Recurrence and Satisfaction in Patients after Pterygium Surgery in Tertiary Eye Hospital in Bhaktapur, Nepal

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ABSTRACT

Introduction: Pterygium is a common and benign condition that warrants surgical removal for ocular and cosmetic reasons. Pterygium excision with conjunctival autograft is frequently performed surgery in Nepal.

Objective: This study is aimed to find out the recurrence and satisfaction following surgery.

Methodology: This was a descriptive cross-sectional study conducted from August to October 2021 at a tertiary hospital in Bhaktapur. All the patients who had undergone pterygium surgery with conjunctival autograft surgery for primary pterygium from January 2018 to December 2019 and completed at least 6 months of follow-up were included. We reviewed records for surgery, complications, and recurrence from Medical Records. We also interviewed patients by phone for satisfaction related to symptomatic and cosmetic relief. The descriptive statistics were reported as frequency, mean, and standard deviation. The satisfaction score was measured on a 5-point Likert scale.

Result: Among 142 patients, the mean age was 46.70±11.25 years, and 28.17% were males. 7.74% had complications and graft edema was the most common. The recurrence rate after surgery was 5.63%. The recurrence was higher among males and under 40 years patients. More than one-third of the patients reported they had surgery for symptomatic relief. The study showed high satisfaction scores for both symptomatic relief and cosmetic appearance, with scores of 3.62±0.93 and 3.87±0.96, respectively, on a 5-point Likert scale.

Conclusion: Pterygium surgery with conjunctival autograft is safe surgery with minimal complications. Along with symptomatic relief, cosmetic satisfaction can be considered a measure of successful surgical outcome in pterygium surgery.

Key words: Autograft; patient satisfaction; pterygium.

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INTRODUCTION

A pterygium is a benign degenerative triangular fibrovascular overgrowth of the bulbar conjunctiva onto the clear cornea (Fonseca et al., 2018). Pterygium is mostly situated on the nasal side, sometimes occurs both nasally and temporally (double-headed), and rarely only on the temporal side (Koranyi et al., 2004). The indications for surgical excision include a disturbance of visual function, persistent discomfort, chronic irritation, recurrent inflammation, irregular astigmatism, restricted ocular motility, and cosmesis (Mohammed, 2011, Detorakis and Spandidos, 2009). Free limbal autologous conjunctival grafting can be performed relatively easily, and many consider autologous conjunctival grafting the best method, giving both a low recurrence rate and a high safety (Kenyon et al., 1985, Chen et al., 1995, Prabhasawat et al., 1997, Fernandes et al., 2005).

Various studies in Nepal have also concluded that free conjunctival autologous grafting is a safe, effective, and inexpensive option for treating pterygium with minimal recurrence and few complications (Bastola, 2012, Dhakhwa et al., 2014, Sharma et al., 2012). Besides correcting visual disturbances due to pterygium, patients undergo surgery for cosmetic reasons, as they are often embarrassed due to constant ocular redness and disfiguring growth appearance (Gulani and Gulani, 2020). There's a paucity of evidence on satisfaction following surgery in the Nepali context. Hence, we conducted this study to find the recurrence and satisfaction following pterygium surgery in Nepal.

METHODOLOGY

This is a descriptive cross-sectional study. Pterygium excision with conjunctival autograft is a commonly performed surgical procedure at a tertiary eye hospital in Bhaktapur, Nepal. All the patients who had undergone pterygium surgery for primary pterygium at the hospital from January 2018 to December 2019 and completed at least 6 months of follow-up were included in the study.

A study proforma was developed from literature review and experts' advice. We reviewed the hospital OPD cards for patient demographics, laterality, grade, and location of pterygium, as well as for complications and recurrence. Besides we contacted the patients for a phone interview to find their satisfaction following surgery from August to October 2021. The satisfaction query included surgery for symptomatic relief, cosmetic appearance, or both. The satisfaction score was rated on a scale between 1 to 5, with 1,2,3,4, and 5 indicating not at all satisfied, partially satisfied, satisfied, more than satisfied, and very satisfied, respectively.

Applying the formula for a single population proportion, based on 8.8% recurrence rate (Sharma et al., 2012), with 95% confidence level, 0.05 margin of error, the initial sample size is calculated at 124 individuals. Factoring in 10% non-response rate, final sample size was 138 participants. We used convenience sampling to select the study participants.

The electronic record review showed 272 patients undergoing pterygium surgery. Incomplete records, records without contact

numbers, and surgery conducted in other hospitals were excluded from the study. Patients who underwent surgery for pseudopterygium and who could not be contacted from three phone calls were excluded from the study. Selection bias was minimized by taking every case that fulfilled the inclusion criteria. A single enumerator reviewed records and conducted phone interviews to remove inter-observer bias. Among 272 pterygium surgical cases, 263 were primary pterygium cases, and 171 had completed 6 months follow-up. Among 171, 142 cases completed the interview through phone calls.

All data were entered into Google Sheets, and descriptive analysis was conducted using IBM SPSS version 26.0 (IBM Corp., Armonk, NY, USA). The descriptive statistics were reported as frequency, mean, and standard deviation.

The hospital administration permitted the review of records. We sought verbal informed consent via phone calls before enrolling the participants in the study. The participants were informed about voluntary participation and the nature of the study. The study adhered to tenets of the Declaration of Helsinki. The ethical approval was taken from the Ethical Review Board (ERB) of the Nepal Health Research Council (ERB Protocol ID 798-2020 P).

RESULT

Among 272 pterygium surgical cases, 263 were primary pterygium cases, and 171 had completed 6 months follow-up. Among 171, 142 cases completed the interview through phone calls. The mean age of the 142 patients was 46.70 ± 11.25 years. Nearly seven in ten (71.83%) were females, and three-fourths (73.94%) were aged between 40 – 70 years. Exactly half had unilateral pterygium, and more patients had right eye affected, as presented in Table 1.

Table 1: Baseline characteristics of the study participants (N=142)

Characteristics	Frequency	Percentage
Gender		
Male	40	28.17
Female	102	71.83
Age group		
18 - 39 years	37	26.06
40 - 70 years	195	73.94
Laterality		
Unilateral	71	50.00
Bilateral	71	50.00
Affected Eyes		
Right	38	26.76
Left	33	23.24
Both	71	50.00

More than one-third (33.80%) of the patients reported they had surgery for symptomatic relief, and more than half (54.22%) had their right eye treated. Almost all cases of pterygium were nasal, and for almost all cases, free autograft was used except one. Nearly nine in ten (89.44%) used superior conjunctiva for graft. The most common postoperative complication was graft edema among 4.2% of the patients, as depicted in Table 2.

In the assessment of patient satisfaction post-surgery, 58.77% of the 114 patients who underwent the procedure for symptomatic relief provided a rating of 4 or 5 on a 5-point Likert scale. In contrast, among those who had surgery for cosmetic reasons, 74.47% assigned a score of 4 or 5 on the same scale. The average satisfaction for cosmetic relief was higher than that for symptomatic relief on a scale from 1 to 5 as shown in Table 3.

Table 2: Pterygium Surgical Eye (N=142)

Characteristics		Frequency	Percentage
Indication of Surgery	Symptomatic relief	48	33.80
	Cosmetic relief	28	19.72
	Both	65	46.48
Surgical Eye	Right	77	54.22
	Left	65	45.78
Location	Nasal	139	97.90
	Temporal	1	0.70
	Double headed	2	1.40
Type of graft	Free autograft	141	99.30
	Rotational autograft	1	0.70
Graft harvesting site in free autograft	Superior conjunctiva	127	89.44
	Inferior conjunctiva	14	9.86
	Superotemporal conjunctiva	1	0.70
Post-operative complications	Graft edema	6	4.23
	Granuloma at donor site	1	0.70
	Conjunctival cyst	2	1.40
	Symblepharon formation	1	0.70
	Wound gaping	1	0.70
	None	131	92.27

Table 3: Satisfaction following surgery

Characteristic	Average score	Standard deviation
Satisfaction for symptomatic relief (n=114)	3.62	0.93
Satisfaction for cosmetic relief (n=94)	3.87	0.96

The record review showed that 5.63% of patients had a recurrence of pterygium. Recurrence was common among males and patients under 40 years. Among the patients with recurrence, 2 patients had re-surgery. The common reason for no re-surgery was fear of hospital visits due to COVID-19, unwillingness for a second surgery, and advised for conservative management by the Ophthalmologist, as shown in Table 4.

Among patients with bilateral pterygium, 17 had surgery in the other eye too. The remaining planned to have surgery, too, and the most common reason for no plan for surgery in another eye was non-symptomatic, as presented in Table 5.

Table 4: Recurrence of Pterygium

Characteristics		Frequency	Percentage
Recurrence (n=142)	Yes	8	5.63
	No	134	94.37
Recurrence according to age-group (n=8)	18 - 39 years	7	87.50
	40 - 70 years	1	12.50
Recurrence according to sex (n=8)	Male	5	62.50
	Female	3	37.50
Re-surgery on Recurrent pterygium (n=8)	Yes	2	25.00
	No	6	75.00
Reason for non- re-surgery (n=6)	COVID-19	2	33.33
	Not nearby Eye hospital	1	16.67
	Not willing to do again	1	16.67
	Conservative management done	2	33.33

Table 5: Surgery in another eye

Characteristics		Frequency	Percentage
Surgery conducted in another eye (n=71)	Yes	17	23.94
	No	54	76.06
Plan for surgery in another eye (n=54)	Yes	19	35.19
	No	35	64.81
Reason for no-plan of surgery in another eye (n = 35)	Not symptomatic	22	62.86
	Small size of pterygium	10	28.57
	Fear of COVID-19	3	8.57

DISCUSSION

This study showed that recurrence of pterygium after surgery with conjunctival autograft is 5.63%, with recurrence more common in males and under 40-year-old patients. Just below half (46.48%) of patients underwent surgery for both cosmetic and health reasons. The satisfaction following surgery was higher for patients undergoing surgery for cosmetic reasons than for health reasons.

The mean age of the patients was 46.70 ± 11.25 years in this study, which was similar to the other studies (45.83±17.94) (Maharjan et al., 2014). The prevalence of pterygium has been shown to increase linearly with age because years of outdoor activity, as well as ocular physiologic changes like dryness that affect the prevalence of pterygium, also increase with age (McCarty et al., 2000, Song et al., 2017). In our study, 97.90% of cases had nasal pterygium. Pterygia are usually located in the nasal interpalpebral zone, then the temporal (Chu et al., 2020).

While many studies showed a higher prevalence of pterygium in males, (Shiroma et al., 2009, Wong et al., 2001, Nemet et al., 2016) other studies showed a higher prevalence in females (Lu et al., 2007). In a similar study done in a hilly region of Nepal, (Manandhar et al., 2017) more female patients underwent pterygium surgery were more. However, some other studies demonstrate no difference in the prevalence of pterygium according to gender (Alqahtani, 2013).

Most immediate postoperative complications of pterygium surgery, like graft edema, and subconjunctival hematoma are not vision-threatening and resolve rapidly (Shahraki et al., 2021). Immediate postoperative complications in this study were in accordance with the other literature, (Manandhar et al., 2017) and no major complication was encountered.

The recurrence rate of pterygium after excision and conjunctival autograft is 5.63% in our study. The recurrence rate after pterygium surgery differs in different studies, some reporting as high as 18.8% to 34.5% (Han et al., 2016, Anguria et al., 2014, Razmjoo et al., 2020, Zheng et al., 2012). In various studies conducted in Nepal, recurrence was reported from nil to 1.25% to 8.82% (Sharma et al., 2012, Manandhar et al., 2017, Dhakhwa et al., 2014). It is important to have a tenon-free conjunctival autograft and adequate covering of the surgery site to avoid the recurrence as tenon's tissue associated with the graft may serve as a new reservoir for further proliferation of the fibroblasts and pterygium recurrence (Shahraki et al., 2021, Kim and Kim, 2018). A meta-analysis showed that the recurrence rates after pterygium excision with limbal conjunctival autograft were lower than those with bare sclera, bulbar conjunctival autograft, or intraoperative mitomycin C (Zheng et al., 2012).

Our study showed that recurrence was more common in males and patients below 40 years. Similar results were also observed in rural Western hilly regions of Nepal (Bastola, 2012). Another study also showed that young patients had a greater risk of recurrence after pterygium excision followed by conjunctival graft (Anguria et al., 2014). One of the drawbacks of the study is the short follow-up period of six months only. However, evidence shows that most recurrences after pterygium excision and conjunctival autograft happen in the first 3-6 months after surgery (Ghiasian et al., 2021). So, we

can infer that most of the post-operative recurrence cases have been included in the study, while some cases with delayed recurrence might have been missed as some studies advise regular follow-up examinations beyond the first postoperative year to detect delayed recurrence (Eisenmann et al., 2020).

This study showed a good satisfaction score for both symptomatic relief (3.62 out of 5) and cosmetic appearance (3.87 out of 5). As already mentioned above, it has been established by various studies that the recurrence rate after pterygium excision with conjunctival autograft is very low. So, the outcome of pterygium surgeries has been dominated by cosmetic outcomes rather than recurrence lately. In one study, 95% of the patients were highly satisfied with the cosmetic appearance of their eyes after pterygium surgery and mentioned the cosmetic outcomes after pterygium surgeries as a more sensitive measure of success than the recurrence rate alone (Hirst, 2021). Another study performing pterygium excision with conjunctival autograft transplantation with fibrin glue also reported that 96.6% of the patients were fully satisfied after the surgery, with the mean grade being 9.6 (Wanzeler et al., 2018). The cause for less symptomatic relief may be due to symptoms of pterygium being non-specific and similar symptoms may be encountered in dry eyes and other ocular surface disorders, which are highly prevalent in our condition.

The limitations of this study are: It has a short follow-up period of 6 months, which may have missed the cases with delayed recurrence. Besides, this study was conducted in a single center, hence the results cannot be generalized. A multi-center cohort study is recommended to understand the recurrence and quality of life following pterygium surgery.

CONCLUSION

Pterygium surgery with conjunctival autograft is an easy and safe method with low complications and recurrence rates. The surgical intervention provides high satisfaction for both cosmetic outcomes and symptomatic relief.

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ABBREVIATIONS

ERB: Ethical Review Board

CHEERS: Hospital for Children, Eye, ENT, and Rehabilitation Services

SPSS: Statistical Product and Service Solutions

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