

Recurrence rate of pterygium following limbal conjunctival autograft surgery for primary pterygium

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Abstract

Aim: To evaluate the results of limbal conjunctival autograft in the treatment of pterygium.

Materials and Methods: This prospective study was conducted at S.Nijalingappa Medical College Bagalkot from Jan 2010 to Dec 2010 with follow up for a period of 6 months. 30 patients were operated (Male-13, Female-17). Complete history and clinical examination were recorded on a pre-designed proforma. The diagnosis of pterygium was a clinical one. All patients were examined under slit lamp and looked for vascularity and grading was done. The surgical technique was performed under peribulbar block by surgical excision of pterygium and limbal conjunctival autograft from superior bulbar conjunctiva taken and transplanted on to the bare sclera. Nylon 10/0 was used for suturing the limbal conjunctival autograft.

Results: Out of the 30 patients, minimal complications like conjunctival congestion and pricking sensation was noticed in early post operative period. One (3.33%) patient had recurrence and one (3.33%) patient had dellen formation and one (3.33%) had conjunctival swelling over the recipient area.

Conclusion: Recurrence rate is very less with limbal conjunctival autograft compared to conventional methods though it is a time consuming procedure. Pricking sensation can be overcome by a newer technique of cut and paste by using a glue

Keywords: Pterygium, autograft, recurrent pterygium.

Introduction

Pterygium is a growth of fibrovascular tissue on the cornea, which appears to be continuous with the conjunctiva. It is an elastotic degeneration of sub conjunctival tissue [1]. Cosmetic disfigurement and functional problem in the form of reduced visual acuity, diplopia are the major indications of surgery. Prevalence rate of primary pterygium varies from 0.7% to 30% in different parts of the world [2]. Various risk factors are UV radiation, limbal stem cell deficiency, hot climate, dust, smoke and chronic dry eye.

Pterygium is considered to represent a localized limbal cell depression. limbal epithelium acts as a junctional barrier to conjunctival overgrowth. Recurrence of pterygium (Figure 1) is due to accelerated fibroblastic proliferation due to release of growth factors. There are various surgical techniques for pterygium excision which includes bare sclera technique, surgical excision with autograft,

mitomycin C, limbal autograft, amniotic membrane transplantation, conjunctival autografting with fibrin glue. Highest prevalence of pterygium is in tropical areas near the equator[3]. Both blue and UV light have been implicated in its causation, as demonstrated by waterman [4]. A small pterygium with mild symptoms of photophobia and redness can be managed with the use of topical preservative free-lubricants, vasoconstrictors and mild steroids. To prevent progression some have advocated the use of UV-blocking spectacle[5]. The surgical management of pterygium has been complicated in the past by a high incidence of recurrence. The fleshiness of the pterygium is a significant risk factor for recurrence[6]. In cases of recurrence, 97% are within 12 months of pterygium removal. As high as 40% by bare sclera excision, treatment with autologous conjunctival transplantation has reduced recurrence to about 5%[7]. In general, the results are better in the older patients with thin atrophic and stationary pterygium. Recurrence is defined as

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growth of fibrovascular tissue of more than 1 mm over the cornea[8] (Figure 1). The recurrence are quite common in young patients with an active, inflamed and rapidly growing pterygium, even after surgery along with adjunctive therapy[9,10]. An alternative therapy is conjunctival autograft over the bare sclera with or without adjunctive therapy. This technique is considered as gold standard method[11], suture material is of no importance as far as recurrences are considered[12]. Cut and paste method with the use of fibrin adhesive is also reported as an effective way to prevent recurrence [13]. This trial was concerned to evaluate the results of conjunctival autotransplantation in the treatment of pterygium.

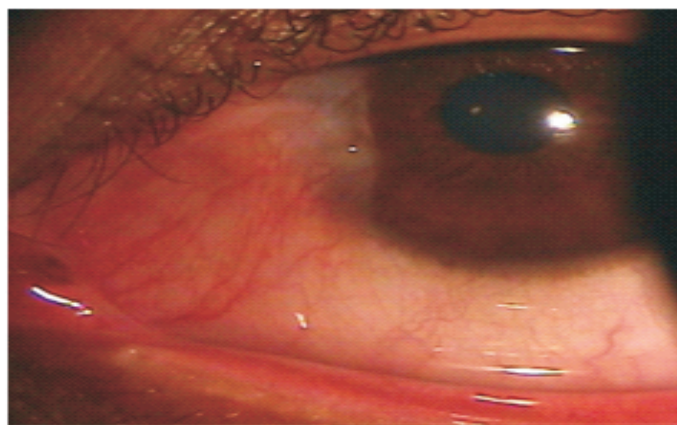


Figure 1. Recurrent pterygium of the left eye.

Material and Methods

This prospective study was conducted at S.Nijalingappa Medical College and HSK Hospital and Research Centre, Bagalkot from January 2010 to December 2010 with follow up period of 6 months. 30 patients were operated (Male-13, Female-17). Complete history and clinical examination were recorded on a pre-designed proforma. The diagnosis of pterygium was a clinical one. All patients were examined under slit lamp and looked for vascularity, and grading was done. Only cases of uncomplicated primary pterygium were included in our study.

Surgical technique was carried out under peribulbar block with 2% lignocaine with 1:20000 adrenaline. The adhesion between pterygium and sclera is sharply scraped at the limbus; and pterygium head was separated from the cornea by peeling technique and the subconjunctival growth excised and haemostasis

maintained. Same size of free conjunctival autograft was taken from the superior bulbar conjunctiva of the same eye and placed over the bare sclera and sutured with 10-0 nylon with interrupted sutures (Figure 2). Subconjunctival injection of antibiotics 0.5 cc (50 mg) cefazoline, 0.5cc (20 mg) gentamycin, and 0.5 cc of dexamethasone were given in the lower fornix.

All patients were examined under slit lamp for surgical outcome in terms of post operative pain and its severity, foreign body sensation, photophobia, conjunctival inflammation, subconjunctival haemorrhage and graft stability. All patients were put on topical antibiotics with anti-inflammatory drugs 4 times/day along with lubricants every 2 hours for a period of one month. Regular follow up was done at the end of 1st week, 1st month, and 6th months. Loose sutures were removed on 7th day and topical steroids 4 times/day were started and tapered over a period of 1 month. Various post-operative complications and recurrences were noted. The follow up period was upto 6 months.

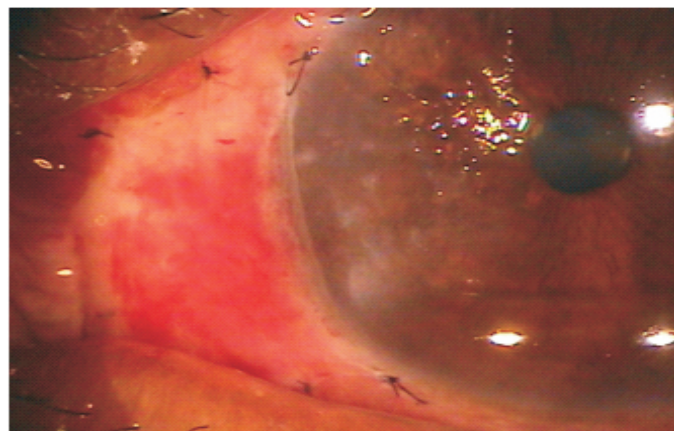


Figure 2. Limbal Conjunctival Autograft Secured With 10-0 Nylon Interrupted Sutures.

Results

In this prospective, study 30 eyes of 30 patients were operated. Among these 13 were males and 17 were females with a male:female ratio of 0.7647. Right eye operated was operated in 17 patients and left eye in 13 patients. Nasal pterygium was more common than temporal pterygium. The minimum follow up time was for 6 months and the age of the patient ranged from 17 to 72 yrs as shown in Table 1 and 2. The main presenting symptom was foreign body sensation and

cosmetic appearance. Immediate post-operative complications like pricking sensation and redness was present in many cases. Sutures were removed on 7th day post operatively and steroids were started. Recurrence was seen in one (3.33%) patient (Figure 1).

One patient (3.33%) had dellen on the 2nd week follow up (figure 3), for which Bandage Contact Lens was applied. After 10 days patient developed conjunctival swelling superiorly near the limbus (Figure 4), the swelling was excised and sent for histopathological examination, which revealed chronic inflammatory cells with reactive hyperplasia.

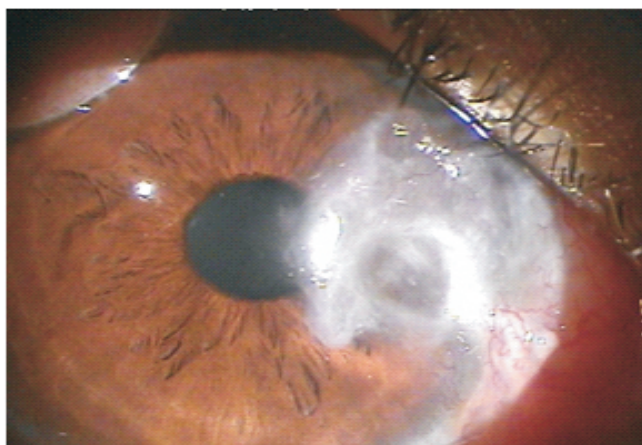


Figure 3. Dellen formation 2nd Week follow up.



Figure 4. Conjunctival swelling superiorly near the limbus

Discussion

Pterygium excision with conjunctival autografting has become the gold standard for pterygium surgery [14], in view of studies demonstrating both safety and efficacy in reducing post operative recurrence [15,16]. Several techniques for excision of pterygium are reported. Recurrence rate is high with bare sclera technique / simple excision (40%). The recurrence of pterygium is an undesirable complication. Because of its high incidence and high recurrence rate after surgery, pterygium has become one of the most important ocular surface diseases [16]. The pathological researches have shown that pterygium is mainly constituted by abnormal neoplastic vessels and fibroblasts. Extent of vessels and fibroblasts are reliable index to evaluate the recurrence of pterygium after excision. The aim of ideal pterygium excision is to prevent recurrence and obtain better outcomes [17]. The new approaches are still being tried in order to decrease the rate of recurrence after surgery. The most common treatment followed is excision in which recurrence typically occurs within the first year and recurrent pterygia are more aggressive than primary pterygia. Many adjunctive medical therapy such as beta-radiation, application of thiotepa, 5 fluorouracil and mitomycin C during and after surgery. Subconjunctival injection triamcinolone, hyaluronidase and avastin around the wound edge are performed in addition to many surgical techniques such as conjunctival, limbal or amniotic membrane grafting [18,19]. Different techniques are employed for reducing the recurrence rate. The aim of ideal pterygium surgery is to prevent the recurrence and obtain better outcome [20]. The conjunctival autografting has been the mainstay of the surgical excision which was first described by Kenyon et al [7,12].

Table 1. Age-wise distribution

Age-(in years)	Number of patients	Percentages
10-20	1	3.33%
20-30	1	3.33%
30-40	5	16.68%
40-50	10	33.3%
50-60	9	30%
60-70	3	10%
70-80	1	3.33%
	30	100%

Table 2. Gender distribution

Gender	Number of patients	Percentages
Male	13	43.33%
Female	17	56.67%
TOTAL	30	100%

Table 3. Recurrence rates of pterygium in various studies

Researcher	Year of study	Number of patients involved in study	Number and % of recurrence rate in the study
Harpal Singh[16]	2009	50	2 (4%)
Haroon Rashid[17]	2010	70	6 (9.52%)
Pradeep G Suna[20]	2010	52	2 (3.84%)
N.Bazzazi[18]	2010	60	4 (11.1%)
Mithal C Agarwal[19]	2011	21	1 (4.76%)
Muhmed Imran Saleem[22]	2011	65	2 (3%)
Present study	2010	30	1 (3.33%)

In the present study the recurrence rate was 3.33% as compared to other studies done by Haroon Rashid 9.52%[17], Mithal C Agarwal et al 4.76%[19], Harpal Singh et al 4%[16], Pradeep Sane et al 3.84%[20] as shown in Table 3. One patient had dellen formation on post operative 2nd week of follow up for which bandage contact lens was applied. After 10 days, patient developed conjunctival swelling superiorly near the limbus from where the graft was taken, limbal conjunctival autograft was in situ. The conjunctival swelling was excised and sent for histopathological evaluation, which was suggestive of chronic inflammatory cells with reactive hyperplasia. Though the limbal conjunctival autograft transplantation is technically demanding and time consuming, paying attention to surgical details such as harvesting a graft of proper size and free of tenon's tissue; and meticulous dissection and handling of graft tissue is important. It was found from the present study that limbal conjunctival autograft is an effective and safe procedure with excellent cosmetic result, and prevents vision threatening complications associated with use of other adjunct therapy like beta-radiation or mitomycin C administration. Minor complaints like pricking sensation during post operative period due to sutures can be overcome by adhesive technique of cut and paste by using fibrin glue[21].

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