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To study results from pterygium treatments using glue-free amniotic membrane grafts without sutures

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Background: It begins in the palpebral fissure and progresses toward the eyeball as a degenerative, fibrovascular development of the bulbar conjunctiva in the shape of a triangle. For this reason, many patients visit the eye clinic in search of corrective lenses.

Materials and Methods: The study was an experimental prospective study that did not compare two groups. The study took place in Narketpally, Telangana, India, at the Kamineni Institute of Medical Sciences. Every patient who took part in the study had a full eye exam that included a funduscopy, a slit-lamp examination, and tests to see how well they could see. From June 2012 to May 2013, the study was done. People with diabetes mellitus and cicatricial conjunctival tumors were not allowed to participate.

Results:Thirteen of the people who had pterygia had main pterygia and six had recurrent pterygia. Fourteen times, the nasal pterygia was labeled as stage 3, three times as stage 2, and three times as stage 4. During the follow-up period after surgery, three people had recurrent pterygia: two had initial pterygium and one had return of pterygia. It was known of five cases of pyogenic granuloma. One pyogenic granuloma was surgically removed after conservative treatment failed. The other four tumors went away with 0.1% Dexamethasone applied to them.

Conclusions: Results from this study suggest that amniotic patches applied suture- or glue-free are effective in treating pterygium.

Keyword: Pterygium, amniotic patches, suture, glue-free

1. Introduction

Triangular in shape and characterized by degeneration and fibrovascular development, pterygia extend from the palpebral cleft to the cornea of the bulbar conjunctiva. In the ophthalmology practice, this is a common occurrence during surgical procedures ^[1]. It is common among those who reside in warmer climates. It may be a response to prolonged exposure to dry air and ultraviolet light. Less than 2% of the population in regions north of 40 degrees north has it, compared to up to 22% in warmer regions ^[2-4].

This occurs at a rate of 7.9% among office workers and 12.5% among motorcyclists. Nine percent of patients seen at tertiary eye centers fell into this category. The individual may experience visual impairment and dissatisfaction with their physical appearance, functional capacity, and symptoms ^[3]. Astigmatism, a change in the shape of the eye caused by a lesion, further obstructs vision. The only permanent solution is surgical removal of the pterygium; however, if proper care is not given during the procedure, there is a high probability that it may return ^[3-5].

Bare scleral closure, basic conjunctival closure, sliding conjunctival flaps, conjunctival autograft,

and lyophilized or cryopreserved fetal membrane grafts are among the surgical options for pterygium treatment. After a bare scleral pterygium removal, it returns in as many as 88% of cases. Radiation therapy, VEGF inhibitors, conjunctival autograft, amniotic membrane graft, lamellar keratoplasty, and chemotherapeutic medications like as 5-fluorouracil and Mitomycin C can all slow the healing process. In humans, the amniotic membrane inhibits inflammation and the development of fibrovascular structures due to its anti-inflammatory characteristics [4-6].

When there are significant conjunctival abnormalities and insufficient healthy conjunctival tissue to cover the sclera, as is often the case with recurrent pterygia, this might be employed as an alternative to conjunctival tissue. Amyloid membrane (AM) can be prepared in a variety of ways, including fresh, freeze-dried, or cryopreserved forms. The majority of Fresh AM's users are located in developing nations without convenient storage options [5-7].

Due to its short shelf life, inability to produce a large enough barrier for numerous tissue transplants, and increased risk of infection transmission, fresh AM is not as useful as it may be. The amniotic membrane can be employed outside of the preparation center for a longer period of time through cryopreservation or freeze-drying. It appears that the use of sutureless, glue-free dry amniotic membrane as an additional layer following pterygium removal has not been discussed in the literature regarding the use of amniotic membrane in the treatment of pterygiums [8-10]. The objective of this research is to determine the efficacy of a non-surgical, dry amniotic membrane patch in the treatment and prevention of recurrence of pterygium.

Materials and Methods

A prospective interventional trial, the study did not compare any two interventions. The research took place at Narketpally, Telangana, India, at the Kamineni Institute of Medical Sciences. Every single patient who took part in the study had a thorough eye evaluation, including funduscopy, slit-lamp testing, and visual acuity measurements. From June 2012 to May 2013, the research was

carried out. All subjects had to be at least 20 years old and suffer from primary or recurrent pterygia of grade 2. Exclusion criteria included a history of diabetes mellitus or cicatricial conjunctival lesions.

Results

Two cases were of recurring pterygium and one was of the original pterygium; all three occurred in three eyes throughout the follow-up period. Initial pterygia had a recurrence rate of 6.7%, while recurrent pterygia had a recurrence rate of 33.3%. On the third postoperative appointment, two of the recurring cases were discovered, and one happened one month following the treatment. Pyogenic granulomas were seen in five cases. Surgery was necessary to remove one pyogenic granuloma when non-surgical treatments failed; topical 0.1% Dexamethasone helped clear up the other four lesions. What follows is a presentation of the patient distribution details.

Table 1: Age wise data of the patients

Variable		Frequency	%
Age (yrs)	<30	02	10.0
	30 — 40	8	40.0
	41— 50	05	25.0
	51— 60	05	25.0

Table 2: Gender wise data of the patients

Variable		Frequency	%
Gender	Male	10	50.0
	Female	10	50.0

Table 3: Eye side wise data of the patients

Variable		Frequency	%
Eye	Right	11	55.0
	Left	09	45.0

Table 4: Stages wise data of the patients

Variable		Frequency	%
Stage	1	01	05.0
	2	02	10.0
	3	13	65.0
	4	04	20.0

Discussion

The use of a dried amniotic membrane that did not require stitching together was employed for the first time in Nigeria for the purpose of pterygium excision. Furthermore, the membrane was not adhered to the uterus with any kind of glue. The procedure was essentially an eye operation, and there was very little harm. Due to the fact that it does not require any stitches to be made, this method of transferring an amniotic membrane or conjunctiva is typically more expedient than other comparable methods [10-12].

It is more painful to recover after surgery when sutured grafts are used. With sutured treatments, the occurrence of perforation, necrosis, inflammation, large papillary conjunctivitis, and granuloma formation is significantly higher than with non-sutured treatments. According to the individuals who took part in the research, sutures did not result in any unnecessary symptoms associated with foreign bodies. In this particular investigation, a rate of return of 14.3% was discovered [13-15].

This corresponds to a known recurrence rate of 14.8%; however, the sample size in that study was somewhat larger, consisting of 54 eyes. There have been other studies that have revealed repeat rates that are higher than this, ranging from 40.9% to 64%. The research investigated both primary and recurring pterygia, in contrast to the other research, which focused solely on primary pterygia investigations [15-17]. The findings of the study indicated that repeated pterygia occurred 33.3% of the time, which is slightly lower than the incidence rate of 37.5% recorded in the study. On the other side, the repeat rate in this study is higher than the rates that were discovered in earlier investigations, which were 2%, 3.8%, and 6% and respectively [18-20].

The group that had a 6% risk of returning was only monitored for three months, which is a period of time that we consider to be insufficient. This is in contrast to our study, which followed the patients for a period of at least one year. In contrast to our study, which included both primary and recurrent pterygia, the groups that had recurrence rates of 2% and 3.8% only had primary pterygia. None of these organizations, on

the other hand, make use of fetal membranes that are not bound together by stitches [21-23].

In a group of nine eyes with primary pterygia that were monitored for an average of 29.4 weeks, the condition did not return after being treated with excision and a suture-less amniotic membrane patch using Resure sealant. This was the case in the group of nine eyes. The findings of this study did not reveal any significant issues. Granulomas that were caused by wounds disappeared on their own in four of the five eyes that were affected, but one of them required surgical removal. In light of this, it appeared that the utilization of this relatively mildly intrusive procedure for the treatment of pterygium was beneficial [22-25].

Conclusion

We believe that the three-month follow-up period for the group with a 6% recurrence risk is insufficient, as our trial included a minimum of one year of follow-up. Our study included both primary and recurrent pterygia, in contrast to the groups with recurrence rates of 2% and 3.8%, which only had primary pterygia. None of these organizations, however, employs the utilization of unstitched fetal membranes. After excision and a suture-less amniotic membrane patch using Resure sealant, the condition did not recur in a group of nine eyes with primary pterygia that were observed for an average of 29.4 weeks. No serious issues were discovered throughout this investigation. Wound granulomas disappeared naturally in four of the five eyes, whereas the fifth required surgical removal. Because it was less intrusive, this approach seemed to aid in the healing of pterygium.

Conflict of Interest

None

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