

# Management and Visual Outcome of Rhegmatogenous Retinal Detachment with Giant Retinal Tear

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## ABSTRACT

**Background:** A giant retinal tear (GRT) is defined as full thickness neuro sensory retinal break that extends for more than 90 degrees in the presence of posteriorly detached vitreous. GRTs are rare; their incidence has not been well established in the literature. The reported estimates of 0.05 per 100,000 of the general population per year or 0.5% to 8.3% of all cases of rhegmatogenous retinal detachment (RRD). Aims and Objectives: To present our experience with the surgery in RRD associated with GRT over 2 years at Sarojini Devi Eye Hospital. **Methods:** We have done a retrospective study of all patients who presented with RRD and GRT to our vitreo retina department. All data collected from medical records. Patients underwent detailed ocular examination, history, BCVA, slit lamp examination, indirect ophthalmoscopy and documentation. Thorough examination of other eye done in all cases. Patients who underwent refractive surgeries were excluded from the study. **Results:** Patients where fresh RRD associated with giant retinal dialysis or GRT of 90 to 120 degrees underwent sclera buckling procedure. Patients with GRT more than 120 degrees, PVR changes underwent pars plana vitrectomy plus encircling band and silicone oil tamponade. Most of our cases had good anatomical outcome but visual outcome was not good in many cases though they presented within one week of retinal detachment. Anatomical outcome was bad in cases who presented late and cases associated with choroidal detachment. Visual outcome in most of the cases was 3/60 to 6/60; two cases had only CF 1 mt. Discussion: RRD with GRT management presents unique challenges to vitreo retinal surgeons. Size of GRT and PVR changes will affect the anatomical success. Meticulous vitreous base dissection is to be done for good anatomical results. In our study trauma was the common cause for GRT. **Conclusion:** Surgical success depends on the size of GRT, PVR changes and time of presentation. Fellow eye follow up and management is very important in myopic cases to prevent RRD.

**Keywords:** GRT, Rheg RD, Scleral Buckling, Pars Plana Vitrectomy, Myopia, Pseudophakic RRD.

## INTRODUCTION

Giant retinal tear (GRT) is defined as a retinal break that is larger than 3 clock hours or greater in circumferential extent associated with posterior vitreous detachment. GRTs are rare; their incidence has not been well established in the literature. The reported estimates of 0.05 per 100,000 of the general population per year or 0.5% to 8.3% of all cases of rhegmatogenous retinal detachment (RD).<sup>[1-4]</sup>

It is commonly seen in younger age groups, Male predominance. The most common predisposing factors for the development of a GRT were Trauma (16.1%), Hereditary vitreo retinopathies (14.5%), and high myopia (9.7%).<sup>[2,3]</sup>

A giant retinal tear exposes a large area of bare RPE cells that can migrate from the sub retinal space into the vitreous, potentially increasing the risk of proliferation. Fellow eyes of giant retinal breaks. Incidence of bilateral giant retinal breaks was 12.8 percent. Follow-up of fellow eyes revealed that the development of a giant retinal break is often preceded by increasing white with pressure associated with increasing condensation of the vitreous base. If fellow eye has not received prophylactic treatment, incidence of GRT is 11.3% over a mean follow-up of 3.7 years.<sup>[3-5]</sup>

We carried out this study to report the management and outcome in retinal detachments associated with giant retinal tears (GRTs).

## MATERIALS AND METHODS

Retrospective study done at Sarojini Devi Eye Hospital, Hyderabad, Telangana state. All data collected from medical records, 30 patients presented to VR Dept, Sarojini Devi Eye Hospital were GRT associated RRD included in our study, where as other patients with RRD were excluded in our study. Retrospective analysis of patients treated between June 2014 - May 2015 at tertiary referral hospital. Demographic factors, history of trauma, high myopia and lens status were evaluated in association with GRTs.

21 patients were male and 9 patients were female. Age group was between 20 to 35 years, all of them were young adults to middle age patients. The case notes of 30 patients (21 males, 9 females) with a follow up ranging from 3 to 6 months were reviewed. Their age ranged between 19 and 35 years with mean age of 9 patients had myopia more than 3D and history of trauma in 10 cases. 11 patients were phakic, 7 pseudophakic and 1 aphakic.

Most of the cases presented with in 1-2weeks after the onset of symptoms. All 30 eyes had retinal detachments with macular involvement. Total retinal detachment seen in 20 cases, subtotal retinal detachment seen in 10 cases. Superior GRTs noted in 13cases, inferior GRTs in 8 cases, temporal GRT

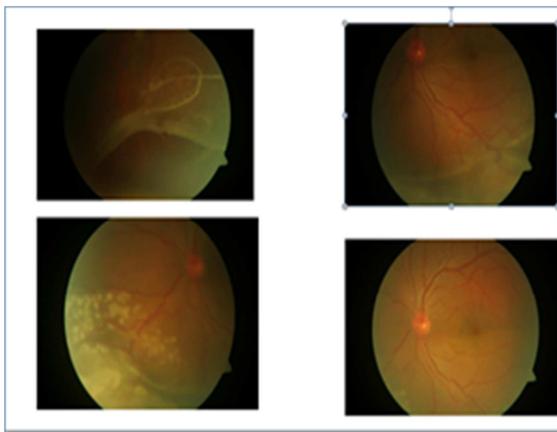
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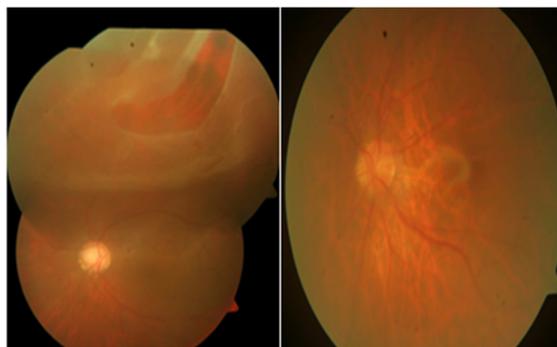
in 6 cases, superior and inferior GRTs in 3 cases. GRTs more than 3 clock hrs involving 180 degrees seen in 8 cases. GRT more than 180 degrees seen in 5 cases. Most of them were traumatic RRD, high percentage was trauma related to sports like cricket ball injury, few were pseudophakic, myopia was also one of the factor responsible for GRT. All patients underwent detailed ocular and systemic examination before surgery, patients with associated choroidal detachment were started on systemic steroids immediately after physician clearance.

**Pre Operative Evaluation:**

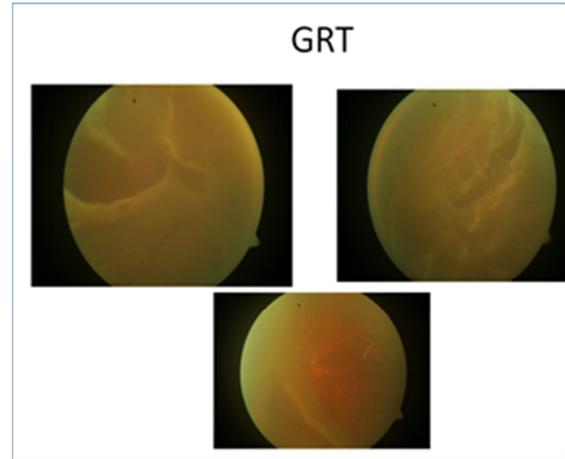
Careful indirect ophthalmoscopy of both eyes should be done the size of the tear, mobility of the posterior flap, radial extension if any, amount of vitreous liquefaction, abnormal areas of vitreous condensation and the extent of proliferative vitreoretinopathy (PVR) should be noted. Preoperatively, extension of a giant tear, possibly with creation of radial extensions may occur with violent head movement, and patients should not be subjected to extensive manipulation or physical activity. All these cases underwent segmental scleral buckling with encirclage and vitrectomy with encircling band and silicone oil tamponade depending on the clinical features of detachment [Figure 1-3]. Scleral buckling was done in 4 (25%) cases with grade A PVR changes.



**Figure 1: Giant Retinal Dialysis**



**Figure 2: Radial GRT.**



**Figure 3: GRT**

**RESULTS**

BCVA improved to 6/60 in 16 cases of scleral buckling procedure. The anatomical success was 100% in scleral buckling procedure. BCVA with tamponade improved to 6/36 in 4 cases. BCVA with tamponade improved to CF 5mts -6/60 in 16 cases. BCVA with tamponade improved to CF 2mts in 8 cases. PL+ve in 2 eyes, one had macular pucker and other dry retinal folds. The anatomical success in the vitrectomy cases was (62.5%).

**DISCUSSION**

Literature showed that scleral buckling can be tried in RD with GRT involving 3 clock hours with absence of PVR changes. In our study scleral buckling with shallow indentation tried in cases of GRT involving more than 3 clock hours with mild PVR changes. The anatomical and visual outcome was good in most of the cases. 3 phakic cases of RD with PVR changes under went lens sparing vitrectomy.<sup>[5-7]</sup>

Out of 3 cases one case developed progressive cataractous changes in post operative period. Meticulous vitreous base dissection is required for good success. One patient with macular pucker underwent second procedure to flatten the retina. In our study, the retinal reattachment rate for GRT without PVR was 83.3% at last follow-up. These percentages are similar to the published rates in the literature of 68% to 91% reattachment at the last visit for GRT without PVR.<sup>[7-9]</sup>

The reattachment rate was less when compared to published literature in cases of GRT with PVR. Literature showed that the size of GRT and PVR changes will effect the anatomical success, in our study also patients with GRT of 3 clock hours and absence of severe PVR changes showed good outcome. Better visual outcomes were associated with smaller circumferential dimensions in the giant retinal tears.<sup>[8-10]</sup>

**Prognostic Factors:**

In our study 2 cases showed poor anatomical and visual success due to post operative PVR changes. Phakic/clear lens at presentation, unfolded flap of the giant tear, absence of postoperative cataract, and absence of postoperative PVR were associated with final visual acuity better than 20/200. Intervention for prevention of fellow eye. Out of 16 cases 2 patients old records showed RD treated with scleral buckling, both of them had high myopia. Both of them reported with GRT in fellow eye 2years after surgery. Both of them not received prophylactic treatment in fellow eye. In 7 patients prophylactic laser done to the areas of lattice and retinal breaks in fellow eye.<sup>[7-10]</sup>

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**CONCLUSION**

GRT is ocular emergency. In our study myopia was the risk factor. Surgical success depends on the size of GRT, PVR changes and time of presentation. Fellow eye follow up and management is very important in myopic cases to prevent RRD.

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