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Whıch Is Preferable? Two Methods For Pterygıum Surgery

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Abstract
Purpose: To compare sutured conjunctival autograft technique and fibrin glue technique for pterygium excision in terms of surgery time, postoperative discomforts, postoperative complications and recurrence.
Methods: 40 eyes included in this prospective study. The patients were divided into two groups. Sutured conjunctival autograft technique was performed on the first group. The sutureless Tisseel fibrin glue technique was performed on the second group. 20 eyes were included in both groups. The patients in both groups were compared in terms of preoperative findings and postoperative results.
Results: The average surgery time was 23.95 min (between 18-21 min) in Tisseel fibrin glue group, whereas in sutured conjunctival autograft group the average time was 30.55 min (between 25-38 min). The average surgery time for the second technique was significantly less than the time needed for the first group ($p<0.005$). At the end of 6 months there were only two recurrences in fibrin glue group (10%), while there were three recurrences in sutured conjunctival autograft group(15%). Furthermore, there were much less complaints in the fibrin glue group in terms of postoperative discomforts on the first, second and third day during the postoperative phase ($p<0.005$ (day 1), $p<0.005$(day 2) and $p=0.001$ (day 3)).
Conclusions: Both techniques are safe and effective methods concerning pterygium surgery. Fibrin glue technique is considered to be more preferable for surgeons and patients due to the fact that it has shorter surgery times and there are less recurrence despite its high cost.

Key words: conjunctival autograft, pterygium, fibrin glue.

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).

Pterygium results in slight irritation, cosmetic blemish, slight hyperemia and impairment of vision. Once it invades the cornea, it causes corneal opacity(6).

Bare sclera resection, bare sclera resection followed by mitomycin C application, pterygium excision plus conjonctival autografting or amniotic membrane placement techniques are suggested for pterygium surgery(7-9). Limbal conjunctival autograft is currently the most popular technique(10,11). Fibrin glue is widely

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used due to many reasons like easy fixation of graft, short operation time and reduction in complications and postoperative discomforts. But at the same time it has also disadvantages also like high cost, the risk of infections and inactivitation by iodine preparations(12-14).

Suturing is most common fixation technique for conjonctival autograft. But it has disadvantages like increased operating time, inflammation, buttonhole, necrosis, giant papillary conjonctivitis, scarring and granulom formation(15).

The purpose of the study is to compare sutured conjonctival autograft and fibrin glue methods, as they are most recommended ones for pterygium surgery with respect to surgery time, postoperative discomforts and recurrences.

MATERIALS AND METHODS

40 eyes were included in this prospective study. The operations were performed in Private Kutahya kent Hospital and Private Inci Eye Hospital by the same surgeon (HK). Upon an explicit explanation,all participants were asked to fill a form of consent.The study was designed in commitment to the Declaration of Helsinki,as well.

The patients were seperated into two groups. Sutured(8/0 Vicryl) conjunctival autograft method was performed to the 1. group. Tisseel fibrin glue (Tisseel Lyo) method was performed to the 2. group. 20 eyes were included in both groups.

Patients who had temporal pterygium, recurrant pterygium and history of previous ocular surgery or trauma were not included in the study. Slit-lamp examination and fundoscopy were performed and best corrected visual acuity determined preoperatively.

Surgical technique

The eyelids and skin were disinfected with 5% povidone-iodine. The eyelids and skin were covered with a sterile drape. Subconunctival lidocaine with adrenalin was injected under the body of pterygium. The body of pterygium was dissected 4 mm from the limbus. The head of pterygium was removed from cornea by blunt dissection. The thickened portion of conjunctiva and the immediate adjacent Tenon's capsule were excised. The haemorrhages were tamponaded. If possible couterisation was avioded. The oversize graft was prepared by 1 mm larger than the area covered by the pterygium tissue. The grafts were removed from superotemporal conjunctiva. Care was taken in order not to leave any Tenon tissue while excisioning graft. The haemorrhages in the area were tamponaded, the area removing graft left suturless.

In group 1, the graft was placed on the scleral bed of the conjunctival defect. Then the graft was sutured with interrupted 8/0 Vicryl sutures. The knots were buried under the conjunctiva and cut short. 8 sutures were required.

In group 2, scleral bed dried up. The haemorrhages were tamponaded. Fibrin glue was applied to the bed and the graft. The graft was slided across into position. The graft was manipulated during 30 sec. Then left untouched for 3 min. After the 3 min all excess glue was dried.

Every patients were informed about do not rub their eyes during postoperative phase. Postoperative day 1, the eyes were unpadded. Patients were instructed to use gutt Moksifloksasin (Vigamox) for one week and gutt Dexametazon (Maxidex) for 1 month. The sutures were not removed from group 1 patients.

Patients were followed up postoperative day 1, in the 1.week, 1. month and 6. month. At each visit, Snellen visual acuity and anterior segment examination was performed. Scoring for postoperative discomforts was divided into 5 groups: Never burning, stinging and pain level 0, slight burning, stinging and pain level 1, moderate burning, stinging and pain level 2,

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intense burning, stinging and pain level 3 and severe burning, stinging and pain level 4. Patients were asked to use this scoring table and record their results and twice a day for one week.

Graft success was defined as no regrowth across the limbus onto the cornea during 6 months. Recurrence also was defined as regrowth of tissue from the area of excision onto the cornea.

Data was recorded using Microsoft Excel. Mann-Whitney U-test and chi-square test were used for data analysis.

Results

40 eyes were included in the study. Patients were removed from the study did not attend the follow-up appointments. 23 (57.5%) were female patients and 17(42.5%) were male. In Tisseel fibrin glue group 11 (55%) were female and 9 (45%) were male. In Vicryl suture group 12(60%) were female and 8(40%) were male. The mean age was 55.9.

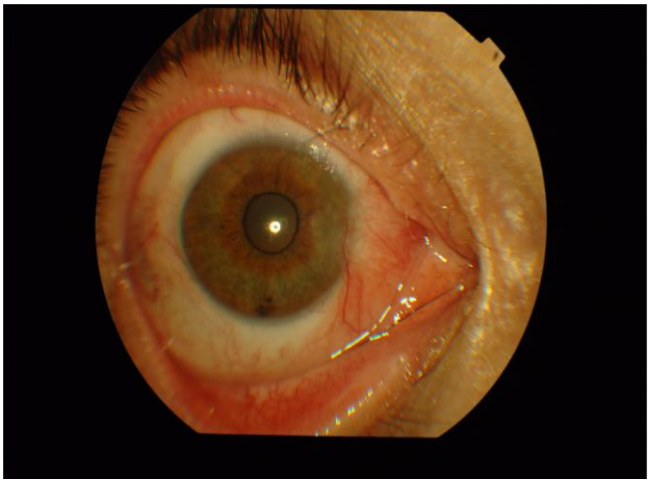
The mean surgery time was 23.95 min (between 18-21 min) in Tisseel fibrin glue group and 30.55 min (25-38 min between) in suture group. The mean surgery time was significantly shorter in fibrin glue group($p<0.005$) compared to the suture group(Table 1).

Table 1: Changes in visual acuity and comparison of surgery times

	Sutured autograft	**Fibrin glue autograft**
Preoperative BCVA(logMAR)	0.08±0,12	0.05±0.86
Postoperative BCVA(logMAR)	0.05±0.08	0.03±0.06
Surgery time (minute)	30.55	23.95

Graft dehiscence occured in 3 patients in fibrin glue group. Additional suturation was performed 2 of these patients. Another patient had absent graft. Reoperation was performed on this patient. The graft was removed from the other eye. Retraction of nasal edge of the graft occured in 2 patients. These patients were followed. And they had healed by 1 month. Granuloma occured in 1 patient. This patient also was followed and had healed by 3 months. Other complications of pterygium surgery did not occur any patients. No patients had impairment of visual acuity(Table 1).

At the end of 6 months 2 recurrences occured in fibrin glue group(10%). 3 recurrences also occured in suture group(15%). Reoperation were not performed these patients. Fibrin glue method was performed to one eye and sutured autograft method was performed to opposite eye of a patient(Figure 1). Recurrence occured in sutured eye but not in opposite eye.



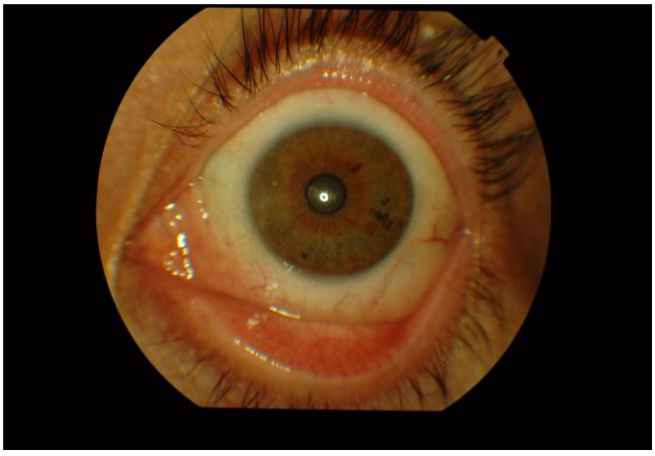


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Figure 1: Pterygium surgery was performed to two eyes of a patient. Sutured autograft was performed to right eye and there was recurrence. Autograft with fibrin glue was performed to left eye and there was no recurrence.

A graft dehiscence occured in fibrin group in the inferior temporal area of graft. Intervention was not performed to this patient. Graft had healed by 1 month. No complication occured in this group.

There were significantly less complaints in fibrin glue group in terms of postoperative discomforts on the postoperative 1., 2. and 3. day ($p<0.005$ (day 1), $p<0.005$(day 2) and $p=0.001$ (day 3)). However,there were no significant difference between the two groups during the other days(Table 2).

Table 1: Comparison of discomfort scores

	Sutured autograft	**Fibrin glue autograft**
1. day	2.5	1.45
2. day	1.9	1
3. day	1.45	0.45
4. day	1.05	0.3
5. day	0.4	0.25

Discussion

Using fibrin glue has advantages like short surgery time and less discomforts(2). At the end of 6 months, 2 recurrences were observed in fibrin glue group and 3 recurrences were observed in suture group in our study. Recurrence rates were 10% and 15%, respectively. In other 3 studies, recurrence rates were reported as 0%, 11.9% and 7.7% in fibrin glue groups during 12 months follow-up(16-18). In sutured groups rates were 8.7%, 4% and 12%. During the study, 2 graft dehiscences occured in fibrin glue groups. Resuturation was performed to one of these patients and reoperation was performed to other patient by removing graft from the other eye.

Koranyi et al. reported the mean surgery time as 9.7 min in fibrin glue(Tisseel Duo Quick) group and 18.5 min in sutured group in a series of 43 cases. Postoperative discomfort was occured significantly less in fibrin group during the first week. There were no significant difference in outcomes at the end of 6 months follow-up period(12). Koranyi et al. reported a next large retrospective study of 461 operations. They followed-up patients between 6-12 months. They reported the recurrences rate as 5.3% in the first group and 13.5% in the second group(19).

Uy et al. obtained the similar results from study consisting of two groups (11 eyes per group). They published reduced operation time and fewer postoperative symptoms in fibrin (Beriplast) group(20). Bahar et al. published a study in 2006 with 65 patients. They also published shorter surgery time and less postoperative discomforts in fibrin (Quixil) group. The follow-up was 3 weeks(21). They published their 12 month follow-up report in 2007 with 81 patients(17). Ozdamar et al. used fibrin glue in first group and 8/0 Vicryl sutur in second group. They followed-up 24 patients for 6 months(22).

Koranyi et al. published the longest follow-up period. They reported significantly less recurrence in fibrin group. They determined that all recurrences occured in the first 6 months period postoperatively(19).

Postoperative discomfort was found less in fibrin group in first 10 days in many studies. In one study, 48 h after the operation there was no differences between the groups(16). However, in our study, after 4 days there was no difference between the groups. The reasons of postoperative discomforts could be epithelial defect ve knots.

However, in our study we noticed our surgery time longer compare to the other studies both with

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fibrin and suture groups. Despite this, surgery time in fibrin group was shorter than suture group. Similar to the other studies, we found that high cost in fibrin glue group was a common point.

Both of fibrin glue and sutured conjunctival autograft technique, are safe and effective methods for pterygium surgery. Fibrin glue technique is considered to be more preferable for surgeons and patients due to the fact that it has shorter surgery times and there are less recurrence despite its high cost.

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