCVA has been 0.88(0.05±0.06 logMAR).In the group in which the autograft method with suture has been used, the average postoperative 1st month BCVA has been 0.97 (0.01±0.03 logMAR).In the group in which fibrin glue has been used, the average postoperative 1st month BCVA has been 0.97 (0.01±0.03 logMAR).

In the group in which the autograft method with suture has been used, it has been observed that there is no significant difference between spherical equivalent and postoperative spherical equivalent values(p=0.10).

In the group in which the autograft method with fibrin glue has been used, it has been observed that there is no significant difference between spherical equivalent and postoperative spherical equivalent values(p>0.09).

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It has not been observed that there is a significant difference between the group in which the autograft method with suture has been used and the group in which fibrin glue has been used in terms of preoperative and postoperative spherical equivalent(p>0.1).

In the group in which the autograft method with suture has been used, it has not been observed that there is a significant difference between the values of preoperative refractive astigmatism and postoperative refractive astigmatism (2.5 D, p=0.02). However, it has been observed that there are significant differences between preoperative and postoperative average topographic corneal astigmatism(3.2 D, p<0.01).

In the group in which the autograft method with fibrin glue has been used, it has not been observed that there is a significant difference between the values of preoperative refractive astigmatism and postoperative refractive astigmatism(2.7 D, p=0.03). However, it has been observed that there are significant differences between preoperative and postoperative average topographic corneal astigmatism(4.3 D, p<0.01).

It has not been observed that there is a significant difference between the group in which the autograft method with suture has been used and the group in which fibrin glue has been used in terms of postoperative refractive astigmatism(p=0.96). It has not been observed that there is a significant difference between the group in which the autograft method with suture has been used and the group in which fibrin glue has been used in terms of postoperative corneal topographic astigmatism(p=0.93).

It has not been observed that there is a significant difference in between in which the autograft method with suture has been used and in which fibrin glue has been used in terms of preoperative topographic irregularity(p=0.87). It has not been observed that there is a significant difference between the group in which the autograft method with suture has been used and the group in which fibrin glue has been used in terms of postoperative 1st month topographic irregularity(p=0.90)(Table 2).

Table 2: p values after the comparison of the two groups at1 month postoperative

Parameter	P value*
Postoperative refractive astigmatism	0.969
Postoperative topographic astigmatism	0.939
Postoperative irregularity	0.909

*Mann Whitney-u test

DISCUSSIONS

In many studies, it has been claimed that there is an increase in visual acuity after pterygium excision(8, 19, 20, 21). It has been stated that the results related to visual acuity have been stabilized in the postoperative 1st month. In our study, it has also been observed that in the postoperative 1st month, there is a significant recovery on BSCVA both in the group in which the autograft method with suture has been applied and in the group in which fibrin glue has been applied.

In previous studies, it has been stated that there is also a recovery in surface regularity and asymmetry indexes in the results of computerized corneal topography. In the same way, it has been confirmed that a stabilization has been provided on these indexes in postoperative 1st month(17, 20, 21). In our study, it has also been observed that in the postoperative 1st month, there is a significant recovery on irregularity indexes both in the group in which the autograft method with suture has been applied and in the group in which

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fibrin glue has been applied. This recovery on corneal disorders probably causes the increase of the optic quality and hence the recovery on visual acuity.

In previous studies, it has been stated that there is a decrease between 0.61 and 2.4 D in corneal astigmatism(19). In our study, it has been observed that in the postoperative 1st month, there is a decrease of 2.5 D (avg.) in corneal astigmatism in the group in which the conjunctival autograft method with suture has been used, a decrease of 2.7 D (avg.) in the group in which fibrin glue has been used.

In previous studies, it has been stated that there is also a decrease in topographic corneal astigmatism(17, 20). In our study, it has been observed that in the postoperative 1st month, there is a decrease of 3.2 D (avg.) in topographic corneal astigmatism in the group in which the conjunctival autograft method with suture has been used, a decrease of 4.3 D (avg.) in the group in which fibrin glue has been used.

In our study it has not been observed that there is a significant difference between the group in which the autograft method with suture has been used and the group in which fibrin glue has been used in terms of postoperative refractive astigmatism(p=0.96). It has not been observed that there is a significant difference between the group in which the autograft method with suture has been used and the group in which fibrin glue has been used in terms of postoperative corneal topographic astigmatism(p=0.93).

Sutured conjunctival autograft and fibrin glue methods for pterygium surgery have similar results in terms of visual acuity, refractive and corneal topographic changes. Both methods could be used safe end effective.

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