

A MULTIVARIATE ANALYSIS OF FACTORS AFFECTING PROGNOSTIC OUTCOME IN PATIENTS WITH RETINAL DETACHMENT TREATED WITH SCLERAL BUCKLING SURGERY

Rajasekar K¹, Sujatha R²

¹Professor and HOD, Department of Ophthalmology, Government Thiruvannamalai Medical College, Thiruvannamalai.

²Senior Assistant Professor, Department of Ophthalmology, Regional Institute of Ophthalmology, Chennai.

ABSTRACT

BACKGROUND

Retinal detachment affects significant number of general population and needs procedures with profound surgical morbidity, certain times multiple procedures. High myopia, Ocular trauma, Ocular surgery, Family history and many other factors usually lead to Retinal detachment. As RD needs surgical correction with prognosis of Anatomical success in Reattachment and Functional recovery were dependent on various prognostic factors. Patient education on early symptoms of flashes and floaters especially in these high-risk groups is very important for them to seek early treatment which is the most crucial factor in prognosis of these patients. Moreover, appropriate referral by the General Ophthalmologist immediately on diagnosis to a Retinal Specialist is another time saver. Patients co morbid conditions affecting surgical fitness was also assessed, to see whether they were causing delay in surgery. Morphology of RD, Macular status, Nature of Breaks, SRF quality, Aphakic/Pseudophakic status were also evaluated against prognosis.

MATERIALS AND METHODS

This multivariate analysis was conducted at Retina services, Regional institute of Ophthalmology and Government Ophthalmic Hospital, Chennai for a period of 3 months. Thirty-five eyes of thirty-five patients were thoroughly evaluated with a proforma on History, presentation, seeking Eye treatment, Timing of Procedure following diagnosis, Co Morbid conditions and followed up with thorough ocular evaluation on Phakic status, Morphology of RD, Nature and number of breaks, Macular status, Signs of chronic RD like PVR, Mobility of retina etc. were analysed. All 30 patients were taken up for scleral buckling surgery.

RESULTS

Out of 30 patients in our series, 21 were males and 14 were females. The maximum patients in our series were in the age group between 19 to 57 years. We had fresh RD in 16 patients and chronic RD in 19 with the success rate better in the first group. 7 of our patients had multiple breaks which needed repeat surgical procedure for reattachment. Post-surgery our anatomical success rate was seen in 29 patients and good functional visual recovery of 6/18 or better was seen in 20 patients. The six patients who failed to attach post encirclage were taken for further Vitrectomy and silicone oil procedure.

CONCLUSION

Symptoms of Flashes and floaters and curtain in front of eye should be further disseminated very widely to the high-risk groups, especially their need to close an eye and check other eye by themselves at home regularly. In case they get these symptoms to immediately report to their Eye Doctor who can appropriately refer to an Retinal surgeon. Moreover, these patients also are susceptible for other eye problems and need constant followup to prevent similar attacks in another eye. And as RD family history is of significance their siblings also need periodic evaluation.

KEYWORDS

Retinal Detachment, Scleral Buckling, Flashes and Floaters, Rhegmatogenous.

HOW TO CITE THIS ARTICLE: Rajasekar K, Sujatha R. A multivariate analysis of factors affecting prognostic outcome in patients with retinal detachment treated with scleral buckling surgery. J. Evid. Based Med. Healthc. 2018; 5(9), 762-770. DOI: 10.18410/jebmh/2018/155

Financial or Other, Competing Interest: None.
Submission 01-02-2018, Peer Review 06-02-2018,
Acceptance 19-02-2018, Published 21-02-2018.
Corresponding Author:
Dr. R. Sujatha,
Senior Assistant Professor,
Department of Ophthalmology,
Regional institute of Ophthalmology and
Government Ophthalmic Hospital, Chennai.
E-mail: sujatha1976@gmail.com
DOI: 10.18410/jebmh/2018/155



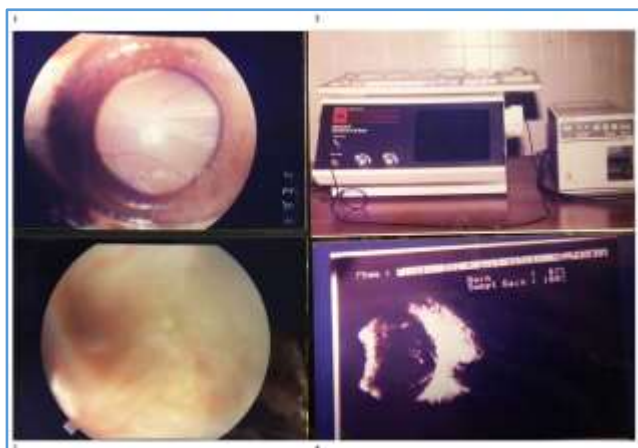
BACKGROUND

The Retinal pigment epithelium layer of Retina separating from the nine layered Neurosensory Retina is called Retinal detachment. Rhegma or breaks can be – holes, tears and dialyses. Holes are usually seen in areas of lattice degeneration. Tears are more dynamic and form due to vitreoretinal traction.

The general incidence of retinal detachment in normal eyes is around 5 new cases in 100,000 persons per year.¹ Detachment frequents middle-aged people, with rates of around 20 in 100,000 per year.² The lifetime risk in normal individuals is about 1 in 300.³

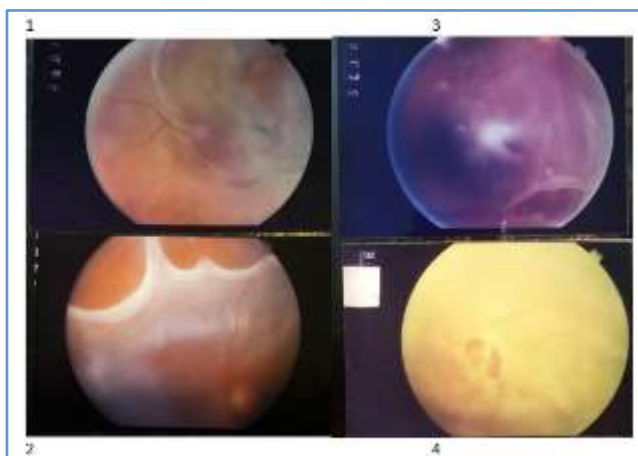
Retinal breaks not leading to detachment but staying quiet are seen in about 6% of eyes. Almost 60% of Retinal detachment occurs more in pathological myopia due to thinned out stretched retina.⁴ Probability being 1 in 20 mostly in younger patients. Retinal detachment also frequents post cataract surgery patients with risk being 5 to 16 per 1000 cataract.⁵ But is still more when compounded with high myopia and cataract surgery.⁶

Other eye of RD patients are at risk of, 15% and increases to 25–30% in patients with both retinal detachment and cataracts extracted.⁴



Anticlockwise-

1. Grey reflex seen through pupil in Retinal detachment.
2. Elevated retina with sub retinal fluid.
3. B scan Ultrasound machine.
4. Retinal detachment seen as membrane shadow.



Anticlockwise-

1. Attached and Detached Retina.
2. Giant Retinal tear causing Retinal detachment.
3. Retinal breaks – tears.
4. Large irregular tear causing Retinal detachment.

Objectives

1. To analyse factors leading on to Rhegmatogenous Retinal Detachment and study the different types of breaks, their quadrant distribution and the extent of detachment.

2. To study the fellow eye of patients presenting with Rhegmatogenous Retinal Detachment and their prophylactic treatment.
3. To analyse patient awareness of their symptoms for early recognition and reaching for eye care and study factors leading to time delay before undergoing surgical procedure.
4. To access the outcome of external scleral buckling procedure in terms of anatomic attachment & functional visual recovery and analyse the cause of failure of primary external sclera buckling procedure.

MATERIALS AND METHODS

This study was carried out at Retina clinic, Regional Institute of Ophthalmology and Government Ophthalmic Hospital, Chennai with patients referred from Govt. Thiruvannamalai Medical College during a period of 3 months. Ours is a prospective study where patients presenting with primary Rhegmatogenous Retinal Detachment are subjected to detailed evaluation and primarily managed with External sclera buckling procedure with followup.

Inclusion Criteria

1. A Series of 30 patients with primary Rhegmatogenous Retinal Detachment referred and coming for Retina evaluation to the hospital for the first time during the study period were evaluated.
2. Patient with Buckleable Rhegmatogenous Retinal Detachment who were primarily managed with sclera buckling procedure using silicone explants were included in this study.

Exclusion Criteria

1. Patients with associated tractional RD & exudative RD.
2. Patient with detachment with severe PVR changes (Grade C or D) needing internal procedure such as vitrectomy were excluded.
3. Patient who were unwilling to undergo surgery.
4. Patient re-detachment regardless of duration of attachment were excluded from the study.

Procedure

- The detailed history taking included a elaborate proforma filled with information from both Patient attender after they consent to be part of the study.
- H/O defective vision, any flashing lights, floaters and visualizing any peripheral visual field defect.
- Previous H/O wearing spectacles for refractive error.
- H/O any sort of trauma.
- H/O any cataract surgery in the past and h/o any complication met during cataract surgery.
- H/O any laser photocoagulation/ any other intra ocular surgery.
- H/O any posterior capsular opacification.
- H/O of any YAG capsulotomy and if so their duration after cataract surgery were recorded.
- H/O awareness of symptoms like flashes floaters and how early pt realized the problem.

- H/O any delay due to comorbid conditions like DM IHD etc. delaying fitness for surgery.

In all patients, visual acuity was measured with Snellen's visual acuity chart. Pupils were dilated with cycloplegic and retinoscopy was routinely done, and refractive status was evaluated. Detailed anterior segment with a slit lamp biomicroscope done. Any corneal, lenticular and vitreous opacities which hinder fundus visualization is noted. Marcus Gunn pupil (presence of any Relative Afferent Pupillary Defect) noted. In case of pseudophakic opacification which hinders visualization of posterior segment, any evidence of YAG capsulotomy opening noted, any vitreous strands clogging to the wound noted. Signs of uveitis like cells, flare and any pigment dispersion in the anterior vitreous were looked for.

Using binocular indirect ophthalmoscope with sclera depression, detailed posterior segment examination done in all patient. Type and extent of retinal detachment at presentation noted. Macular on/off status noted at the time of presentation. Detailed examination of the fellow eye, peripheral retina for any abnormal predisposing peripheral retinal degenerations noted using sclera indentation. Three mirror examination was also done. Detailed fundus drawings of both eyes were done in all patients on standard fundus charts using the internationally accepted colour coding. Fundus photography was done for documentation of the retinal detachment.

In all patients, routine investigation like random blood sugar, urine analysis and blood pressure measurement done. X ray chest & ECG done as routine investigation. B scan USG was done. A scan done in all patient to note down the axial length in both eyes. Thorough, Systemic examination was done in all patients and their blood pressure and blood sugar was brought under control, before planned procedure. Strict bed rest was advised for all patients. It is more specific for patients with superotemporal involvement because the macula may detach by spread of SRF.

Anaesthesia

Pupillary dilatation was carried out with mydriatics & cycloplegics like 1% cyclopentolate and 1 % phenylephrine in all patient 1 hour preoperatively. Patient were operated under local anaesthesia, Facial & peribulbar blocks with lignocaine 2% supplemented with 1% bupivacaine. GA was used in paediatric cases and in anxiety patients.

Surgical Procedure

Firstly, Near the opening table, fundus drawing was routinely displayed. 360-degree conjunctival peritomy done & relaxing incisions made appropriate to the extent of sclera exposure required. Bridle sutures applied with reverse mounted needle with a 4/0 black silk to all 4 recti by passing underneath the muscle tendon, taking care to preserve the muscle sheath. Scleral inspection to detect any anomalous vortex veins and sclera thinning done. Exact localization and confirmation of all the retinal breaks was done. Exact

localization and confirmation of all the retinal breaks was done by indirect ophthalmoscopy with scleral depression and compared with retinal drawings. Areas of tear were marked on sclera using cautery or with gentian violet marker pen.

For encircage four partial thickness scleral tunnels were made after measuring the distance from the limbus, using caliper in between four recti muscle. Cryopexy according to the standard protocol was done for all retinal breaks viewing with IDO. While freezing, breaks, indent the sclera with cryoprobe to bring the RPE as close as possible to the break. For encircage, No. 40 silicon encircage band was placed underneath the 4 recti muscles and passed underneath the scleral tunnels. Radial / segmental circumferential tyres were selected according to the size, site and type of retinal breaks. Segmental circumferential/Radial sponge (explants) was secured with 4-0 ethibond at appropriate sites. In general, the separation of sutures should be about 1.5 times the diameter of sponge explant. For very high buckle, space the sutures even further apart. SRF drainage was done in the quadrant where maximal level of fluid was present. In most of the cases drainage was done inferior to horizontal recti, in the inferotemporal quadrant. Ends of encircage band were tied with Watzke sleeve. The fundus was reexamined by IDO, to see height of the buckle, adequacy of drainage and the status of central retinal artery pulsation. Intraocular pressure was checked. Sutures were made permanent and conjunctiva was closed with 6-0 Vicryl.

Examine the fellow eye carefully for any predisposing lesions with scleral indentation & if necessary, prophylactically treat with cryotherapy or IDO Laser photocoagulation. Postoperatively all patients had pad and bandage for one day. Topical antibiotic and steroid drops were prescribed. Systemic antibiotics and anti-inflammatory drugs were given for a week. Postoperatively anterior segment examination was done noting down any evidence of corneal edema, evidence of uveitis and pupillary reaction. Daily fundus examination done with indirect ophthalmoscope and progress noted. Patient can be discharged after one week.

Follow Up

Every patient was asked for a regular follow up everyone week for three visits in first month. At each visit the status of the anterior segment, posterior segment and visual acuity was checked and recorded in all patients. The other eye was also considered high risk and examined under full dilatation periodically. During the postoperative period and follow up, prophylactic therapy was given in another eye if needed.

RESULTS

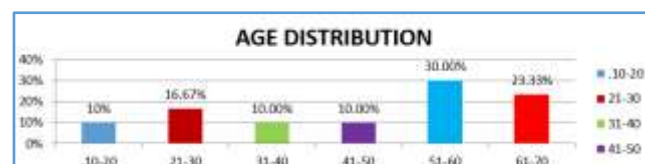
30 patients with primary Rhegmatogenous RD who presented for the first time to our institute were enrolled into this study.

Age Distribution

The highest incidence was seen in 50 – 60 years (33.33%) age group. The youngest patient was 14 years old and the oldest patient was 69 years.

The higher predilection for the 50-60 years age group could be explained by the nature of target population with highest prevalence of cataract surgery with IOL implantation during this age group period.

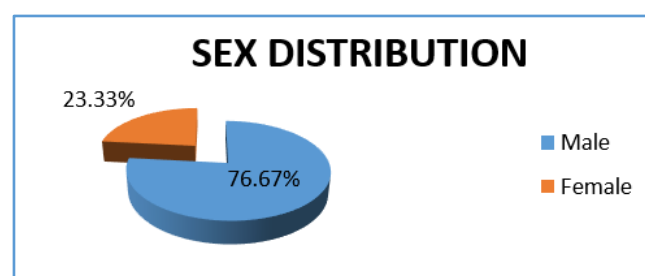
Age in Years	No. of Cases	Percentage
10-20	3	10.00
20-30	5	16.67
30-40	3	10.00
40-50	3	10.00
50-60	9	30.00
60-70	7	23.33
Total	30	100



Sex Distribution

Males predominated our study 23 cases (76.76%). The sex distribution was roughly 3 male patients to every 1 female patients. This correlates with the study of polkinghore P.T. et al., 2004 who reported higher incidence of retinal detachment in males increased incidence of trauma and social factors are responsible for this male predominance. The higher incidence of RD in males was both due to slight longer axial length in males and differences in basal vitreoretinal adhesions.

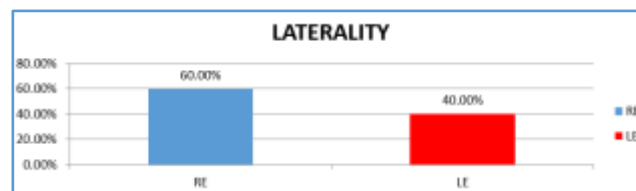
Sex Distribution	No. of Cases	Percentage
Male	23	76.67
Female	7	23.33
Total	30	100



Laterality

In our study, RE was involved in 18 cases (60.00%), compared to 12 cases (40.00%) in the LE. Two patients had long standing RD with grade C PVR in the fellow eye. Both of the eyes were not operated. There was no case report of bilateral RD occurring at the same period in our study.

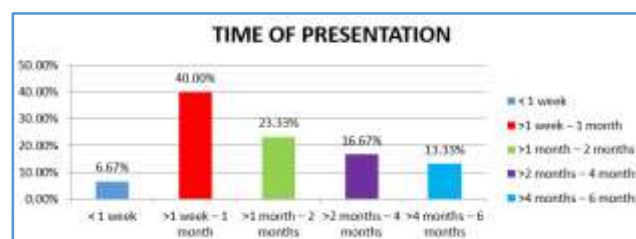
Laterality	No. of Cases	Percentage
RE	18	60.00
LE	12	40.00
Total	30	100



Duration of Presentation

Out of 30 patients, only 2 patients (6.67%) presented to our institute within 1 week. 12 patients (40.00%) had defective vision of 1-month duration. 5 patients (16.67%) presented only after 2 months. 4 patients (13.33%) had presented after 4 months. Aphakes present later than pseudophakia eyes, because pseudophakia patients present with good quality of vision after cataract surgery.

Duration of Presentation	No. of Cases	Percentage
< 1 week	2	06.67
>1 week – 1 month	12	40.00
>1 month – 2 months	7	23.33
>2 months – 4 months	5	16.67
>4 months – 6 months	4	13.33
Total	30	100



Visual Acuity in Preoperative Cases

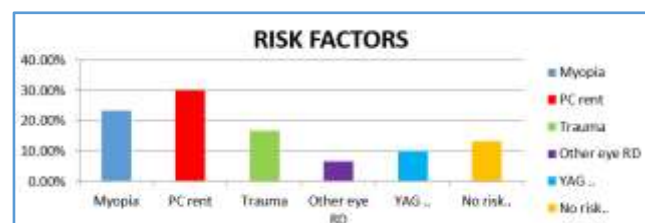
Preoperatively 14 cases (46.67%) presented with BCVA <1/60. 12 Pt (40.00%) with VA <6/24. In majority of cases, macula was detached at the time of presentation and many patients reported late to the hospital.

Preoperative BCVA	No. of Cases	Percentage
PL,CFCF,HM, 1/2/60	14	46.67
1/60-5/60	12	40.00
6/60-6/24	4	13.33
6/18-6/6	0	0.00
Total	30	100

Risk Factors

Among 30 cases 7(23.33%) patients had myopia of which 3 of them had high myopia with abnormal vitreoretinal adhesion in the fellow eye. 9 cases (30.00%) reported with PC rupture followed by trauma 5 cases (16.66%). RD reporting after YAG capsulotomy was present in 3 (10.00%) cases. Other eye RD was seen in 2 patients (6.67%). Suocava et al, in their study have reported the incidence of the major risk factors associated with RD as PC rupture. In our study also, PC rupture constituted the major risk factor.

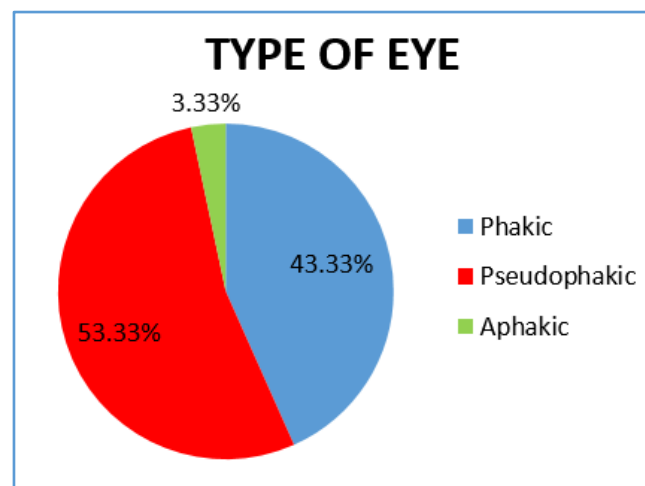
Risk factors	No. of cases	Percentage
Myopia	7	23.33
PC rent	9	30.00
Trauma	5	16.66
Other eye RD	2	06.67
YAG Capsulotomy	3	10.00
No risk factors	4	13.33



TYPE OF EYE

Majority of cases 16 cases (53.33%) reported were pseudophakic. 13 cases (43.33%) of RD belong to phakic group. Only 1 cases (3.33%) out of 30 patients was aphakic. The increased incidence in pseudophakic eyes is due to change in the trend and increase in the number of cataract surgeries being performed nowadays and that they recognize symptoms early and report early, because of good vision in these patients.

Type of Eye	No. of Cases	Percentage
Phakic	13	43.33
Pseudophakic	16	53.33
Aphakic	1	3.33
Total	30	100



Duration of YAG Capsulotomy and RRD

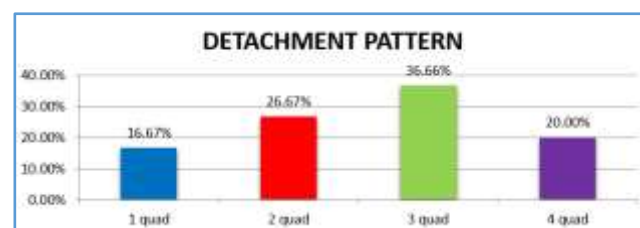
Out of 3 patients who underwent YAG capsulotomy, 2 patients have developed RD within 6 months of YAG capsulotomy. This correlates with the study by Mc person et al, stating that YAG capsulotomy facilitates RD. Hence YAG capsulotomy should be delayed atleast 6 months after cataract surgery and should not be done unnecessarily.

Type of Eye	No. of Cases
<3 months	0
3-6 months	2
>6 months	1

Detachment Pattern

Total detachment was seen in 6 cases (20.00%) and subtotal detachment in 11 cases (36.67%). Both together contribute to total incidence of 17 cases (56.67%) since most of the patients reported later and either macular off status. This compares with the series of Matri et al.

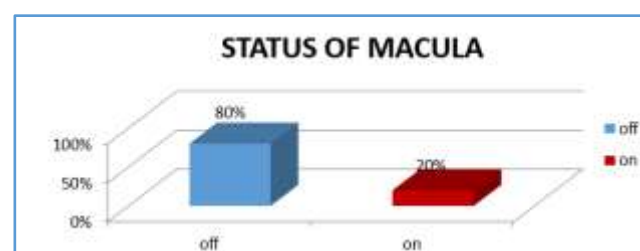
Detachment Pattern	No. of Cases	Percentage
1 quadrant	5	16.67
2 quadrants	8	26.67
3 quadrants	11	36.66
4 quadrants	6	20.00
Total	30	100



Status of Macula

24 cases (80%) presented with macular off status. Only 6 cases (20%) presented with macula on status. Patients who presented late with macula off status, had poor functional visual outcome. Prognosis for postop visual acuity was better in those with macula on status. Early diagnosis & surgery within 10 days was the key in dealing with macular off cases to achieve good functional visual recovery. (Hassan et al, ophthalmology 2002:109:146-152).

Status of Macula	No. of cases	Percentage
Off	24	80
On	6	20
Total	30	100



Number of Retinal Breaks

Single break was seen in 16 cases (53.33%). Single posterior break is characteristic of pseudophakic RD and it compares well with the series of Schepens et al. No breaks could be made out in 5 cases (16.67%) probably due to poor dilatation of pupil in pseudophakic and aphakic eyes. Breaks was also not made out due to media opacity. Multiple break found in 10 cases (33.33%). Widefield indirect ophthalmoscope with scleral depression on the table, during surgery facilitates better identification of breaks, was advocated by Newmann et al. In 50% of cases with RD have more than one break, and in most cases they are located within 90 degree of each other.

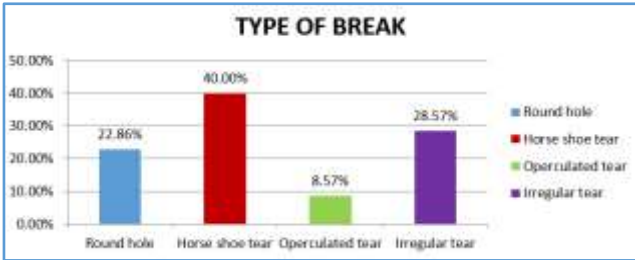
Number of Retinal Breaks	No. of Cases	Percentage
Single	17	56.67
Multiple	10	33.33
No breaks	3	10.00



Types of Break (35 Breaks Out Of 27 Eyes)

Horse shoe tears were the commonest 14 (40.00%) out of total 35 breaks followed by irregular tear 10 (28.57%) out of 35 breaks followed by round hole 8 (22.86%). Operculated tear seen in 3 (8.57%). Breaks due to dynamic VR traction predominated our series as might be expected in post cataract surgery eyes. Among the cases with multiple tears irregular tears was predominant.

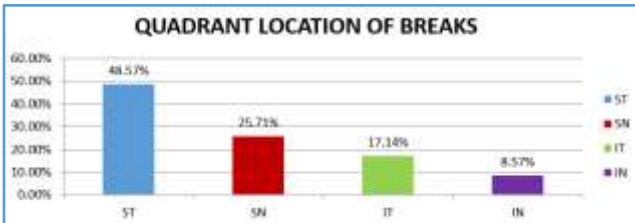
Types of Break	No. of Cases	Percentage
Round hole	8	22.86
Horse shoe tear	14	40.00
Operculated tear	3	8.57
Irregular tear	10	28.57



Quadrantic Location of Breaks

Highest incidence of breaks was seen in ST quadrant for 13 cases (43.33%) in our study followed by SN quadrant in 6 cases (20.00%). Smolin et al has reported ST Quadrant for the commonest site of retinal break and that ST quadrant should be thoroughly examined to look for break if not found initially.

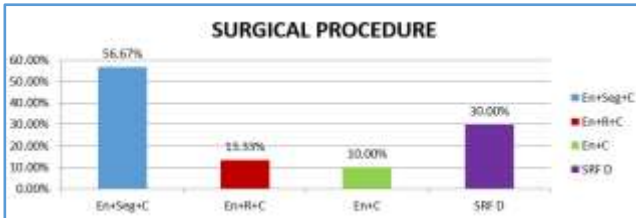
Quadrant Location	No. of Cases	Percentage
Superotemporal	13	43.33
Superonasal	6	20.00
Inferotemporal	4	13.33
Inferonasal	2	6.67



Type of Surgical Procedure

Cryopexy with soft silicone buckle with SRF drainage was the normal procedure. Encirclage was done in 7 cases (26.67%) along with radial buckle for cases having horse shoe tear. Circumferential segmental buckle with encirclage done in 20 pts (66.67%) according to the extent and location of the break. Cryopexy was done in all 30 patients. 9 cases (30.00%) needed SRF drainage, Majority were subtotal and total RD and with more duration of presentation (>2 months). Total detachment was treated with encirclage.

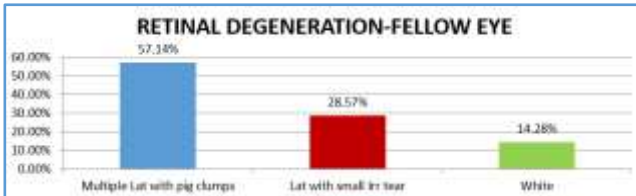
Surgical procedure	No. of Cases	Percentage
Encirclage + segmental + Cryo	17	56.67
Encirclage + Radial + Cryo	10	33.33
Encirclage + Cryo	3	10.00
SRF drainage	9	30.00



Predisposing peripheral retinal degeneration of fellow eye

Among 7 patients who had abnormal vitreoretinal adhesions, 4 patient had lattice with pigmentary clumps and with small round hole. 2 patient had multiple lattice with small irregular tear. 1 patient reported with white without pressure near ora serrata. Among patient presented with lattice, 3 patients were high myopes. Bilaterality is 15 – 20% because of the degenerative changes in both eyes. The second eye is usually involved within 5 yrs. of the first.

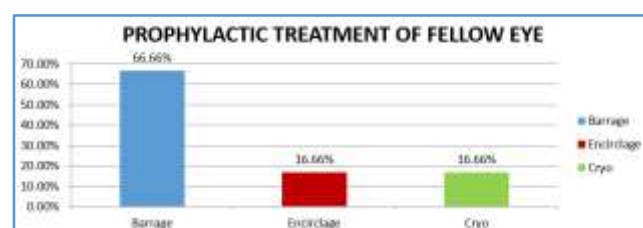
Predisposing Peripheral Retinal Degeneration of Fellow Eye	No. of Cases	Percentage
Lattice with pigmentary clumps and with small round tear	4	57.14
Multiple lattice with small irregular tear	2	28.57
White without pressure near ora serrata	1	14.28



Prophylactic Treatment of Fellow Eye

Among 6 patients with lattice, 4 patients (66.66%) underwent barrage laser for lattice with pigmentary clumps and small round atopic hole. 1 patient underwent prophylactic cryopexy for multiple lattice with irregular tear anterior to equator. 1 patient underwent encircage for multiple lattice in more than 2 quadrants.

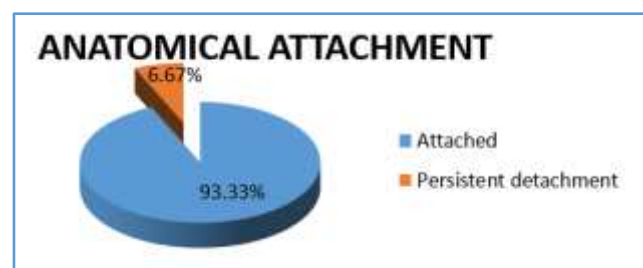
Prophylactic Treatment of Fellow Eye	No. of Cases	Percentage
Barrage laser	4	66.66
Encircage	1	16.66
Cryopexy	1	16.66



Anatomic Reposition

Our Anatomical reattachment percentage was 93.33%. This compares with the series reported by Zivojnovic et al. Which was 94.2%.

Anatomical Reposition	No. of Cases	Percentage
Attached	28	93.33
Detached	2	06.67
Total	30	100



Visual Outcome According to Duration at Presentation

2 patients (06.67%) presented within 1 week of RD had BCVA > 6/18. But 2 pt (06.67%) out of 5 patients who presented between 2-4 months had BCVA in the range of 1/60-5/60, 2 pt (06.67%) presented <1/60, 1 pt presented in the range of 6/60-6/24. 2 pt who presented >4 months had visual acuity <1/60.

Cause of Failure

Of the 2 cases that failed in our series one was a near total RD which failed because of not sealing of the break, probably it also had other breaks which were missed intraoperatively, due to poor visualization due to moderate PCO. The second case was a redetachment due to a new

break within or nearby to treated area is due to heavy treatment of lattice.

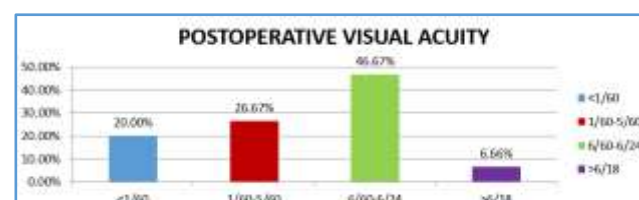
Duration	No. of Cases			
	<1/60	1/60-5/60	6/60-6/24	>6/18
<1 week	0	0	0	2
>1 week – 1 month	1	2	9	0
>1 month-2 months	1	2	4	0
>2 months-4 months	2	2	1	0
>4 months-6 months	2	2	0	0

Cause of Failure	No. of Cases	Percentage
Not sealed break	1	3.33
Redetachment (new break)	1	3.33

Visual Acuity in Postoperative Cases

Most of the patients 14 patient (46.67%) had BCVA in the range of 6/60-6/24. 6 cases (20.00%) had visual acuity <1/60. This has to be viewed against the high incidence of total/near total RD and macula off status in this series. Detached macula on initial examination and late reporting along with extent and height of retinal detachment account for the poor functional visual outcome.

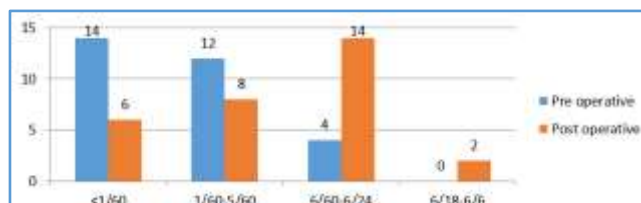
Postoperative Visual Acuity	No. of Cases	Percentage
<1/60	6	20.00
1/60-5/60	8	26.67
6/60-6/24	14	46.67
>6/18	2	06.66
Total	30	100



Comparison of Pre and Postoperative Cases

Preoperatively 14 (46.67%) out of 30 patients had BCVA <1/60. Postoperatively most of the patients (14 patients 46.67%) had improved to BCVA in the range of 6/60 – 6/24. Preoperatively 14(46.67%) had BCVA, 1/60, whereas postoperatively, only 6 patients (20%) had BCVA <1/60. Those patients who presented late & associated with macular detachment had poor visual prognosis.

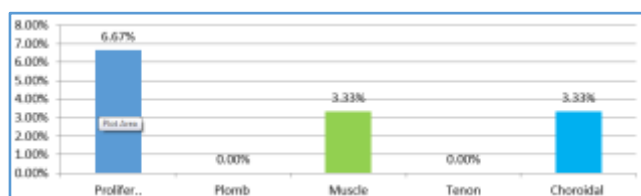
Visual Acuity	No. of Pre-op Cases	No. of Post-op Cases
<1/60	14	6
1/60-5/60	12	8
6/60-6/24	4	14
6/18-6/6	0	2
Total	30	30



Postoperative Complications

2 patients who had persistent RD developed PVR during follow up. One patient developed tenon's cyst and it was excised. 1 patient muscle imbalance was reported, which subsequently improved during follow up.

Complications	No. of Cases	Percentage
Proliferative vitreoretinopathy	2	06.67
Plomb exposure	0	0
Muscle imbalance	1	03.33
Tenon 's cyst	1	03.33
Choroidal haemorrhage	0	0



DISCUSSION

In our case series of 30 patients who presented with primary RRD with duration of less than 6 months increased incidence was observed in 50 to 60 years age group. Phakic eyes had slightly increased incidence between 50 to 70 years whereas pseudophakics had more incidence between 40 to 60 years. Age related liquefaction of the vitreous and aggregation of collagen framework is responsible for PVD which subsequently led onto RD in this age group. Intraocular surgery accelerates the occurrence of PVD that correlates with the earlier onset of RD in pseudophakics in our study group. This correlates with the age group in the study conducted.

Male were predominantly affected in our study group. Both the longer axial length in males and posterior migration of the posterior border of the vitreous base in males may contribute to the higher incidence of RRD in males. This was connoted⁷ Right eye was more involved 18 cases (60.00%), than Left eye 12 cases (40.00%). Phakic eyes 15 pt (50.00%) had higher incidence whereas 14 cases (46.67%) of RD were Pseudophakics. This relatively higher proportion of pseudophakic eye in our study is due to the fact they recognize symptoms early and because of change in the type and increase in the number of cataract surgeries being performed nowadays.

A number of conditions exist that predispose to a PVD by prematurely accelerating the liquefaction of the vitreous gel. Among the total 30 patients, the various aetiological factors leading on to RD the increased incidence was among PC rent, found in 8 cases (20.00%), myopes contribute 6

cases (20.00%) of RD. H/O trauma was present in 5 cases (16.66%) as a predisposing aetiological factor. 2 patients had Rhegmatogenous detachment in the fellow eye. Out of these 3 pt, who underwent YAG capsulotomy 2 patients developed RD within 6 months after the procedure. This correlates with the study of Glacet-Bernard A et al, who observed that the average duration between YAG capsulotomy and RRD is 3.6 months⁸ Most of them 17 cases (56.67%), presented with total detachment and subtotal detachment. 24 pt (80.00%) had macula off status since most of the patients reported late. Macular on/off status along with duration of presenting detachment predicted the functional visual recovery after successful external scleral buckling procedure.

Single break was found in 17 cases (56.67%), whereas multiple break was found in 10 cases (33.33%). Dynamic traction induced by eye movements and centripetal force exerted towards vitreous cavity plays an important role in the pathogenesis of retinal tear. Horse shoe tears due to dynamic vitreoretinal traction were the commonest (14 out of total 38 breaks) followed by irregular break (9 out of 38 breaks). Lattice degeneration with atrophic round or oval holes was observed in young myopic eyes. Highest incidence of breaks was seen in superotemporal quadrant for 13 cases (43.33%) in our study followed by superonasal quadrant in 6 cases (20.00%). This is in accordance with the results of study conducted by⁹ Due to the effect of gravitational force exerted by the vitreous upon retina superotemporal quadrant is more commonly involved. No breaks made out was seen in 5 cases (16.67%) probably due to anterior location of the break and poor dilatation of the pupil in pseudophakic and aphakic eyes & in patient who had media opacity.

7 patients had abnormal vitreoretinal adhesion in the fellow eye, out of which 4 patients had myopia. Most patient had multiple lattice with pigmentary clumps with small round hole, 2 patients presented with multiple lattice more than 2 quadrant with small irregular tear & 1 patients with pressure near ora serrata. We performed barrage laser for those who had peripheral lattice degeneration in the fellow eye. Prophylactic treatment of fellow eye includes barrage laser for 4 patients, cryopexy for 1 patient, encirclage for 1 patient. Preoperatively 6 cases (20.00%) presented with BCVA <1/60. Majority of them 12 patients (40.00%) had presenting detachment of 1-month duration. Only 2 patients (6.67%) reported within 1 week. Most of them having macula off detachments 24 cases (80.00%). 9 patients presented only after 2 months-6 months. We performed Encirclage along with Radial or Segmental circumferential buckle according to the extent and location of the break. Aseptic chorioretinal adhesion was achieved by cryotherapy in all 30 patients.

SRF drainage was needed in 9 cases (56.61%). Cryotherapy, Encirclage with SRF drainage was done in all case of total or near total RD and also in cases where break was not made out. 45 Presence of HST warranted a radial sponge for sealing, in addition to either segmental buckle or encirclage depending on the extent of detachment.

We achieved successful anatomical attachment in 28 cases (93.33%). This is in concordance with the anatomical success rate after buckling procedure by Ulrich Thelen et al (Ophthalmology Volume 117, Issue 4, pages 785-790 (April 2010). We found detachment in 2 pts (6.67%). Failure was due to missed breaks and failure to seal the break intraoperatively, lead to persistent detachment in 1 pt and the other was due to redetachment due to new break and developed proliferative vitreoretinopathy in the follow up period. Postoperatively 2 patients (6.67%) had BCVA > 6/18 & who presented within 1 week among 30 cases. 9 pts (81.81%) out of 11 cases who presented between 1 week to 1 month had postoperative BCVA of 6/60-6/24. Only 4 pts (44.44%) out of 9 cases who had detachment for more than 2 months had BCVA <1/60. Majority of the patients 14 pts (46.67%) had BCVA in the range of 6/60 – 6/24. Only 2 patients (6.67%) had visual recovery >6/18. Detached macula on initial examination and late reporting of retinal detachment account for the poor functional outcome. Complication encountered during follow up period include 2 patients developed PVR later during follow up, who had persistent RD after surgery. 1 patient had muscle imbalance which was subsequently removed. One patient developed Tenon's cyst and it was excised.

CONCLUSION

In our study of 30 cases with Rhegmatogenous retinal detachment, mostly patients of 50 to 60 age group with prior cataract surgery first and high myopia second, reported within 1 month of symptoms. The major risk factor was posterior capsular rent. Proper intraoperative management of posterior capsular rupture with anterior vitrectomy and removal of any vitreous incarceration in wound with minimal traction is mandatory. If YAG capsulotomy done within 6 months of cataract surgery increased risk of Rhegmatogenous retinal detachment.

In our study, total or Near total rhegmatogenous retinal detachment predominated with Superotemporal quadrant breaks especially HST, with macular off status. Encirclage with cryopexy was the sheet anchor in the surgical intervention in our case series. Although there was excellent anatomical reattachment, the functional visual recovery dependent on the various other factors like duration of retinal detachment at the time of presentation, status of macula (on and off) and pseudophakic eyes with PCO hindering visualization.

Our study highlights that with modern cataract surgery techniques and with modern instrumentation if meticulously

used greatly prevent the occurrence of rhegmatogenous retinal detachment. All myopes, pseudophakes and aphakes should be educated on symptoms of flashes and floaters and to report immediately when symptomatic. All pseudophakes with known risk factors should be called for periodic review for detailed fundus examination This study also emphasis the prophylactic treatment of abnormal vitreoretinal degeneration and those presenting with break in the superior quadrant within lattice at the earliest to prevent occurrence of RRD, especially in Myopes.

This study emphasis the importance of screening patients with known risk factors and their proper recognition. Periodic detailed fundus examination and early detection plays a valuable tool in the management of Rhegmatogenous retinal detachment.

REFERENCES

- [1] Ivanisević M, Bojić L, Eterović D. Epidemiological study of nontraumatic phakic rhegmatogenous retinal detachment. *Ophthalmic Res* 2000;32(5):237-239.
- [2] Li X. Incidence and epidemiological characteristics of rhegmatogenous retinal detachment in Beijing, China. *Ophthalmology* 2003;110(12):2413-2417.
- [3] Gariano RF, Kim CH. Evaluation and management of suspected retinal detachment. *Am Fam Physician* 2004;69(7):1691-1698.
- [4] Wilkinson CP. Interventions for asymptomatic retinal breaks and lattice degeneration for preventing retinal detachment. *Cochrane Database Syst Rev* 2012;3:CD003170.
- [5] Larkin GL. Medicine: retinal detachment. Retrieved 2007-06-04.
- [6] Ramos M, Kruger EF, Lashkari K. Biostatistical analysis of pseudophakic and aphakic retinal detachments. *Semin Ophthalmol* 2002;17(3-4):206-213.
- [7] Rowe JA, Erie JC, Baratz KH, et al. Retinal detachment in Olmsted County, Minnesota, 1976 through 1995. *Ophthalmology* 1999;106(1):154-159.
- [8] Polkinghorne PJ, Craig JP. Northern New Zealand rhegmatogenous retinal detachment study: epidemiology and risk factors. *Clinical and Experimental Ophthalmology* 2004;32(2):159-163.
- [9] Mitry D, Tuft S, McLeod D, et al. Laterality and gender imbalances in retinal detachment. *Graefe's Archive for Clinical and Experimental Ophthalmology* 2010;249(7):1109-1110.