



COMPARATIVE EVALUATION OF DIFFERENT TECHNIQUES OF PTERYGIUM SURGERY

Ophthalmology

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ABSTRACT

The aim of this study is to compare and evaluate the three techniques of pterygium surgery including bare sclera technique; conjunctival autografting and amniotic membrane grafting. This is a randomized, prospective, and interventional study. After taking ethical committee's clearance and informed consent 60 patients were enrolled and divided into three groups. The first group (20 cases) underwent pterygium excision with bare sclera technique second group (19 cases) had pterygium excision with conjunctival autograph technique and third group (19 cases) pterygium excision with amniotic membrane transplantation. The patients were followed up for 6 months in order to determine the complication and recurrence after pterygium surgery. During the follow up period of this study, patients of pterygium excision with bare sclera technique group, 7 cases (35%) had recurrence while the second group with conjunctival autograph 1 case (5.26%) had recurrence Third group with amniotic membrane transplantation 2 cases (9.26%) had recurrence. The best corrected visual acuity remained same in 11 cases (18.33%), and improved in 49 cases (81.67%) and there was no major complication threatening visual ability in the surgical patients. Bare sclera technique have maximum recurrence but minimum recurrence with conjunctival autograph technique but as compared Amniotic Membrane And Conjunctival Autograph Amniotic membrane transplantation is associated with high recurrence rates than conjunctival autografting. Autologous blood clot conjunctival graft (BCAG) required more surgical skills, proper techniques and took more surgical time as compared to amniotic membrane grafting (AMG), but BCAG is more economical compared to AMG. Both CAG & AMG appears to be safe for excision of pterygium with fewer recurrence of pterygium.

KEYWORDS

(UCVA), (BCVA), VA, KH, Kv, CAG,AMG, AM, TGF

BACKGROUND:-

Purpose of study Comparative evaluation of different techniques of pterygium surgery. 1. Evaluation of bare sclera technique excision. 2. Evaluation Autologous conjunctival autograft (CAG) technique 3. Evaluation of dry amniotic membrane graft (AMG) technique 4. Comparative study of all above technique. All patients underwent preoperative (preop) assessment for visual acuity, anterior segment examination with emphasis on pterygium type morphologically, on the basis of vascularization and progression, posterior segment examination, auto refraction, retinoscopy and manual keratometry. Patient's visual acuity and best corrected visual acuity were recorded for each eye separately, using well illuminated Snellen's visual acuity chart with patient sitting at distance of 6 meters.

Preoperative horizontal length (size) of pterygium was measured by focussing the slit on the pterygium and using the ruler of the slit incorporated in the slit-lamp from limbus to the advancing edge of pterygium.

Group I

The bare sclera technique is the first technique adopted for pterygium removal and is characterized by simple excision, allowing the scleral bed to re-epithelialize. However, this technique tends to favor postoperative pterygium proliferation because small tissue residues may be left in the scleral bed, resulting in high recurrence rates (24%–89%).³⁷

Group II

The globe was rotated to expose the superior temporal conjunctiva and a correctly sized free graft was harvested from the supertemporal bulbar conjunctiva with careful attention to avoid damaging the underlying Tenon capsule.

The autograft was placed over the bare sclera in correct anatomical orientation. Grafts were then sutured to the surrounding conjunctiva and episclera by using interrupted 10-0 nylon sutures. The donor site was left unsutured

Group III

It underwent dry amniotic membrane grafting. The membrane was taken out of the preservation medium and cut to the proper size to cover the defect area. It was washed with balanced salt solution. The membrane was spread over the bare sclera so that the epithelial surface

was on top, and it was sutured to the surrounding conjunctiva and episclera by using interrupted 10-0 nylon sutures.

- 1) In 60 patients 60% were male and 40% were female. 2. In our study age distribution was 41.66% of (31-40) years, 30% (41 – 50) years and 13.33% (51 – 60) years of age group. 3. All the patients had nasal Pterygium and majority were of the grade T₂
- 2) To conclude our study; visual acuity and astigmatism improved in all the groups but it improved most in group III, followed by group II and least in group I. However, recurrence rate was also most in group I, followed by group III and least in group II.

Total patients Recurrence 10 (16.67%) out of 60 patients and no recurrence in 50 patients (74.33%) during the period of follow up bare sclera technique (Group I) have maximum recurrence 7 patients (35%) and minimum recurrence with CAG (Group II) 1 patient (5.26%) and with Dry AMG (Group III) recurrence 2 patients (9.52%).

METHODS:

All patients underwent preoperative (preop) assessment for visual acuity, anterior segment examination with emphasis on pterygium type morphologically, on the basis of vascularization and progression, posterior segment examination, auto refraction, retinoscopy and manual keratometry.

Patient's visual acuity and best corrected visual acuity were recorded for each eye separately, using well illuminated Snellen's visual acuity chart with patient sitting at distance of 6 meters. Preoperative horizontal length (size) of pterygium was measured by focussing the slit on the pterygium and using the ruler of the slit incorporated in the slit-lamp from limbus to the advancing edge of pterygium

RESULT

TABLE- 1 Age Distribution Of Study Participants

Age group	Frequency (n)	Percentage (%)
21-30 years	3	5%
31-40 years	25	41.67%
41-50 years	18	30%
51-60 years	8	13.33%
61-70 years	6	10%

Above table shows age distribution of study participants. Most number of patients belonged to 31-40 (41.67%) years age group followed by 41-50 (30%) years.

AGE DISTRIBUTION OF STUDY PARTICIPANTS

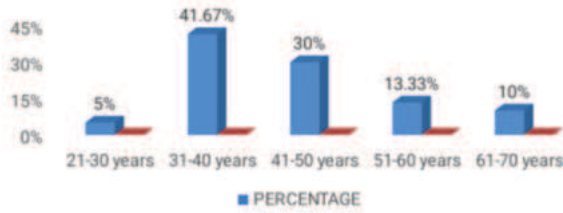


Table- 2 Age Distribution Of Study Population In Various Groups

Age group	Group I (Bare Sclera)	Group II (CAG)	Group III (Dry AMG)
21-30 years	1	1	1
31-40 years	8	9	8
41-50 years	6	5	7
51-60 years	3	2	2
61-70 years	2	2	2

Above table shows the greatest number of patients were from 31-50 years of age group.

AGE DISTRIBUTION OF STUDY POPULATION IN VARIOUS GROUPS

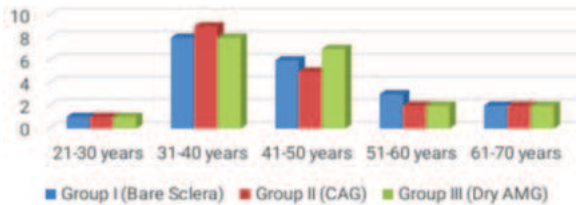
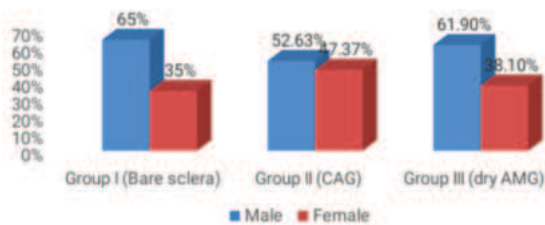


Table- 4 Sex Distribution In Various Groups

Group	Male	Female	Total
Group I (Bare sclera)	13(65%)	7(35%)	20(100%)
Group II (CAG)	10(52.63%)	9(47.37%)	19(100%)
Group III (dry AMG)	13(61.90%)	8(38.10%)	21(100%)

In Group I; 13 were males and 7 were females & in Group II; 10 were males and 9 were females while in Group III; 13 were males and 8 were females.

SEX DISTRIBUTION IN VARIOUS GROUPS



Classification Of Pterygium

The grade of the pterygium was classified based on relative translucency of the body of the pterygium on slit lamp examination. In this grading-

- Grade I- atrophic pterygium- episcleral vessels are clearly visible
- Grade II intermediate- episcleral vessels are partly visible
- Grade III- fleshy opaque- episcleral vessels are wholly obscured

Table No 17 Recurrence

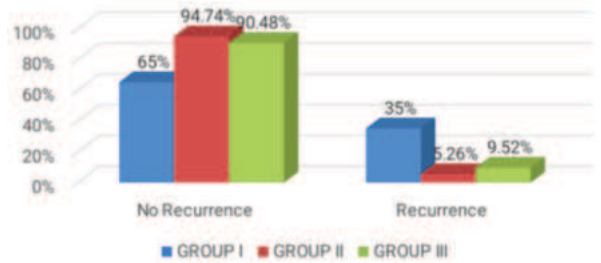
Recurrence	GROUP I	GROUP II	GROUP III
No Recurrence	13 (65%)	18(94.74%)	19 (90.48%)
Recurrence	7(35%)	1(5.26%)	2(9.52%)
Total	20(100%)	19(100%)	21(100%)

P=0.005

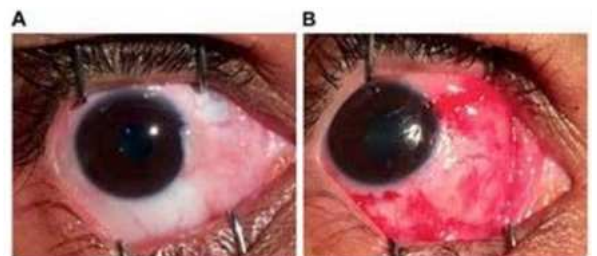
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Recurrence



Bare Sclera Technique Post Op Day 1



Intra Op Conjunctival Autograft Implantation



Intra Op Dry Amg Implantation

CONCLUSION

1. In 60 patients 60% were male and 40% were female.
2. In our study age distribution was 41.66% of (31-40) years, 30% (41 – 50) years and 13.33% (51 – 60) years of age group.
3. All the patients had nasal Pterygium and majority were of the grade T₂.
4. In all three groups complications such as conjunctival congestion, graft oedema, graft dislocations, tenon's granuloma and recurrence were present.

5. Conjunctival congestion at week 2, graft oedema & haemorrhage were resolved at follow up week 4, 1 patient with tenon's granuloma were surgically corrected after follow up week 2.
6. After pterygium excision visual acuity(BCVA) improved 49 case (81.67%) and remained same in all 11 patients (18.33%)three groups; most in group III (improved by (85.71%) than group II (improved by 84.21%) & I (improved by 70%).
7. In all three groups after Pterygium excision, corneal astigmatism decreased and it is observed that astigmatism decreased most in group III with Dry AMG followed by group II & least in group I.
8. These groups showed significant reduction in astigmatism in same group but when comparison was done between all the three groups then there was no significant difference in all three groups.
9. Recurrence rate was most in group I and least in group II while all other complications were most in group I and least in group III.
10. To conclude our study; visual acuity and astigmatism improved in all the groups but it improved most in group III, followed by group II and least in group I. However, recurrence rate was also most in group I, followed by group III and least in group II.

DISCUSSION

Group I with bare sclera techniques

- 7 patients were 2 -3 mm size of pterygium in which 14.28% were 6/60 -6/36p, 28.58% patient were 6/18-6/12p, 14.28% were 6/12-6/9p,14.28% patient were 6/9-6/6
- On post-op 12 weeks 28.58% were 6/36 -6/24p, 42.85% were 6/18-6/12p, & 28.58% were 6/9-6/6.

Group II with CAG

- 6 patients were 2 -3 mm size of pterygium in which 16.67% patient were 6/60-6/36p, 33.33% with 6/36 – 6/24p, 16.67% were 6/24-6/18p 16.67% were 6/18-6/12p and 16.67% were 6/12-6/9p.
- On post-op12 weeks 16.67% with 6/36-6/24p,50% were 6/24 -6/18p, 16.67% were 6/12-6/9p, 16.67% 6/9 -6/6.
- 9 patients were 3-4 mm size of pterygium in which 33.33% were 6/60 -6/36p, 22.22% were 6/36-6/24p, 22.22% were 6/24 -6/18p,11.11% were 6/12-6/9p and 11.11% 6/9 -6/6.

Group III with Dry AMG

- 5 patients were 2 -3 mm size of pterygium in which 40% were 6/60-6/36p,20% were 6/36 to 6/24p, 20% patient were 6/24-6/18p, 20% were 6/18-6/12p.
- On post-op12 weeks 40% were 6/36 -6/24p, 20% were 6/18-6/12p, 40% 6/12 -6/9p

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