

A Long Term Follow up after Limbal Conjunctival Autograft for Recurrent Pterygium

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Purpose: To find out the success rate at three year post surgery of limbal Conjunctival auto-grafting after pterygium excision in patients with recurrent pterygium.

Study Design: A prospective case study.

Place and Duration of Study: Dow University of health sciences from June 2008 to May 2014.

Material and Methods: We conducted this study at the Department of Ophthalmology, Dow University of Health Sciences Karachi from June 2008 to May 2014. The patients were selected from the outpatient department of Civil Hospital Karachi and Sindh Govt. Lyari General Hospital Karachi. Thirty six patients were treated with pterygium excision and limbal conjunctival autograft with a history of previously failed pterygium surgery due to recurrence. Patients were followed postoperatively at regular intervals for a period of at least three years to find recurrence of pterygium and complications.

Results: Out of thirty six eyes, recurrence was observed in 05 (13.8%) patients over a period of three years of follow-up. Intra-operative complications included button holing in 02 (5.5%) case that was sutured in the same setting. Postoperative complications included. Persistent graft edema over two weeks in 06 (16.5%) case, partial graft retraction in 04 (11.1%) cases, graft retraction in 2 (5.5%) cases, dellens in 5 (13.8%) and giant papillary conjunctivitis due to sutures 3 (8.3%) cases.

Conclusion: Pterygium excision with limbal conjunctival auto grafting is a superior technique and results in lower recurrence rates.

Key words: Pterygium, Recurrence, Limbal Conjunctival Grafting, autograft.

Pterygium is a common condition resulting from defective limbal stem cell function usually at the medial aspect of limbal area.¹ These defective limbal stem cell allow the formation of a triangular fibro-vascular wing shaped tissue that develops from the conjunctiva and encroaches on to the cornea.² Exposure to ultraviolet radiation is strongly associated with the pathogenesis of pterygium.³ Global prevalence of pterygium has been reported from 1 to 25 percent. Pterygium occurs more

commonly in tropical regions in population with chronic sun exposure⁴. Surgical removal of Pterygium is indicated usually when visual axis is at risk, induced astigmatism, diplopia, cosmetic rehabilitation, periodic inflammation and evidence of cystic or malignant change.⁵ Pterygium is managed conservatively because of high rates of recurrences after simple excision. The recurrence rates after bare sclera resection range from 24% to 89% and zero to 38% following bare sclera resection with Mitomycin-C

application. These recurrences are 3 - 38% following Pterygium resection with conjunctival graft placement.⁶ An advanced insight into the pathogenesis of Pterygium led Kenyon et al to create a barrier of limbal stem cell at the site of defective stem cell by implanting a limbal autograft.⁷ Limbal conjunctival auto-grafting has promising results with no recurrence to as high as 15%. Long surgical time warrant this technique to be adopted only for recurrent pterygia. In all these studies follow up was very short. In this study we documented the outcome after three years of follow up in all these cases.

MATERIAL AND METHODS

This prospective study was conducted at the departments of Ophthalmology Dow University of health sciences from June 2008 to May 2014. Thirty six eyes of thirty four patients with a history of recurrence were included in this study. An informed consent was taken from the patient preoperatively. Patients were operated on microscope under complete sterilization and aseptic measures. Day care surgical procedure under topical and sub conjunctival infiltration anesthesia was used. Local anesthesia with 2% Lidocaine and 0.5% Bupivacaine was injected beneath the pterygium. Castroviejo eyelid Speculum was used to ensure wide opening. A 6.0 Vicryl suture at the lateral limbus was used to abduct the eye. Conjunctiva was dissected from the body of the Pterygium medially with a Westcott scissors after making a vertical incision medial to its head. The head of the Pterygium was dissected carefully to avoid corneal perforation. The abnormal fibro-vascular tissue beneath the conjunctiva was aggressively resected. The size of the conjunctival graft was measured by using Castroviejo calipers. The supero-temporal conjunctiva was selected to obtain the limbal graft. Once the limbus was reached the limbal area was carefully dissected 0.5 mm beyond the limbus to ensure stem cells inclusion. The conjunctival-limbal graft was slid onto the cornea by using a fine non toothed forceps and the graft was secured using interrupted 10 - 0 nylon sutures. The eye was patched firmly after instilling antibiotic eye ointment. Topical antibiotic and steroid drops were used post-operatively every 2 hours for two weeks and then four times a day for four weeks along with antibiotic ointment at bed time for four weeks. Sutures were removed after four weeks. Follow up was instituted at monthly intervals for six months and after that after every six months.

RESULTS

Age of the patients ranged from 25 to 64 with a mean of 42.08 years. Most of the patients were in our study were between 25 and 45 years (66.7%). Males 24 (66.7%) predominated over females 12 (33.3%). Outdoor workers (34 eyes 94.4%) were seen to be greatly affected by pterygium. Indication of surgery in our study included threatening of visual axes in 09 (25%) cases, Recurrent inflammation in 07 (19.4%) cases, Diplopia in 4 (11.1%) cases, cosmetic concern in 06 (16.7%) cases, astigmatism greater than 1.00 diopter in 9 (25%) cases and cystic changes in one (2.8%) case. Most of the pterygia were progressive in nature. In a large number of cases, 29 (80.5%), have pterygia between limbus and undilated pupillary margins while in 07 (19.5%) cases pterygia were reaching or crossing the pupil. Astigmatism with the rule greater than 1.0 Diopter was present in 09 (25%) cases. Intra-operative complications included button holing in 02 (5.5%) case that was sutured in the same setting. Postoperative complications included. Persistent graft edema over two weeks in 06 (16.5%) case, partial graft retraction in 04 (11.1%) cases, graft retraction in 2 (5.5%) cases, dellens in 5 (13.8%) and giant papillary conjunctivitis due to sutures 3 (8.3%) cases. We followed all these cases for at least a period of 36 months (range 36 - 52 months) with a mean of 42.94 months.

DISCUSSION

Pterygium excision with bare sclera technique has a high recurrence rate ranging from 30 to 70%.⁹ Different modalities like beta irradiation, Mitomycin C and amniotic membrane graft have been used to decrease this high recurrence¹⁰. Kenyon et al. in their study on conjunctival autograft on advanced and recurrent pterygium gave a recurrence rate of 5.3%.⁷ High recurrence rates have been reported by other authors after the initial study. Wahid in his study relates this to the accuracy with which the limbal area is included in the autograft¹¹. Low recurrences rates have been demonstrated by various others authors who have specifically described the inclusions of limbal tissue in the graft.^{7,12,13} Another study by Al. Fayed also concludes that limbal transplantation appeared more effective than free Conjunctival transplantation for treatment of recurrent pterygium¹⁴. In one study we found a male preponderance of (66.7%) males over females (33.3%). Similar Preponderance has also been reported by Srinivas K. Rao of 74.5% males over 25.4% females¹⁵. Most of our

patients were less than 40 years of age (66.7%). Similarly Srinivas has reported an age group of < 40 year in (59.6%) of his patients¹⁵. High incidence of pterygium is seen in outdoor patients 80%. Most common post op complication encountered in our study was persistent graft edema in 6 (15.6%) cases over 2 weeks, edema resolved on medical treatment. Similar observation has been stated by Kawana.¹⁶ Significant improvement in astigmatism after surgery has been reported by some authors.⁸ Similar improvement was seen in our 9 (25%) cases of astigmatism.

CONCLUSION

Limbal conjunctival autograft with inclusion of limbal cells although time consuming and tedious procedure, is a safe and effective adjuvant in preventing recurrence of pterygium and postoperative improvement in astigmatism. Due to long surgical time this technique has to be reserved for recurrent Pterygia.

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