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Comparison of Pars Planavitrectomy Versus Combined Pars Planavitrectomy + Encirclage for Primary Repair of Pseudophakic Retinal Detachment

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Abstract: *The purpose of this study is to compare whether addition of encirclage to vitrectomy in pseudophakic retinal detachment repair is associated with better anatomic success rate in terms of attachment of retina ,visual acuity and complications or whether there is no difference in between the two groups(with or without encirclage).*
Conclusions-In our study it showed no significant difference in terms of success rate and visual acuityIn addition of buckle was associated with increased incidence of complications such as raised IOP. and ERM formation.
Keywords: *anatomic success rate, complications, encirclage ,retinal detachment, vitrectomy, visual acuity.*

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I. Introduction

Retinal detachment is used to described separation of neurosensory retina from the retinal pigment epithelium. Rhegmatogenous retinal detachment after cataract extraction develops in approximately 0.5 to 1% of eyes.[1-4] The pathological changes following retinal detachment are not restricted to the macula and widespread changes can be seen in all the retinal layers.[5] at subcellular level, metabolic and biochemical changes occur where the disruption of the photoreceptor-RPE interface enables a liquefied vitreous to permeate into the subretinal space.[6] Facultative events in development of pseudophakic retinal detachment include the presence of a vitreous synresis, posterior vitreous detachment(PVD), preexisting retinal pathology, full thickness retinal break and accumulation of serous fluid in subretinal space .*BALAZS* developed a model of vitreous to explain how vitreous might undergo liquefaction suggesting the vitreous was structured on a matrix of collagen fibrils with hydrated hyaluronan immersed in the fibrils.[7] Pars plana vitrectomy with or without encircle is currently the most common procedure performed world wide for RRD with high success rates. Principle of vitrectomy is to release traction force that precipitate retinal breaks and closure and reattachment of breaks to underlying retinal pigment epithelium.

Use Of Supplementary Encirclage In Vitrectomy-

Some vitreous remain after vitrectomy even when shaving of vitreous base is performed which may continue to exert traction on retinal breaks. The additional benefit of adding encirclage to parsplana vitrectomy is to support vitreous base during vitrectomy and providing external tamponade to vitreoretinal traction in postoperative period. Complications with buckle such as glaucoma, extrusion, infection, band migration, diplopia, anterior segment ischemia are well documented in literature.

II. Materials And Methods

Study was conducted in Upgraded department of Ophthalmology, SMS Hospital , Jaipur

It was a hospital based prospective randomised interventional study. The study period was between February 2016 and January 2017. Beforecommencing the study each patient was informedabout the investigative nature of study, the advantages and potential risks. Patients were told about surgery but not about the type of surgery done. Operating surgeon was different then the investigator collecting study data. All patients were admitted to hospital at least one day before surgery for routine preoperative investigations.

A total of 94 patients of primary pseudophakic Retinal detachment were included in study and randomly divided into two groups using sealed envelop method after signing an informed consent prior to participation in study.

Group A - Pars PlanaVitrectomy Alone
Group B - Pars PlanaVitrectomy + Encirclage

Inclusion Criteria

- ➢ All Pseudophakic Retinal detachment regardless of detachment , number or location of break, refractive error or macular status were included in the study.
- ➢ PVR no worse then Grade B

Exclusion Criteria

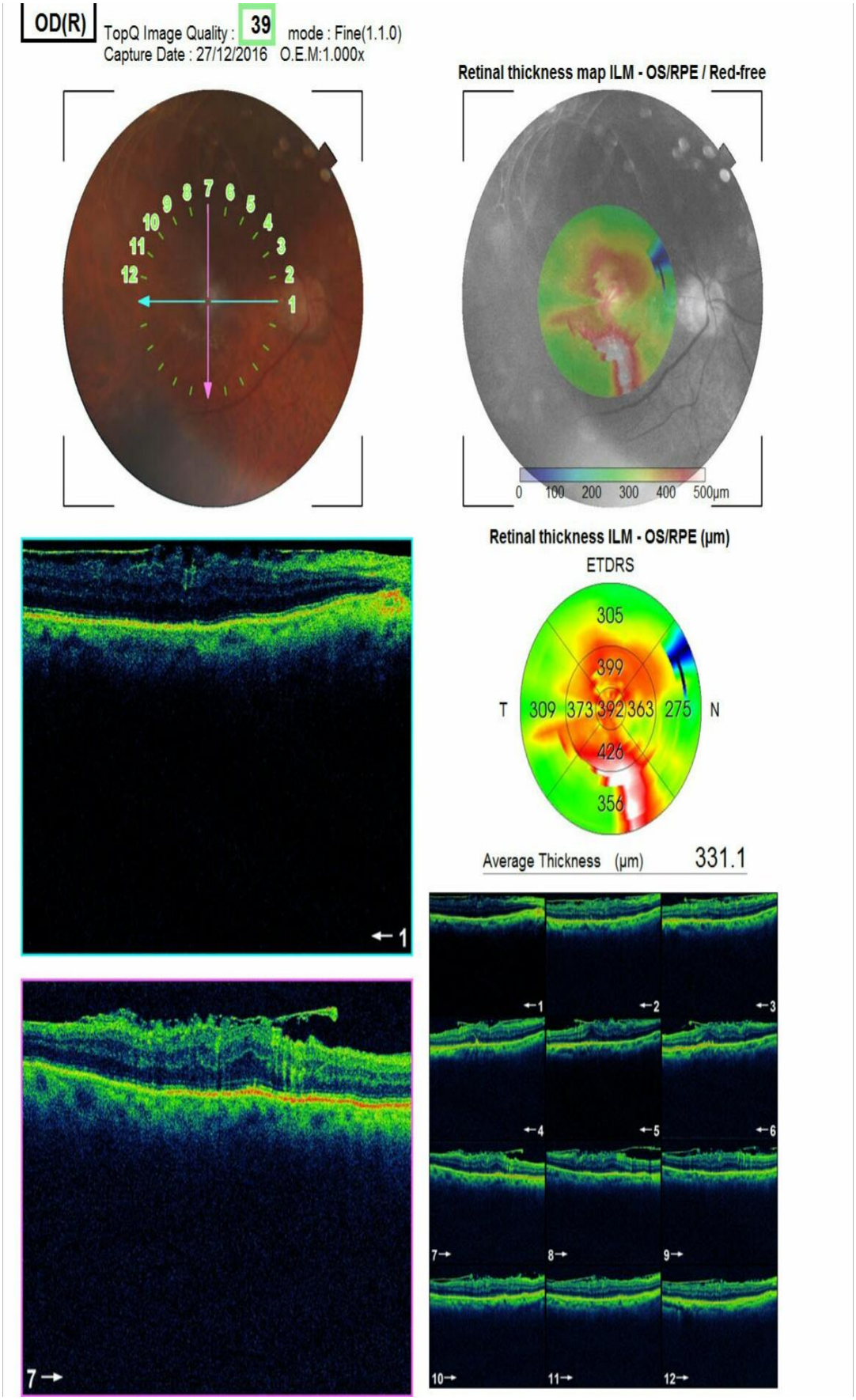
- ➢ Patients who have undergone combined cataract extraction with an intraocular lens placement and ParsplanaVitrectomy at the time of Retinal detachment repair.
- ➢ Patients with previous history of ParsplanaVitrectomy or Scleral Buckle in study eye.
- ➢ Patients with preexisting macular disease or PVR grade C or worse.
- ➢ Patients with combined Vitreous Haemorrhage and Retinal detachment
- ➢ Patients with Giant Retinal Tear (> 3 Clock hours)

Surgical Technique

Group A - All patients have undergone a standard 3 port 23 gauge ParsplanaVitrectomy using a non contact wide angle viewing system combined with an image invertor.
PFCl was used till anterior margin of break. Retinotomy was made in those not having breaks. 360^0Endolaser was done along with laser of breaks after air fluid exchange. In all cases either 20% SF6 or Inj. Silicon Oil was injected. All ports were removed & closed with 7 - 0 vicryl suture. Patients were explained prone position. Group B - Conjuctivalperitomy was done. All four recti were tied with the help of thread. Four partial thickness scleral tunnel were made in four quadrants (SN, ST, IN, IT). 240 band was passed through all four recti and four partial thickness scleral tunnel and tied superonasally with the help of 4 - 0 polyester suture. PFCl was used till anterior margin of break. Retinotomy was made in those not having breaks. 360^0Endolaser was done along with laser of breaks after air fluid exchange. In all cases either 20% SF6 or Inj. Silicon Oil was injected. All ports removed conjuctiva closed with 7 - 0 vicryl suture. Patients were explained prone position.

Follow up was done at day 1, day 7, 1 month & 3 months for BCVA, IOP rise, ReRD or any other complication and Silicon Oil removal was done after 3 months. Single Surgery Anatomic Success was defined as reattachment with one surgical procedure not requiring any additional retinal procedure until the end of follow up period. Primary Failure was defined redetachment observed within 8 weeks from surgery and Late failure defined as redetachment occurring after 8 weeks.

Right eye fundus photo showing retinal detachment



Post operativeepiretinal membrane formation in patient undergone retinal detachment surgery.

III. Results

In present study 94 patients of primary pseudophakic retinal detachment were included. They were randomly divided into two groups.

Group A - Patients who underwent ParsplanaVitrectomy alone

Group B - Patients who underwent ParsplanaVitrectomy + Encirclage

All the surgeries were performed by single surgeon to minimise the variability in the results of surgery due to surgeon factor. Post operative follow up in both groups was of 3 months. Mean age of patients in Group A was 56.49 (+ 10.93) and in Group B was 58.79 (+ 11.55) [P value 0.32 NS]. There was no statistically significant difference. Total no. of males in group A were 37 (78.72%) & females were 10 (21.28%). Percentage was similar in group B. No significant difference according to gender in two groups. But it shows significantly greater number of patients developing RD after cataract surgery were males. OLSEN et al in 2012 showed that RD following cataract surgery were greater in males(58.3% vs 34.8%).[8]

There Was No Significant Difference Among The Baseline Parameters In Two Groups.

Mean of preoperative BCVA (Log MAR) in Group A was 1.37 + 23 and that of group B was 1.37 + 11 (P value 1.00 NS)

Mean of preoperative intraocular pressure IOP (MmHg)in Group A was 14.44 + 5.58 and that of Group B was 13.3 + 5.06 (P Value 0.302 NS)

Mean of preoperative Axial length was 22.88 + 0.83 in group A and that of Group B was 22.88 + 1.09 [P value 0.984 NS]

Mean of post operative BCVA (Log MAR) at 3 months was 0.64 + 0.27 in group A and 1.2 + 0.3 in Group B (P Value < 0.001S) which was statiscallysignificant.

Change in BCVA in Group A at final follow up (3 months) was 0.73 + 0.32

and in Group B was 0.168 + 0.29 (P value < 0.001S) which was statiscallysignificant.

BCVA significantly increased after surgery independent of technique that is on average -0.7(from 1.0 to 0.3)logMAR in vitrectomy with or without buckle in VIPER study.[9]

Mean of IOP (MmHg) in Group A at 3 months was 16.13+ 4.87 and in Group B was 20.32 + 8.93 (P value 0.006S) which was statiscally significant.

ALEXANDROS N. STANGOS et al demonstrated that postoperative IOP on longterm follow up was elevated in 4.44% in PPV alone and 34.61% in PPV+SB group.[10]

There was no statically significant difference in axial length in two groups. In Group A (-0.194 + 1.31) and in Group B (-0.499 + 0.1) [P value 0.115]

ReRD was observed in one case out of 47 in group A (2.13%) and in 1 case out of 47 in Group B (2.13%) which was statiscally not significant.

SSAS was 97.87% in Group A and 97.87% in group B.

IV. Conclusion

Although the both Pars PlanaVitrectomy alone and ParsplanaVitrectomy + Encirclage improve visual acuity in retinal detachment.,ParsplanaVitrectomy alone significantly improves visual acuity more as compared to ParsplanaVitrectomy + Encirclage Parsplana Vitrectomy +Encirclage group is associated with more complications including raised IOP, Cystoid macular oedema, epiretinal membrane, Sub retinal deposits as compared to ParsplanaVitrectomy alone. Though not significant ,ParsplanaVitrectomy + Encirclage group is associated with increase in axial length leading to myopic shift of approximately (0.6 - 0.9 D) in our study.

SSAS rate was similar in both groups**.**

Table No.1 Distribution of the cases according to BCVA at different time interval

BCVA	Group A(N=47)	Group B(N=47)	p Value LS
	Mean±SD	Mean±SD	
Pre op	1.37±.23	1.37±.11	1
Day 1	1.39±.12	1.17±.27	<0.001S
Day 7	1.23±.18	1.2±.27	0.625
1m	1.03±.22	1.2±.27	0.001S
3m	0.64±.27	1.2±.3	<0.001S

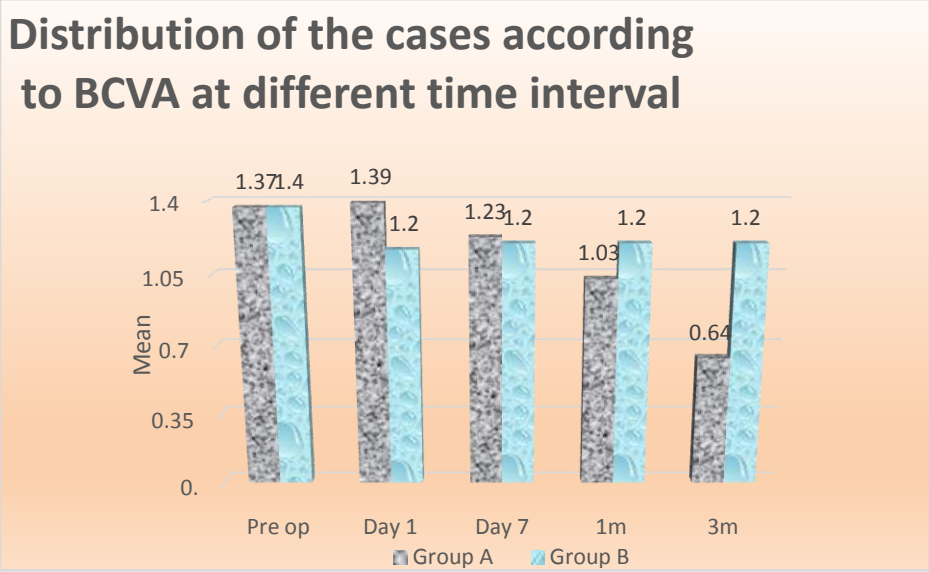


Table No.2 Distribution of the cases according toIOP (mm of Hg) at different time interval

IOP (mm of Hg)	Group A(N=47)	Group B(N=47)	p Value LS
	Mean±SD	Mean±SD	
Pre op	14.44±5.58	13.3±5.06	0.302NS
Day 1	17.38±7.11	23.43±11.2	0.002S
Day 7	14.4±4.75	23.55±9.82	<0.001S
1m	15.96±5.08	21.32±7.6	<0.001S
3m	16.13±4.87	20.32±8.93	0.006S

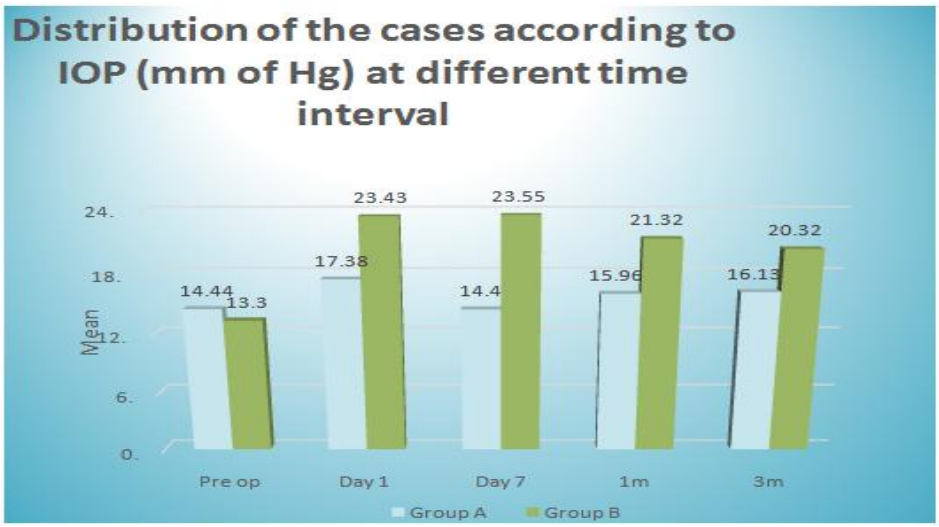


Table No. 3 Distribution of the cases according to difference in BCVA from Preoperative at different time interval

	Group A(N=47)	Group B(N=47)	p Value LS
	Mean±SD	Mean±SD	
BCVA (preop-D1)	-0.023±.254	0.198±.270	<0.001S
BCVA (preop-D7)	0.138±.303	0.162±.27	0.694
BCVA (preop-1m)	0.338±.31	0.166±.27	0.005
BCVA (preop-3m)	0.73±.32	0.168±.29	<0.001S

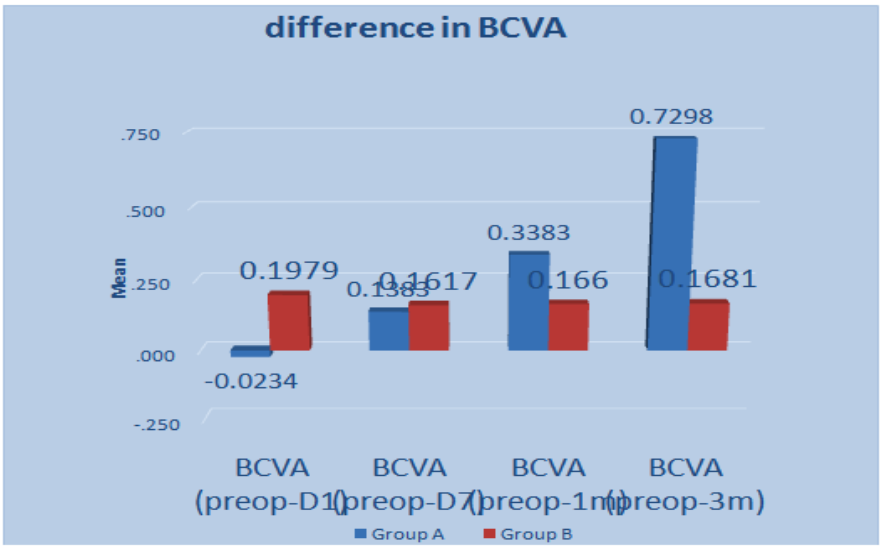


Table No. 4 Distribution of the cases according to difference in IOP (mm of Hg) from Preoperative at different time interval

IOP (mm of Hg)	Group A(N=47)	Group B(N=47)	p Value LS
	Mean±SD	Mean±SD	
IOP (preop-D1)	-2.94 ±7.61	-10.13±11.37	<0.001S
IOP (preop-D7)	0.03±6.28	-10.26±9.87	<0.001S
IOP (preop-1m)	-1.52±7.18	-8.02±8.0	<0.001S
IOP (preop-3m)	-1.69±7.52	-7.02±8.96	0.002S

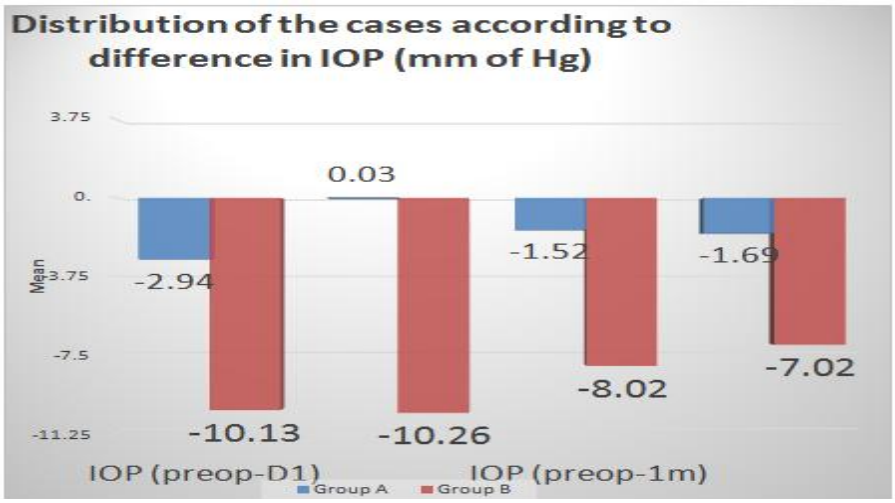


Table No. 5 Distribution of the cases according to complication

	Group A(N=47)		**Group B(N=47)**		**Total**	**P Value LS**
	No	%	No	%	No	
CME	1	2.13	8	17.02	9	0.035S
ERM	5	10.64	9	19.15	14	0.38NS
ReRD	1	2.13	1	2.13	13	0.475NS
Raised IOP	4	8.51	11	23.40	15	0.091S
Subretinal Deposits	0	0.00	7	14.89	7	0.018S
Epithelial Defect	1	2.13	0	0.00	1	1.0NS
Macular Fluid	1	2.13	0	0.00		
Macular Hole	2	4.26	1	2.13	3	1.0NS
Submacular Fluid,	0	0.00	1	2.13	1	1.0NS
Traction Band at Macula	1	2.13	0	0.00	1	1.0NS

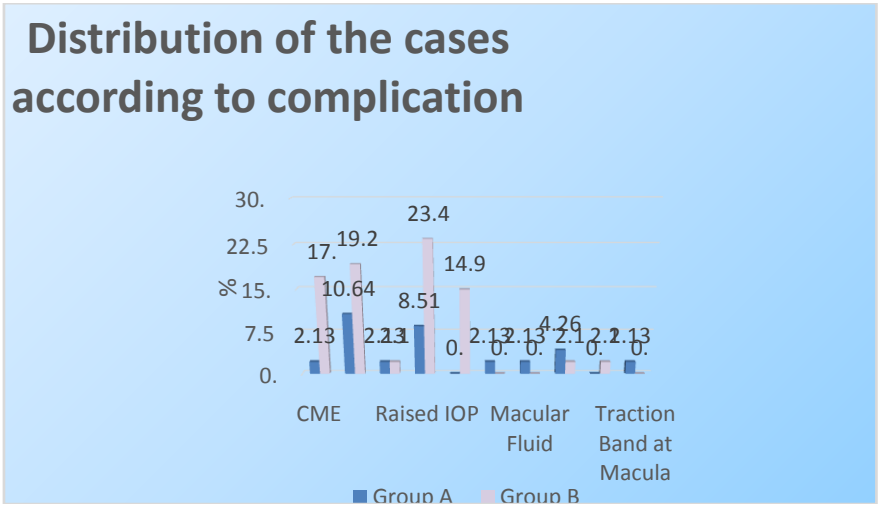
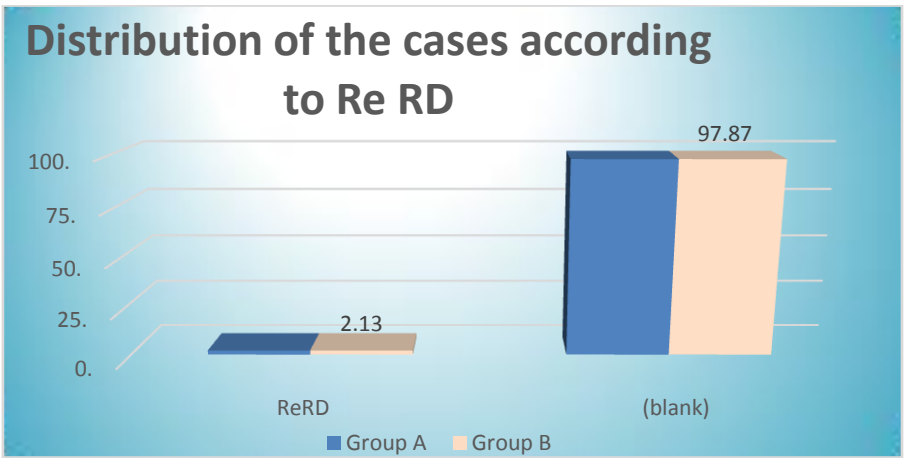


Table No. 6 Distribution of the cases according to Re RD

	Group A		Group B		Total
	No	%	No	%	
ReRD	1	2.13	1	2.13	2
(blank)	46	97.87	46	97.87	92
	47	100.00	47	100.00	94



References

[1]. Javitt JC,Street DA,Tielsh JM, et al. National outcomes of cataract extraction. Retinal detachment and endophthalmitis after outpatient cataract surgery. Ophthalmology 1994;101:100-5.

[2]. Tielsch JM, Legro MW, Cassard SD, et al. risk factors for retinal detachment after cataract surgery. A population based case control study. Ophthalmology 1996;103:1537-45.

[3]. Olsen G,Olson RJ. Update on a long term, prospective study of capsulotomy and retinal detachment rates after cataract surgery. J Cataract Refract Surg2000;26:1017-21.

[4]. Javitt JC, Vitale S, Canner JK,et al. National outcomes of cataract extraction. I. retinal detachment after inpatient surgery. Ophthalmology 1991;98:895-902.

[5]. Fisher SK, Anderson DH. Cellular effects of detachment on the neural retina and retinal pigment epithelium. 3rd ed.Philadelphia:Mosby,Inc;2001.

[6]. Hageman GS, Marmor MF, Yao XY, Johnson LV. The interphotoreceptor matrix mediates primary retinal adhesion.Arch ophthalmol 1995;113(5)655-60.

[7]. Balazs E, Denlinger J1. Aging changes in the vitreous..In. liss A,editor. Aging and the Human visual function. New york;1982.

[8]. Olsen T,Jeppesen P. The incidence of retinal detachment after cataract surgery. Open Ophthalmol J.2012;6:79-82 Epub 2012 sep 7.

[9]. Vitrectomy with or without encircling band for pseudophakic retinal detachment.VIPER study Report no.2- main results. Randomised controlled trial.Walter P, Hellmich M,Baumgarten S,Schiller P. Br J Ophthalmol .2017 Jun;101(6)712-718.doi:10.1136/bjophthalmol-2016-309240.Epub 2016 sep 8.

[10]. Pars plana vitrectomy alone versus vitrectomy with scleral buckling for primary rhegmatogenous pseudophakic retinal detachment. Alexandros N.Stangos, MD, Loannis K. Am J Ophathalmol2004;138:952-958.

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