Conjunctival Autograft in Primary and Recurrent Pterygium: A Study

KAVITA MALLIKARJUN SALAGAR¹, KALYANAPPA GURLINGAPPA BIRADAR²

ABSTRACT

Aim: Investigate the efficiency of limbal conjunctival autograft in primary and recurrent pterygium. (2) To report the incidence of recurrence after primary and recurrent pterygium surgery using limbal conjunctival autograft.

Material and Methods: It is a prospective study conducted at Department of Ophthalmology, Basaveshwar Teaching and General Hospital, Gulbarga Karnataka, India for a period of 1 year (2007 to 2008) 100 patients were operated on which 6 were recurrent pterygium and the remaining were fleshy pterygium. All patients were in the age group 20 to 60 and above.

INTRODUCTION

Pterygium was recognised 3000 years ago, it was described by Susrutha way back in 1000 B.C. in India. It was also noted by great physicians of ancient times like Hippocrates, Galen, Celsius etc.

A Pterygium is a wing shaped growth of fibro vascular conjunctiva onto the cornea; its incidence differs across geographical sites. A number of hypotheses have been approved to its aetiology [1]. Now, it is believed that Pterygium is a growth disorder characterised by conjunctivalisation of the cornea due to localized ultraviolet stimulated damage to the limbal stem cells [2]. Destructive Pterygial fibroblasts are also responsible for corneal invasion [3].

Several surgical techniques including bare sclera excision with or without the use of adjuncts like beta irradiation, thio eye drops, intra-operative or post-operative mitomycin-C (MMC) or anti-neoplastic agents, amniotic membrane transplantation, conjunctival autograft (CAG) with or without limbal stem cells have been illustrated [4].

Accounted rates of recurrence range from 2% for excision with CAG to 89% for bare sclera excision.

Pterygium surgery is quite common in India, which is situated within the tropics. Hence, our study aimed to determine the outcome of conjunctival autograft in primary and recurrent pterygium.

Gulbarga city has latitude of 17.21° and most of the pterygium cases occur, where the temperature is more than 30°C. People here work in agricultural fields, laborers etc., which are outdoor occupations. They work in dry and dusty places which is the cause of pterygium.

A true Pterygium is a condition found chiefly in the sunny, hot, dusty regions of the world, mostly between the Latitude of 37° North and South of the Equator.

CLINICAL MATERIALS

This study is a prospective study conducted in the department of Ophthalmology, Basaveshwara Teaching and General Hospital attached to H. K. E. Society’s Mahadevappa Rampure Medical College, Gulbarga during a period of one year (2007-2008) conjunctival autografting was performed in 100 patients. Out of which, 6 were recurrent type and the remaining were fleshy pterygia. All the patients were in the age group of 20 – 60 years and above. Consent was obtained from all patients included and the ethical committee has approved this study.

METHODS

Inclusion criteria—there are two pterygium i.e., primary and recurrent.

Exclusion Criteria

1. Patients with dry eye syndrome.
2. Patients with collagen vascular diseases.
3. Follow up less than 24 weeks.
4. Patients with pseudopterygium.
5. Patients with co-existent conjunctival diseases like previous alkali burns, moorens ulcer etc., which predispose to formation of pseudopterygium.

All the patients were examined under slit lamp and the type of Pterygium was noted.

Visual acuity, refraction, ocular motility intraocular pressure, potency of lacrimal passages and fundus examination findings were noted. Routine investigations like blood pressure, syringing was done to all the patients. Patients were put on antibiotic drops before the day of surgery.

Operative Tech (For Conjunctival Flap)

All patients were operated under local anaesthesia, instillation of 4% xylocaine and subconjunctival injection of 2% xylocaine beneath the pterygium.

The pterygium head was recessed from the cornea. The size of the graft was determined by measuring the area of exposed sclera with caliper. The autograft was taken from the bulbar conjunctiva and it was sutured to the recessed ends of the pterygium with 8-0 silk [Table/Fig-1].

Keywords: Conjunctival autograft, Primary pterygium, Recurrent pterygium
Conjunctival Autograft in Primary and Recurrent Pterygium

Post-operative Regime
Post-operatively topical beta methasone eye drops were used every 2 hours for the first operative week and then tapered over the subsequent 5-6 weeks. Antibiotic ointment was used 3 times daily for 2 weeks.

Follow up visits were scheduled for post-operative days 1st, 7th, 30th, then every 2 months till six months of operation. Additional visits were made as and when required.

Recurrence of any fibrovascular tissue past the limbus onto the clear cornea in the area of previous Pterygium constituted treatment failure.

RESULTS
In this study 7% of cases were found in the age group of 20 – 30, about 22% belongs to the age group of 31 – 40, 30% belongs to the age group 41 – 50, and 24% in the age group of 51 – 60 and 17% were in the age group of 60 and above [Table/Fig-2].

Pterygium is more often seen in men than in women. This is attributed to the fact that males are exposed to dust and environmental irritants more than women. In this study 60 patients were male and 40 patients were female. These results correlate with observations previously mentioned in the literature.

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 – 30</td>
<td>02</td>
<td>05</td>
<td>07</td>
</tr>
<tr>
<td>31 – 40</td>
<td>13</td>
<td>09</td>
<td>22</td>
</tr>
<tr>
<td>41 – 50</td>
<td>20</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>51 – 60</td>
<td>13</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>60 and above</td>
<td>12</td>
<td>05</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

[Table/Fig-2]: Age and sex wise distribution of study population

Occupation | No. of patients | Percentage |
-----------|----------------|------------|
Outdoor    | 80             | 80%        |
Indoor     | 20             | 20%        |
Total      | 100            | 100%       |

[Table/Fig-3]: Occupation

In this study 50 cases had Pterygium nasally. The nasal affinity of the Pterygium was attributed to the following factors.

Spareness of the subconjunctival tissue in the temporal region and the temporal region is exposed to a lesser extent to UV radiation due to greater amount of bowing of outer 2/3 of the upper lids.

Pterygium Location

Nasal : 50%
Temporal : 30%
Both : 20%

Recurrence of Pterygium was more frequent in patients younger than 40 age. In this study 27 patients were younger than 40 years, of these 6 developed recurrences (6.00%) [Table/Fig-6].

Recurrence Rate of Pterygium in Study

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Normal</th>
<th>Complications</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor</td>
<td>20</td>
<td>01</td>
<td>20</td>
</tr>
<tr>
<td>Outdoor</td>
<td>80</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>21</td>
<td>100</td>
</tr>
</tbody>
</table>

[Table/Fig-5]: Occupational Incidence and Complications

\( \chi^2 = 7.7, p < 0.001 \) highly significant as compared to complication of indoor and outdoor, outdoor complications are more. This is statistically highly significant [Table/Fig-5].

Recurrent Rate in Pterygium

Recurrence of Pterygium was more frequent in patients younger than 40 age. In this study 27 patients were younger than 40 years, of these 6 developed recurrences (6.00%) [Table/Fig-6].

DISCUSSION

There have been various efforts to optimize Pterygium surgery. These days a wide range of techniques are in use. The plan is to excise the Pterygium and prevent its recurrence. Autologous conjunctival transplant evades the risk of scleral necrosis associated with alternative adjunctive therapies.

The comparatively lower recurrences with this technique could be due to the transplantation of normal conjunctiva that forms a barrier to the proliferation and progression of residual abnormal tissue towards the limbus. It was moreover higher in patients below 40 years of age as has been described previously [5-7]. The lipoid degeneration in peripheral cornea in elderly individuals may be an inhibiting factor for Pterygium progression.

Age Incidence

According to Cameron, Young Son, Pterygium affects people living in peri equatorial regions. The highest incidence is in fourth decade. In a study conducted by Dr. Meenakshi et al., showed that 87.5% were above the age of 40 years. Another study conducted by Dr. Rao, SK et al., [8] showed that 56.98% were above the age of 40 years.

Present study showed that 73% were above the age of 40.

2) Sex Incidence

Pterygium is more often seen in men than in women. This is attributed
to the fact that males are exposed to dust and environmental
initiates more than women. In the present study 60 patients
were male and 40 patients were female. These results correlate
with observations of JH HILLGER’s [9], Rao SRINIVAS, Dr. Jaspree Sukhija
and many others.

Occupational Incidence
Occupation is supposed to play a major role in causing the
Pterygium. In the present study majority of the patients were working
outdoors (80%). This fact is well supported by several authors, like

Pterygium Laterality
In the present study 50 patients had Pterygium nasally. The nasal
affinity of the Pterygium was attributed to the following factors.
Sparness of the subconjunctival tissue in the temporal region.
The temporal region is exposed to lesser extent to UV radiation due to
greater amount of bowing of outer 2/3 of the upper lid.
In a study by Fernandes, M, Sangwan, VS, Bansal, AK, et al., [12],
7.5% had bilateral Pterygium compared to 20% found in present
study [Table/Fig-7].

Complications
No major intra operative complications were encountered in this
series, except 5 button holes which were repaired during the
procedure. Graft edema was noted in 4 cases and it responded well
to short course of systemic steroids. Graft haemorrhage occurred
in 3 cases and it resolved spontaneously without compromising the
results.
Giant papillary conjunctivitis occurred in 3 cases and subsided without
stitch removal.
Recurrence occurred in 6 (6.38%) eyes after 3-4 months post-
operatively. Recurrence of Pterygium was more frequent in patients
younger than 40 years of age. In this study 27 patients were younger
than 40 years of these, 6 developed recurrence.

CONCLUSION
Autogenous conjunctival grafting is a safe, uncomplicated and
quick procedure and does not involve loss of tissue and prevents
recurrence of pterygium. It also reduces the risk of granuloma
formation, scleral thinning and necrosis.

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[12] Fernandes M, Sangwan VS, Bansal AK, et al., [12], 7.5% had bilateral Pterygium
compared to 20% found in present study [Table/Fig-7].

[Table/Fig-7]: Comparison of Recurrence Rates of Pterygium in Various Studies
with Present Study

Author
Dowatk [13]
Kenyon [14]
Singh [15]
Simona [16]
Lewallen [5]
Koch [17]
Mizygod [18]
Farid [19]
Bora Yuksel [20]
P S Mahar [21]
KM Salagar (Present Study)

Place of study
Canada
Boston
Los Angeles
Geneva
St. Kitts
Essen
Poland
California
Turkey
Pakistan
India

Number of patients studied
15
57
13
14
19
13
41
42
28
120
100

Recurrence rate of Pterygium
8%(1)
5% (3)
8% (1)
35% (5)
16% (3)
8% (1)
3%(1)
20% (8)
13% (4)
6.7% (8)
6% (8)

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