

Retinal Detachment Surgery at Nepal Eye Hospital

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ABSTRACT

Introduction: Retinal diseases are one of the important causes of blindness in Nepal. This study is done with objectives of finding the outcome of retinal detachment surgery.

Methods: A retrospective analysis of 110 patients who underwent retinal detachment surgery over five year period was conducted in Nepal.

Results: Retinal re-attachment was achieved in 94.4 % and postoperative visual acuity of 6/36 to 6/6 was achieved in 52.7% (As possible risk factors, myopia was present in 34.5% ophkia in 29%, trauma in 9%, and lattice) degeneration was 5.4%.

Conclusions: The study has shown a promising result for the retinal detachment surgery.

Key Words: *retinal break, retinal detachment, scleral buckling, vitrectomy*

INTRODUCTION

The 1981 blindness survey revealed retinal diseases as one of the important causes of blindness in Nepal. The incidence of rhegmatogenous retinal detachment in the general population is approximately 1 in 10,000.¹

Treatment for retinal detachment started with ignipuncture by Gonin in 1921² followed by cryotherapy in 1930s^{3,4} and photocoagulation in 1960⁵ for chorioretinal adhesion. Introduction of scleral buckling surgery was done in 1950s and 1960s that raised the likelihood of successful surgical outcome from less than 50% to 80% or more.⁶

Vitrectomy is usually done however, pneumatic retinopexy may be elected when there are small retinal breaks in the retinal detachment.⁷⁻⁹ Even Lincoff balloon technique¹⁰ has been used for small peripheral detachments around a single break with minimal subretinal fluid.

This study aims to review results of retinal detachment surgery during early phases of such service in Nepal.

METHODS

A retrospective study was conducted in Nepal Eye Hospital, Kathmandu from 1989 to 1994. Hospital permission was taken for the study. All the patients who presented with rhegmatogenous retinal detachment over the study period were included in the study. Patients with exudative and tractional retinal detachment were excluded from the study.

The details of name, age, sex, duration and type of symptoms and previous history of ocular trauma was noted. Data collection and statistical analysis was done by Microsoft office excel 2003.

RESULTS

Total 110 patients underwent retinal detachment surgery for rhegmatogenous retinal detachment. The

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most common age group being 51-70 years (40.1%) and were less common after 70 years of age (9.1%). No cases of retinal detachment occurred before the age of 10 years (Table 1). Male (63.6%) exceeded the female (36.6%) in the study (n = 70).

Table 1. Distribution of patients according to age group

Age (year)	Number (%)
< 10	0
11-30	26 (23.6)
31-50	30 (27.3)
51-70	44 (40.1)
Over 70	10 (9)
Total	110 (100)

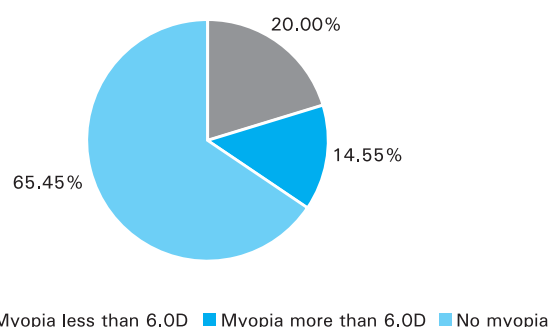


Figure 1. Distribution of myopia

Total 34.55% (n=38) of patients with retinal detachment were myopic (Figure 1). Among them, myopia <6 Diopter was present in 20% and myopia >6 was present in 14.45% (n=16).

Regarding the status of the lens, 71% (n=78) were phakic, 21.8% (n=24) were post ICCE aphakic, 5.4% (n=6) were post ECCE aphakic and only 1.8% (n=2) were pseudophakic (Table 2).

Table 2. Distribution of status of lens

Status of lens	Number (%)
Pseudophakic	2 (1.8)
Aphakic	ECCE 6 (5.4)
	ICCE 24 (21.8)
Phakic	78 (71)
Total	110 (100)

Possible risk factors for retinal detachment was noted in 78.2% (n=86) in which myopia comprised 34.5% (n=38) followed by aphakia 29% (n=32), trauma 9% (n=10) and lattice degeneration 5.4% (n=6) (Table 3).

Table 3. Distribution of possible etiology of retinal detachment

Possible Etiology of RD	Number (%)
Aphakia	32 (29)
Myopia	38 (34.5)
Trauma	10 (9)
Vitreoretinal degeneration (lattice)	6 (5.4)
Undetermined	24 (21.8)
Total	110 (100)

The presenting visual acuity of perception of hand motions (HM) was present in almost half of the cases (49.1%, n=54) while 14.5% cases (n=16) could perceive light only and 5.5% of the cases presented with visual acuity 6/36 or better. However, postoperative acuity of 6/36 or better was present in 52.7% (Table 4).

Table 4. Distribution of preoperative and postoperative visual acuity

Visual Acuity	Pre-Operative Number (%)	Post-Operative Number (%)
PL	16 (14.5)	2 (1.8)
HM	54 (49.1)	20 (18.2)
CF-1/60	20 (18.2)	4 (3.6)
2/60-6/60	14 (12.7)	26 (23.6)
6/36-6/18	4 (3.6)	48 (43.6)
6/12 – 6/6	2 (1.8)	10 (9.1)
Total	110 (100)	110 (100)

Single U tear was responsible for retinal detachment in almost half of the cases (51%, n=56). Retinal dialysis was noted in only 3.6% (n=4). However, no retinal breaks could be seen in 5.5% (n=6). Single or multiple retinal holes were responsible in 32.6% (n=36) cases.

Retinal breaks were located in suprottemporal quadrant in more than half of the cases (55.22%, n=74) followed by inferotemporal quadrant (26.87%, n=36) while inferonasal quadrant was least common site for retinal breaks (2.98%, n=4). Some patients had more than one break in the retina and 2 patients had secondary macular hole (Table 5).

Table 5. Distribution of position of breaks

Position of breaks	Number (%)
Superotemporal	74 (55.22)
Inferotemporal	36 (26.87)
Superonasal	18 (13.43)
Inferonasal	4 (2.98)
Macular	2 (1.49)
Total	134 (100)

78.2% (n=86) patients presented with partial retinal detachment and 21.8% (n=24) has total detachment. Only 1.8% (n=2) patients had attached macula at presentation (Table 6).

Table 6. Distribution of size of retinal detachment

Size of retinal detachment	Number (%)
Total	24 (21.8)
More than half	50 (45.4)
Less than half	36 (32.8)
Total	110 (100)

Scleral buckling was done in the form of radial plomb(20%), circumferential plomb(27.3%), radial plomb with encircage(23.6%), tyre with encircage(9.1%) and encircage only(20%). Similarly, subretinal fluid drainage was done in 94.5% of cases.

Retinal reattachment was achieved in 94.4% (n=106) patients. Post-operative visual acuity of 6/36 to 6/6 was achieved in 52.7% (n=58) patients.

DISCUSSION

Among 110 cases of retinal detachment treated with scleral buckling by a single surgeon over the period of five years the male female ratio was 1.7:1 in the present study. A study conducted by Wong et al¹¹ and Jonathan et al¹² also found a higher risk of rhegmatogenous retinal detachment in men than women.

Retinal detachment was found most commonly in the age group 51-70 years in the present study. Jonathan et al¹² and Haimann et al¹³ also found an association between risk of rhegmatogenous retinal detachment and increasing age.

In the present study, 1.8% were pseudophakics and 27.2% were aphakics of which 5.4% were the ones who underwent extracapsular cataract extraction while 21.8% had undergone intracapsular cataract extraction. In a study done by Jonathan et al, pseudophakic and aphakic rhegmatogenous retinal detachments comprised 19% of the total rhegmatogenous retinal detachment cases.¹²

Aphakic and pseudophakic confer a moderate reduction in the rate of reattachment. Traditionally, aphakic has been associated with significant reduction in anatomic success. Rates of 85 to 95% have been achieved.

A single U/horseshoe tear was seen in 51% of cases in this study. However, in a study by Comer M. B et al¹⁴, 76% of the retinal breaks were of horseshoe type tears while in a study by Shrestha et al,¹⁵ 42% had horseshoe type of retinal break.

A major determinant of postoperative visual acuity is the status of the macula. Macular detachment of any

duration, even 1 day results in reduced postoperative acuity. Overall, 40 to 50% of patients with macular detachment achieve, acuity of 6/18 or better postoperatively.

Certain clinical phenomenon are associated with a greatly reduced chance of success. PVR is the most common such findings, the estimates of anatomic success in the presence of PVR vary from less than 50% to more than 75%.

Surgical results of retinal detachment have improved considerably in the last two decades.^{16,17} In the developing countries, the final reattachment rates vary from 77-87% with the use of modern technology. In a study done in India, 80 % of successfully reattached retina obtained a vision of 6/60 or better.^{18,19} In a study by Shrestha et al¹⁵, 85.7% had primary surgical success rate among 42 eyes being treated. However, in our study, 96.4% had attached retina at the conclusion of the surgery. According to a study conducted by Comer MB et al¹⁴, vitreoretinal specialists could achieve success rate of 90% with a single procedure.^{20,21}

Better preoperative visual acuity, fewer quadrant involvement and lack of high myopia were important prognostic factors for visual acuity in a study done by Salicone et al²² involving 672 patients with retinal detachment while the duration of macular detachment had surprisingly little influence on post operative visual acuity. Most authors agree that functional success depends in part on preoperative visual acuity and patient age. The chances of restoring good vision decline with advancing age.^{23,24} In the present study, preoperatively 49.1% had visual acuity of hand movements while postoperatively 44% had visual acuity of 6/36 to 6/18 although 98.2% of patients had macular detachment at the time of presentation, 14.5% had high myopia and 67.2% had involvement of more than two quadrants. Similarly, PVR grade C1 or worse was present in 16.3% out of the total of 21.7% of cases with PVR.

Postoperative visual acuity depends on the status of the macula: whether and for how long it was detached before surgery. If the macula was detached, degeneration of photoreceptors may prevent good postoperative visual acuity. While 78% of eyes with retinal detachment sparing the macula recovered visual of 6/18 or better, only 37% with detachment macula attained that level. In the present study, 98.2% of patients were found to have macula detached at the time of presentation and it was not easy for them to speculate the duration of detachment.²⁵

In our series of 110 RRD cases, in almost all cases there was no indication of the duration of macular detachment.

Anatomical success is achieved in 96.4% of patients, who undergo retinal detachment surgery, but

number of patients who achieve good visual acuity is comparatively less. A number of factors have been identified for poor visual recovery. It is well established fact that visual recovery may occur as long as 2 year following retinal detachment surgery and recovery is because of regeneration of retinal receptors. Visual loss could be either assigned to rearranged/misalignment of retinal receptors and in complete regeneration of retinal receptors.²⁶

Traditionally, aphakia has been associated with a significant reduction in anatomic success. Rates of 85 to 95% have been achieved.^{25,26} However, in our study although 29% were aphakics, surgical reattachment was obtained in 96.4% of cases. Similarly, 40 to 50% of patients with macular detachment achieve acuity of 20/50 or better postoperatively.^{23,24,27,28} In the present

study, all the patients had macular detachment at presentation and post operative visual acuity of 6/36 or better was achieved in 52.7%.

CONCLUSIONS

The study has shown a promising result for the retinal detachment surgery. We need to have a large size study to support this finding. Development of infrastructure is a must.

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