

# Incidence and Outcome of Bilateral Rhegmatogenous Retinal Detachment in a Tertiary Eye Hospital in South India: A Retrospective Study

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## Abstract

*Background:* Advanced stages of retinal detachment may cause blindness, hence a need for early diagnosis and treatment is recommended.

*Aim of Study:* To find out the incidence, risk factors and outcome of patients with bilateral rhegmatogenous retinal detachment reported at a tertiary referral hospital in Hyderabad, India.

*Material and Methods:* We carried out a retrospective study by recording the data of patients from medical records of Vitreo-Retina Department, Sarojini Devi Eye Hospital, Hyderabad, India, operated between June 2015 to June 2016. Details of history and ophthalmological findings by slit lamp examination, indirect ophthalmoscopy, colour retina charting, B Scan were recorded and were compared with earlier similar studies.

*Results:* The age of the patients ranged between 21 to 76 years, with a mean age of 27.5 years. Out of 250 patients, most of the patients (80%) were myopic and 20 (8%) presented with bilateral RD. Risk factor in most of the patients was myopia. We found that patients with fresh retinal detachment were managed with scleral buckling procedure. Patients with proliferative vitreoretinopathy changes were managed with pars plana vitrectomy with encircling band and silicone oil tamponade. When outcome after treatments were recorded, it was found that patients who reported without delay had good visual and anatomical outcome i.e. more than 80% of patients had good prognosis.

*Conclusion:* We found less incidence of bilateral rhegmatogenous retinal detachment in our study when compared to the literature. Myopia, post cataract surgery were few risk factors observed in our study. hence regular follow-ups are suggested to prevent blindness in these patients.

**Keywords:** Horse Shoe Tear; Myopia; Proliferative Vitreoretinopathy; Pseudophakia; Rhegmatogenous Retinal Detachment.

## Introduction

The 12.7% cases of blindness in developing countries like India, were due to retinal diseases, making it as one of the commonest cause of blindness [1]. Retinal detachment (RD) is the disconnection of neurosensory retina from retinal pigment epithelium.

Majority of RD cases are usually preceded by posterior vitreous detachment (PVD) that causes traction on retina resulting in retinal tear, which causes seeping of liquefied vitreous thereby causing RD. Patients with advanced stages of RD may result in visual loss, thus necessitating early diagnosis and treatment [1,2]. However, very few studies have been

carried out about the RD in India especially in Southern India.

RD even though rarely seen bilaterally may occur either concurrently or later. Studies have shown the report of bilateral RD in young myopic male patients. It is also reported in patients who underwent refractive surgeries like lasik for rectification of myopia, with an incidence of 0.033 to 0.25%.

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During lasik procedure, suction ring application might induce vitreous traction and detachment owing to rapid decompression of the eye, more usually seen in the infero temporal quadrant [3,4].

Literature has shown an incidence of 10 to 20% of bilateral RD cases in hospital based studies. This variation might be due to the criteria of patient selection and duration of the study [2-5]. We carried out a study to find out the incidence, risk factors and outcome of patients with bilateral RRD reported at a tertiary referral hospital in Hyderabad.

## Material and Methods

A retrospective study was done by collecting all the data of 250 patients who presented to vitreo-retina dept, Sarojini Devi Eye Hospital operated between June 2015 to June 2016, from the medical records. After obtaining institutional ethical committee approval, the data was recorded. A detailed history, systemic and ophthalmology examination in the form of best corrected visual acuity, anterior segment examination, fundus examination and retina charting was carried out on all the patients. Demographic data, lens status, in pseudophakics posterior capsule integrity, any vitreous disturbance, configuration of RD in both eyes, location, size, number and shapes of breaks, degenerative changes like lattice degeneration with holes, PVR changes and any associated choroidal detachment (CD) were noted.

All the details were entered on microsoft excel sheets and descriptive statistical analysis was carried out regarding demographic details, clinical features, risk factors and outcomes.

## Results

### *Demographic Data*

We found that all the patients (100%) to be male. The patients age ranged between 21 to 76 years, with a mean age of 27.5 years. Out of 250 patients, most of the patients 200 (80%) were myopic and 20 (8%) presented with bilateral RD. All patients were from south India, except one patient was from north India settled in Telangana. The commonest symptom in about 90% of patients was vision loss. 205 patients (82%) came to the department within one month of onset of symptoms, whereas remaining 45 (18%) came after one month of symptoms.

### *Configuration of RD*

Most of our patients presented with total rhegmatogenous retinal detachment (RRD). One young myopic patient presented with old inferior subtotal retinal detachment, demarcation line and sub retinal bands in right eye (RE) (Figure 1) and in left eye (LE) fresh subtotal retinal detachment with horse shoe tear (HST) in superotemporal quadrant. Patient noticed visual loss when LE developed RD.

One young adult myopic patient presented with radial GRT (Figure 2) in one eye and other eye had multiple lattice degeneration with multiple holes.

One middle aged myopic patient showed retinal detachment in left eye with superotemporal horse shoe break. After two months he underwent uneventful cataract surgery for complicated cataract in RE. One month after cataract surgery he developed consecutive subtotal retinal detachment with opened lattice degeneration (Figure 3) in superotemporal quadrant.

Patients who presented with simultaneous RD had old retinal detachment with severe PVR changes, all these patients were pseudophakics or aphakics

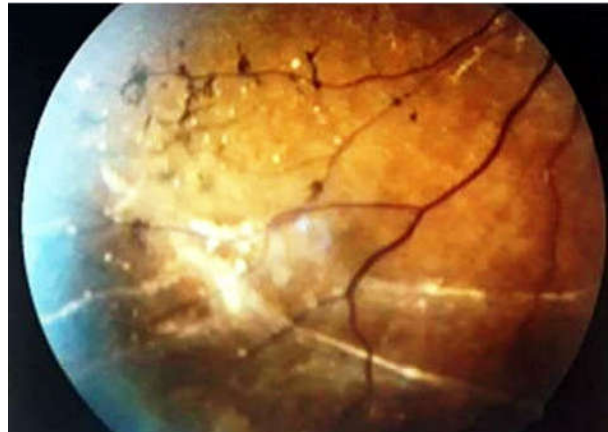


Fig. 1: Fundus image showing sub retinal bands and RPE degeneration



Fig. 2: Fundus image showing radial GRT



Fig. 3: Fundus image showing opened lattice in myopic patient

degeneration with multiple small holes noted in young adults, in few pseudophakics, breaks were not visible due to peripheral posterior capsular opacity. In some pseudophakics, primary break was not visible, may be in far periphery, not visible due to peripheral posterior capsule opacity. Some patients developed HST near the edge of the lattice degeneration (Figure 4).

with fresh RD in other eye. These patients were one eyed when they came to our department, previously they ignored the problem, when they noticed visual loss in other eye then came for treatment.

*Plan of Surgery based on Clinical Presentation*

After examination, patients were explained regarding procedure and also the outcome of management. Phakics and pseudophakics with no vitreous disturbance and recent onset retinal detachment, RD, mild PVR changes underwent scleral buckling procedure. Pseudophakic patients with vitreous disturbance and moderate to severe PVR changes underwent parsplana vitrectomy (PPV) with silicone oil tamponade.

*Location and Types of Retinal Breaks*

Most of the patients had horse shoe breaks in superotemporal quadrant, two of them presented with giant retinal tear (GRT), multiple lattice

*Surgical Procedures*

Scleral buckling procedure (SBP) was done in patients who presented with recent onset RD, application of cryotherapy to break, placing 287 tyre to support the break with 240 band along the tyre

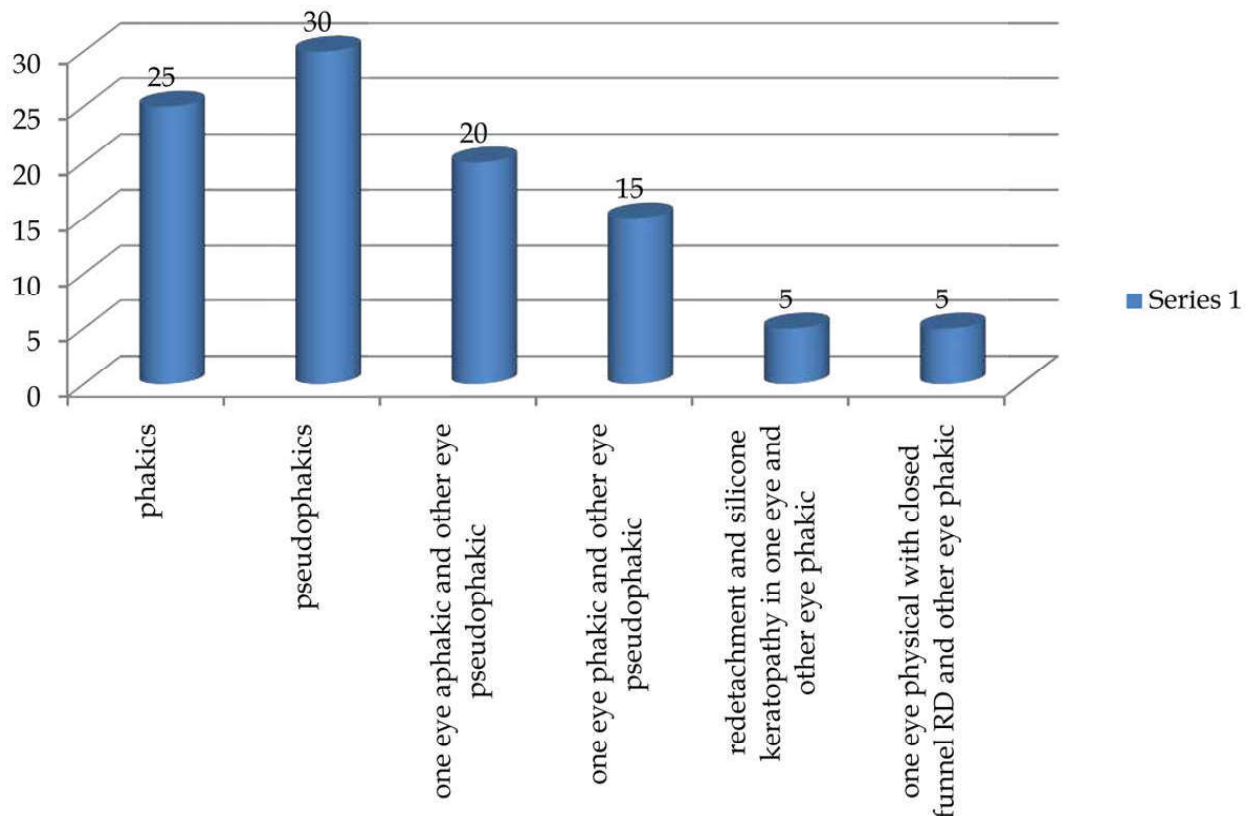


Fig. 4: Percentage of patients with lens status before surgery

and subretinal fluid drainage. Patients with PVR changes and patients where primary break not seen underwent vitrectomy procedure with encircling band and silicone oil tamponade.

Six patients (30%) underwent SBP in one eye and PPV with silicone oil tamponade in other eye. Five patients (25%) under PPV with silicone oil tamponade in both eyes. Four young patients (20%) with moderate to severe degree of myopia underwent SBP in both eyes. Two patients (10%) presented with inoperable RD in one eye and other eye fresh RD, these patients underwent PPV in one eye. Other eye prognosis was explained to patients. One 76 year old patient who had both eyes pseudophakic RRD underwent SBP in left eye, other eye breaks were not visible, disc was pale due to glaucomatous optic atrophy, infero temporal thickened fibrosed

retina noted, prognosis was explained to patient. One 71 year old patient had pseudophakic RRD in both eyes with moderate PVR changes, patient was advised PPV. One 65 year old patient presented with pseudophakic RRD in one eye, other eye was blind eye. Pneumo retinopexy (PR) was done with cryo therapy and SF6 injection in single setting. After PR, vision was found to be improved to 6/24. Most of the patients had good anatomical and visual outcome (Figure 5).

All patients were treated based on the clinical presentation. Anatomically retina was attached in most of the patients, except two patients there was residual RD inferiorly, retina resisted to settle due to PVR changes. Posterior pole was on under silicone oil tamponade in these patients. No patient in our study required second procedure. All the patients

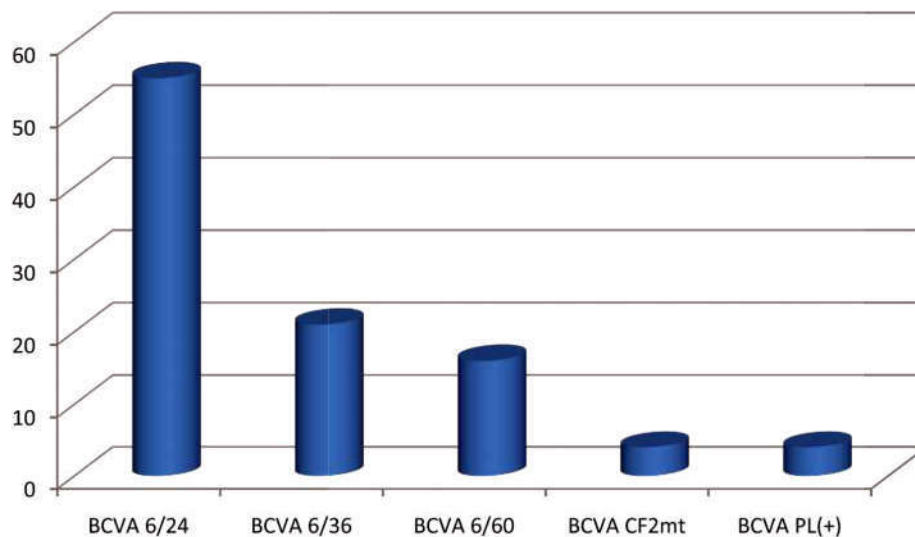


Fig. 5: Bar chart showing percentage of patients with BCVA after surgery

underwent 360 degrees barrage laser after surgery. Silicone oil removed in 4 patients, after 6 months, these patients had secondary glaucoma due to silicone oil in eye. Other patients with silicone oil in eye were frequently followed to detect any silicone oil related complications like keratopathy, cataract and secondary glaucoma.

## Discussion

Patients with myopia usually have a risk of retinal tears and RD. In beginning retinal tears are spontaneous and asymptomatic. Later once retinal breaks advance to retinal detachment, loss of vision is seen in relation to the RD location [2-4].

In our study, out of 20 patients, one young myopic patient had radial GRT superiorly and remaining others had HST and lattice degeneration with multiple holes. The refractive error in the patients was between 2 to 3 dioptres in both eyes. The degree of myopia was moderate degree of myopia. 360 degrees prophylactic barrage laser was carried on young myopic patients. Even after prophylactic barrage laser, two patients developed RRD, which might be due to laser induced vitreous traction on retina resulting in opened lattice or retina tear [5-7].

Among all the risk factors, myopia was the major factor. This might be due early liquefaction of vitreous, PVD and vitreous retinal degenerations like lattice degenerations. In our study, we did not find any case of bilateral RD after Lasik procedure. Our findings

are similar to previous similar studies. Our study showed a low incidence of 8%, when compared to similar previous reports [4-6].

RD rarely affects both eyes simultaneously. Studies have shown incidence of simultaneous bilateral RRD to be 1.18 to 2.5% of all retinal detachments [3]. RD was seen in seven (35%) cases simultaneously. Out of which three young patients had old subtotal RD in one eye and the other eye with fresh RD. In other four patients, being old and with a history of cataract surgery in one eye or both eyes, they had chronic RD with severe PVR changes in one eye and other eye with fresh RD [2,3].

Trauma is one of a rare cause of bilateral RD. Literature search has revealed child abuse cases causing bilateral simultaneous RD. We did not find any case with a history of trauma or genetic factors in our study, myopia, higher age and post cataract surgery being risk factors [3,8,9].

Studies have shown the occurrence of RD in patients of all ages and in both the genders. All our patients were male, which might be due to the smaller sample size. Our patients were young adults to older ones. Usually RD is due to genetic causes in children and due to posterior vitreous detachment in adults [5-8].

As almost all the patients came to the department in early stage, the treatment outcome both anatomically and vision wise was good in our study. because all the patients presented in early stage so that they were managed properly. However in patients with delayed presentation, residual inferior RD was seen. Managing the patients who report in advanced stages, those with severe PVR changes, when RD is associated with choroidal detachment and in situations with thick peripheral posterior capsule, is difficult with poor prognosis. It is suggested that one should have knowledge about the features of retinal detachment, so as to plan treatment efficiently of this ocular emergency [8-10].

#### *Limitations*

1. Ours was a retrospective study
2. Hospital based study
3. Procedures were carried by multiple surgeons
4. Non inclusion of pediatric patients

#### **Conclusion**

To prevent retinal detachment, screening of myopic patients is imperative so as to avert visual loss. RD is

seen in patients after cataract surgery mainly if there is vitreous disturbance, and also in myopic patients even in absence of any vitreous disturbance.

In patients with myopia, intervals between follow up visits must be short, in order not to miss any situation of RD. Early diagnosis and treatment will prevent loss of vision. We noticed that the patients who came early for examination had had good outcome both anatomically and functionally.

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