



LONG TERM STUDY ON LIMBAL CONJUNCTIVAL AUTOGRAFT FOR OCULAR SURFACE DISORDERS IN GARHWAL REGION.

Ophthalmology

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ABSTRACT

Aim: To assess postoperative success following limbal conjunctival autograft, in ocular surface disorders.

Materials and methods: 20 patients over a period of one year has been included after fulfilling inclusion and exclusion criteria.

Results: 12 (60%) were females and most of the patients had left eye involvement 70% (n=14). There was sudden drop in mean postoperative day 1 vision 0.41 (SD=0.65). But it improved in the follow up visits i.e. 0.18 at 6 months, it was statistically significant $P=0.049$. The mean spherical component of refractive error reduced after the surgery. It was 0.38 preoperatively which reduced to 0.0132 at six month follow up but this was statistically not significant $P=0.78$. 85% (n=17) patients had epithelial defects on the cornea on 1st postoperative day which was 55% (11) by the end of 1st week and by 3 months 100% (n=0) patients were free of epithelial defect. Graft was healthy in 95% (n=19) of the patients after 3 months. 60% of the patients did not have any intra-operative complications. 1 patient button hole of the graft occurred while harvesting it which was sutured later.

Conclusion: Conjunctival limbal autografting is the procedure of choice for limbal stem cell deficiency. Its primary advantage over all allograft procedures is that no immunosuppression is required.

KEYWORDS

Introduction

The normal ocular surface is covered by corneal, limbal and conjunctival epithelial cells. In order for the cornea to function as an optically transparent structure, it must remain avascular & essentially in dehydrated state¹.

Conjunctival limbal autografting is a procedure in which limbal tissue attached to a conjunctival carrier is transplanted from the healthy eye of a patient to the contralateral stem cell-deficient eye. It is the procedure of choice for limbal stem cell deficiency. Its primary advantage over all allograft procedures is that no immunosuppression is required.¹⁻⁵

Aim

To assess postoperative success following limbal conjunctival autograft, in ocular surface disorders on the basis of visual outcome and recurrence as primary outcome. And the subsequent complications as secondary outcome.

MATERIAL AND METHODS

This study was carried out in the Ophthalmology Dept of Tertiary centre over the period of one year and included 20 patients.

Inclusion criteria:

Primary pterygium, secondary pterygium, recurrent pterygium.
Persistent corneal epithelial defect.
Vascularization of cornea
Traumatic
Chemical injury.
Multiple ocular surface operations.
Non healing corneal ulcers.
Cicatricial Pemphigoid.
Patients of both sexes & of all age group will be included in the study

Exclusion criteria:

Patient's with uncontrolled systemic disorders (like diabetes, hypertension).

Patient's with minimal chemical/thermal burns which can be resolved by medical management.

Patient's with poor general condition of health.

Patient's not willing for surgery.

Patients satisfying the above criteria were included in the study. The patients were explained about the study and a written consent was taken. The patient's best corrected visual acuity was recorded, automated refraction, slit lamp examination, tear film evaluation with

schirmer test & tear film break up time, IOP, fundoscopy, followed by pre operative photography was done. And then intra-operative measurement of the extension of diseases process (quantification) was conducted.

Post operative evaluation was done on

- 1st post operative day
- 1 week after operation
- 1 month after operation
- 3 months post operative

Post operative evaluation included

- Visual acuity
- Post operative photography
- Anterior segment – Slit Lamp Bio-microscopy
- Donor site health
- Assessment of the health of conjunctival graft was done in every postoperative follow up visits
- All the statistical methods were carried out through the SPSS for Windows (version 17.0 SPSS Inc., Chicago, IL, USA.) and Minitab (version 11.0) for windows.

OBSERVATION & RESULTS

This is a prospective study carried out in Ophthalmology department of a tertiary medical centre over a period of one year.

A total of 20 patients who attended ophthalmology Out Patient who fulfilled the Inclusion and Exclusion criteria were recruited & then subjected for limbal conjunctival auto-grafting. Then these patients were followed up for visual outcome and complication.

One patient was excluded from the study as he had hypersensitivity to lignocaine 2%

In the present study 30% of patients were from age group 31-40 years and 50 years (n=6). Least number of patients were from 41-50 age group 15% (n=3). Out of 20 patients included in study, 8 (40 %) were males and 12 (60%) were females. In the present study most of the patients had left eye involvement 70% (n=14) and 30% (n=6) had right eye involvement

There was sudden drop in mean postoperative day 1 vision 0.41 (SD=0.65). But it improved in the follow up visits i.e. 0.18 at 6 months, it was statistically significant $P=0.049$. The mean spherical component of refractive error reduced after the surgery. It was 0.38 preoperatively which reduced to 0.0132 at six month follow up but this was statistically not significant $P=0.78$.

85% (n=17) patients had epithelial defects on the cornea on 1st

postoperative day which was 55%(11) by the end of 1st week and by 3months 100%(n=0) patients were free of epithelial defect. Graft was healthy in 95% (n=19) of the patients after 3months. Average 7.65 sutures were used. With maximum, 9 used in 30% patients & minimum, 6 used in 15 % of patients

In most patients sutures were lost or absent by the end of 1 week (n=9, 45%) & were loose and/or absent in 10 patients (50%) Mostly patients complained about fleshy growth (n=18, 90%)

60% of the patients did not had any intra-operative complications. 1 patient button hole of the graft occurred while harvesting it which was sutured later, 2 patients had bleeding at medial canthus while lesion excision which was controlled with wet field cautery, 1 patient had bullous keratopathy with pterygium so Keratoplasty was done along with LCAG.

Postoperatively patients mostly complained of FB sensation & pricking sensation, due to sutures. This was relieved by 1month. 80% of patients did not had any postoperative complications but as one patient underwent Keratoplasty, she had the complication associated with Keratoplasty i.e. corneal oedema, DM folds hyphema.

DISCUSSION

The management of patients with severe ocular surface disease has always been a challenge for ophthalmologists. Limbal stem cell transplantation has been used for a variety of ocular surface problems including persistent corneal epithelial defects, for pterygium surgery, conjunctival defects after removal of surface tumors, LSCD as in acute and chronic chemical injuries, Stevens Johnson syndrome and shield ulcer of vernal keratoconjunctivitis.

In the present study 20 patients who attended the OPD, Out of them 8(40 %) were males and 12 (60%) were females. In the present study left eye was more commonly involved. Among 20 patients 14 had LE involvement i.e. 70% where as right was affected in only 6 patients (30%).

In the present study the vision significantly improved after the LCAG. The mean visual acuity (logmar) improved from 0.215 preoperatively to 0.182 after 3 months postoperatively (P=0.049). But one patient underwent Keratoplasty along with LCAG, in this patient the vision did not improve. There was significant drop in vision on first post-operative day, it was probably due to the presence of epithelial defect.

In a study by Jenkins et al,³ 60% of the patients the visual acuity improved after LCAG. 5 patients were included in this study and all the patients were followed up for 12-36 months.

In 81% vision improved then Kenyon, Tseng³ subjected 21 patients to LCAG and followed them for 6 to 45 months.

The mean spherical component of refractive status reduced after surgery but it was not statistically significant P=0.78. It reduced from 0.38 to 0.0132.

In a study by Maheshwari S.¹² the preoperative refractive cylinder was 4.60 ± 2 D, which improved to 2.20 ± 2.04 D (P = 0.00001) postoperatively.

Saleem MI et al¹⁴ in their study found that the preoperative cylindrical error decreased from 4.32 ± 1.88 D to 2.11 ± 1.96 D postoperatively.

In one patient the pterygium size was measured preoperatively but intra-operatively it was found that it was double layered and after excision the bare area was very big when compared to lesion size on histopathology it showed features of malignant squamous cell carcinoma. It suggests that abnormal morphology should raise the suspicion regarding malignancy.

Out of 20 patients, only one patient was pseudophakic who had underwent superior incision SICS. So it was very difficult to obtain the graft conventionally from the superior-temporal limbus, so the graft was harvested from the inferior limbus. No donor site complications were observed in this patient.

Wong AK et al,⁵ found out there were recurrence and occurrence of pseudo-ptyerygium at donor site.

Pillai PS et al⁶ found out donor site conjunctival scarring after inferior limbal conjunctival auto-grafting.

In the present study no such complications were observed apart from SCH & congestion there were no donor site complications

In one patient the graft taken was very thick which was cosmetically not acceptable so repeat graft was taken from the superior limbus and was sutured with no further complications.

In 2 patients at the time of graft harvesting button hole happened, so after the graft was anchored the button holes were repaired with the 10.0 ethilon sutures. Among the 2 patients one patient had gapping of the graft but still both the patients did well, the epithelial defect healed by the end of 1 week. This has been consistent with other studies.⁷⁻¹²

On the first postoperative day most of the patients complained about pricking sensation, foreign body sensation, photophobia, watering. It was probably due to epithelial defect. Patients were relieved of all these symptoms by the end of one month.

All the patients were followed up for 6 months, patients underwent through examination at each visits for any complications or recurrences. In our study there were no recurrences at the end of 6 months follow-up.

LIMITATIONS OF THE STUDY

The major limitation of this study is small sample size.

The short period of follow up i.e. 6 months could have missed some very important findings.

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