ORIGINAL RESEARCH PAPER

Ophthalmology

ROLE OF ANTERIOR SEGMENT OPTICAL COHERENCE TOPOGRAPHY (AS-OCT) PRE OPERATIVELY TO DETECT PRE-EXISTING WEAKNESS OF POSTERIOR CAPSULE IN PATIENT OF POSTERIOR POLAR CATARACT EFFECTING OUTCOMES DURING PHACOEMULSIFICATION

KEY WORDS: PPC : Posterior polar cataract, PCR: Posterior capsular rent, NS: Nuclear sclerosis.

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ABSTRACT

Aim: To determine the role of AS-OCT to detect posterior capsular dehiscent preoperative.

Design: Prospective hospital based observational study.

Material and Method: Patient collection in Government college Kannauj March 2018 to February 2019 .According to Helnsinki's declaration preoperative assessment and AS-OCT is also performed . Phacoemusification with PCIOL and follow up was done upto 6 week.

Result: AS-OCT done for 26 eye out of which in 4 (15.3%) eyes posterior capsule was found dehiscent rest of all eyes posterior capsule was intact. Examination under microscope surgeon found posterior capsular dehiscent only in 3(11.5%).Sensivity of AS-OCT is 75% and specificity is 95.45%. Stastical analysis was done for AS-OCT by CHI SQUARE test (P=.0004).

Conclusion: Significant role of detecting AS-OCT in posterior capsular dehiscent.

INTRODUCTION

Posterior polar cataract (PPC) is one of the important morphology of various types of lens opacities. A posterior polar cataract is rare form of congenital cataract with incidence ranging from 3 to 5 in 1000.[1,2,5] It was found to be bilateral in 65 -85% of cases.[3,4] There is no sex predilection in general. The importance of posterior polar cataract lies in its high risk of complications , posterior capsular tear during surgery so operating on posterior polar cataract can be challenging even for experienced surgeon because of the extreme thinness and fragility of posterior capsule and adherence of the opacity to the capsule which are responsible for the posterior capsule rupture. Posterior capsule rupture can occur any time during hydrodissection during phacoemulsification . Sharply defined oval or round lens opacity situated posteriorly adjacent to the posterior capsule.

Posterior polar cataract follow an autosomal dominant inheritance pattern but are sometimes sporadic.Autosomal dominant type of posterior polar cataract is genetically a heterogeneous disease.

Five genes[17] are associated with posterior polar cataract (CTTP family).

1: CTTP1 (OMIM 116600) is present on 1p36.19.
2: CTTP2 is associated with CRYAB on 11q22-q22.3. A Pro20Ser mutation & a deletion mutation (450delA)have also been found.
3: CTTP3 (OMIM 605387) mutation occurs through CHMP4B gene on chromosome20p12-q12.
4: CTTP4 (OMIM 610623) is caused by 3 mutations of PITX3 gene on chromosome 10q25,38G>A mutation, 17 bp insertion, and 650delG.
5: CTTP5 is Present on 14qand 16q22.

Posterior polar cataract removal is a challenge to the surgeon because of its adherence to the posterior capsule or the associated weakness of the posterior capsule. Hence, posterior polar cataract surgery is associated with an increased incidence of rupture of the posterior capsule. In recent times, the advances in control of fluidics and aspiration during phacoemulsification have prompted various approaches to meet this surgical challenge.

Incidence of posterior capsular rupture ranges between 7.1% to 36% [1,3,4,6] in patients with posterior polar cataract. Different surgical strategies (Capsulorrhexis oval or circular, hydrodelineation, prolapse of nucleus in anterior chamber), are described for the handling of this challenging entity,[13-18] most of which emphasized the need for gentle maneuvering in dealing with these.

The application of Anterior Segment Optical Coherence Tomography (AS- OCT DR1 OCT TRITON VER 10.13) in posterior polar cataract is to find out the cases at high risk for posterior capsular rupture during phacoemulsification. Image are two types based on the integrity of posterior capsule.

TYPE 1-

intact capsular margin was traced below the posterior Polar cataract without any defect. (Figure-2 a)

TYPE 2-

dehiscent – if the capsule margin could not be traced under the posterior polar cataract then discontinuity or any defect present over posterior capsule. (Figure-2b)

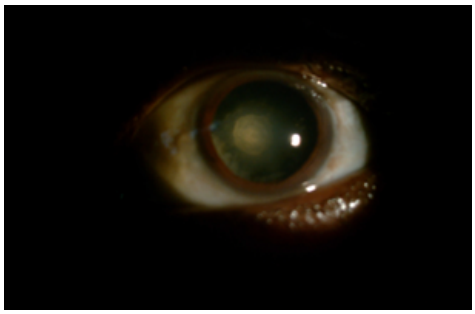

Figure -1a PPC+NS (on slit lamp examination)

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Figure-1b PPC(on slit lamp examination)

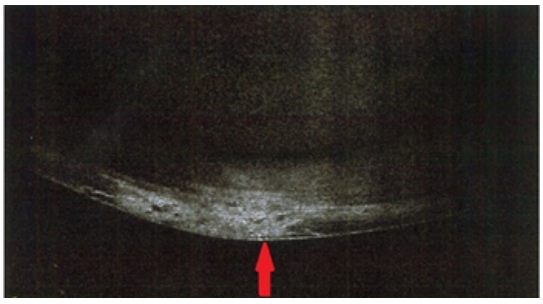


Figure -2a In AS-OCT intact posterior capsule

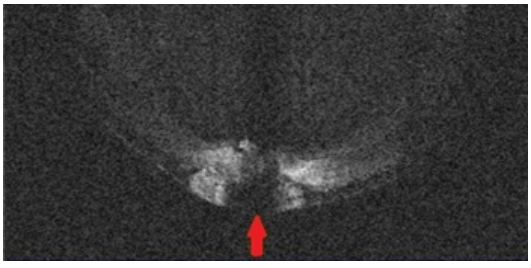


Figure -2b In AS-OCT posterior capsule dehiscence

AIM AND OBJECTIVES

1. "ROLE OF ANTERIOR SEGMENT OPTICAL COHERENCE TOMOGRAPHY (AS-OCT) PREOPERATIVELY TO DETECT PREEXISTING WEAKNESS OF POSTERIOR CAPSULE IN PATIENTS OF POSTERIOR POLAR CATARACT AFFECTING OUTCOMES DURING PHACOEMULSIFI CATION".
2. To determine percentage of PC rupture with vitreous loss.
3. To determine percentage of PC rupture with dropped nucleus.
4. To determine percentage of IOLs placed in the bag.
5. To determine percentage of IOLs placed in the sulcus.

MATERIAL AND METHODS

The study was carried out at Government Medical College Kannauj U.P. As per hospital protocol, written informed consent was obtained from all patients.

The study population included 26 patients of the posterior polar cataract who presented to the hospital.

I .**STUDY DESIGN**: This is a prospective observational study.

II. **INCLUSION CRITERIA:**

1. Patients older than 25 years of age and onward of both genders
2. Patients diagnosed of having Posterior Polar Cataract (PPC)only.
3. Posterior Polar Cataract with nuclear sclerosis (NS)grade 1.
4. Posterior Polar Cataract with nuclear sclerosis grade 2 (LOCS).
5. Pupil dilatation greater or equal to 7 mm.

III. EXCLUSION CRITERIA:

1. Associated posterior subcapsular or cortical cataract.
2. History of significant ocular trauma.
3. Pseudoexfoliation syndrome.
4. Shallow anterior chamber.
5. Pre-existing corneal or retinal pathology.

VI.**METHODOLOGY OF DATA COLLECTION**:

After explaining the procedures, all subjects were sign an informed consent and undergo a complete history taking and eye examination

Following detailed history were obtained from the patients.

- Name, Age and sex ,Residence, Educational status
- Chief complaints and Duration
- Family history
- Treatment history
- Detailed antenatal and post natal history specially of any drug intake,x-ray exposure or febrile illness, during antenatal period.
- Medical history of any systemic disease.

VII. EXAMINATION

All the subjects underwent a full ophthalmic examination, comprises.

- Routine eye examination
- Visual Acuity (VA) by Snellen's chart.
- Intraocular pressure (IOP) recording by Goldmann Applanation tonmometer.
- Slit lamp examination.
- Anterior Segment Optical Coherence Tomography Imaging (AS-OCT)

Fundus examination: After pupillary dilatation, the fundus will be examined with 78D/90D lens by slit lamp bimicroscopy following which detail fundus examination will be done with indirect ophthalmoscope.

(It will be done using TOPCON(Triton V.10.13),TOPCON(3D OCT-1Maestro), NIDEK(RS- 330) and CIRRUS HD Spectral Domain Optical Coherence Tomography (SD-OCT).

VIII. SURGICAL METHOD:

Phacoemulsification surgery will be performed in all eyes by same surgeon by the Ziess visalis.All case was done under peribulber anesthesia. A side port incision was made followed by the main incision .

Injection of viscoelastic material to prevent decompression to anterior chamber that might predispose to premature rupture of capsule. Because of avoidance of anterior chamber collapse that might predispose to premature rupture of the posterior capsule. Clear corneal main port 2.8 mm was made. The Capsulorrhexis Initially made by pinching the capsule by cystitome or forceps if Nucleus is soft. If Nucleus is hard then rhexis should more than 5 mm in diameter. Hydrodelineation – in this Process separation of nucleus from epinucleus and Avoid potential disruption of adhesions between posterior capsule and posterior polar cataract. and also avoid vigorous decompression of capsular bag after the delineation. In this process Nucleus rotation is contraindicated.

Technique described by Vasavada and Raj. Trench is first sculpted and right angled cannula is used to subsequently direct fluid perpendicularly to the lens fiber in the desired plane through one wall of trench. Delineation is produced by fluid traversing inside out. A Golden ring within the lens appears is evidence of successful delineation. During irrigation and aspiration the infusion was kept low and flow was directed away from the posterior capsule. The Average fluid flow through irrigating chopper is approximately 45-50

ml per Min. flow system is present in the anterior chamber during Co-axial phacoemulsification with average irrigation of 90ml/min while bottle height 100 cm which can cause rupture of posterior capsule and vitreous loss due to increase pressure in Capsular Bag. All patients had a 1-piece foldable intraocular lens (IOL)

(Acrysof , Alcon Laboratories, Inc.) implanted with an intact capsular bag and, in case of posterior capsule rupture, a 3-piece foldable IOL (Sensar , Abbott Medical Optics, .) was implanted in the sulcus after automated anterior vitrectomy

IX. STASTICAL ANALYSIS:

Continuous variables such as age were described using mean and standard deviation. Categorical variables such as sex, type of cataract,

IOL placement position, and intraoperative complications were described using percentages. The frequency of intraoperative posterior capsule rupture between eyes with intact versus dehiscence posterior capsules on AS-OCT was calculated and compared between the 2 groups using the chi-square test.

The diagnostic validity of AS-OCT grading compared with the gold standard of intraoperative posterior capsule rupture confirmation by the surgeon was assessed using sensitivity, specificity, positive predictive value, and negative predictive value. Statistical analysis was performed using SPSS Statistics software (version 20.0, IBM Corp.).

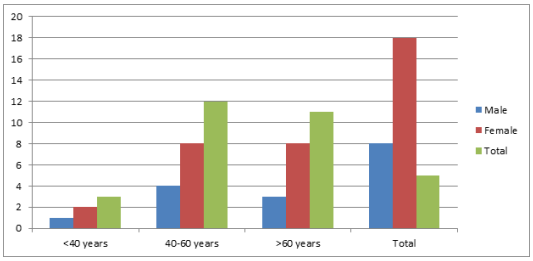
OBSERVATION & RESULT:

Table-1 Patient demographic and clinical information

Parametre	Value
Age (y)	55.46(+/-9.5)
Sex %	
Male	8 (30.8%)
Female	18(69.2%)
Side(%)	
Right eye	11(42.3%)
Left eye	15(57.7%)
Cataract type n(%)	
PPC only	20(76.9%)
PPC +nuclearSclerosis grade 1	2(7.7%)
PPC +nuclear sclerosis grade 2	4(15.4%)
Intra operative complication (%)	4(15.4%)
PC rupture with vitreous loss	0
Dropped Nucleus (%)	
IOL implant	
In bag	22(84.6%)
sulcus	4(15.4%)

TABLE -2 Percentage distribution of age with gender in study

Age group (years)	Male		Female		Total	
	No.	%	No.	%	No.	%
<40	1	12.5	2	10.5	3	11.5
40-60	4	50	8	42.1	12	46.2
>60	3	37.5	8	47.4	11	42.3
Total	8	100	18	100	26	100

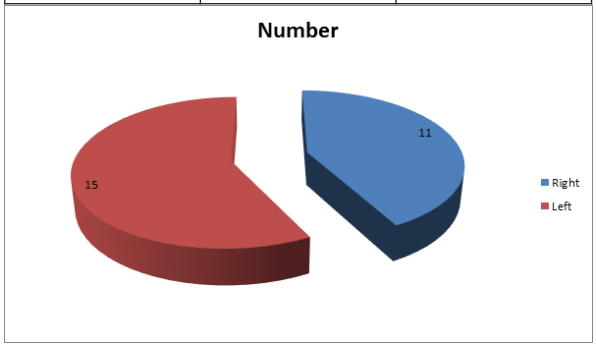


(Figure-3)

8 male and 18 female out of 26 patient in which maximum patient is above 40 years age group.

Table -3 Distribution of laterality of eye in study

Laterality	Number	Percentage
Right	11	42.3%
Left	15	57.7%



(Figure-4)

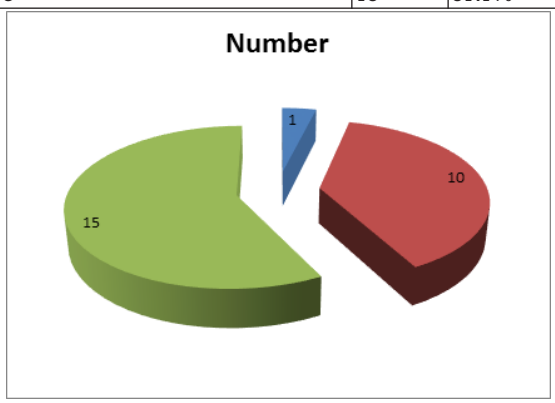
42.3% right eye and 57.7% is left eye found PPC

Table-4 Distribution of preoperative BCVA

Log MAR (BCVA)	NUMBER	PERCENTAGE
0.176 – 0.447, (6/9-6/18)	1	3.8%
0.447 -0.778, (6/18-6/36)	4	15.38%
0.778 -1, (6/36-6/60)	6	23.07%
1 -1.3010 (6/60-3/60)	8	30.76%
1.3010 – 1.778,(3/60-1/60)	7	26.92%

Table – 5 Size Of Posterior Polar Opacity In 26 Patients

Size of posterior polar opacity (mm)	Number	Percentage
<2	1	3.8%
2-3	10	38.5%
>3	15	57.7%

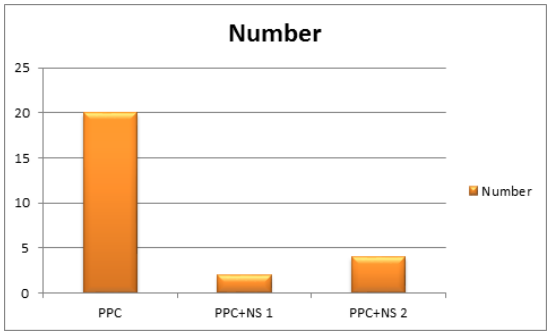


(Figure-5)

> 3 mm size of posterior polar opacity was found in maximum cases (15 cases, 57.7%) and minimum is 1 (3.8%) is <2 mm in size PPC.

TABLE – 6 Grading of Slit lamp examination on 26 Patients

Type of cataract	Number	Percentage
PPC	20	76.9%
PPC+NS 1	2	7.7 %
PPC+NS 2	4	15.4%

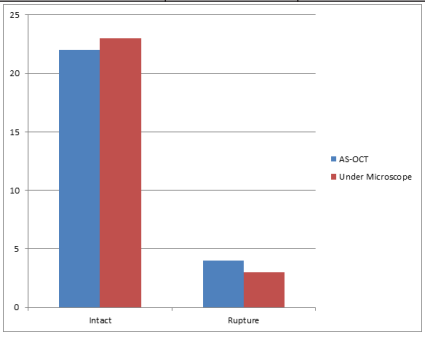


(Figure-6)

20 (76.9%) out of 26 is PPC rest of case NS is also found along with PPC.

Table -7 Intactness of posterior capsule on AS-OCT and observed by surgeon under microscope

Condition of posterior capsule	Number	
	AS-OCT	Under Microscope
Intact	22(84.6%)	23(88.4%)
Dehiscent	4(15.4%)	3(11.5%)

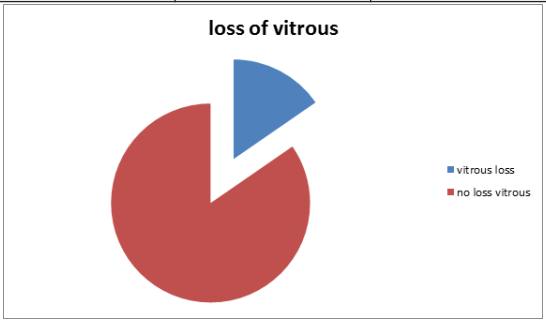


(Figure-7)

In AS-OCT in 4 patient out of 26 posterior capsule dehiscence seen but examination under microscope there was 3 in number. AS-OCT is sensitive to detect posterior capsule dehiscent (P=.0004), Sensitivity is 75% Specificity is 95.45% ,PPV is 75% and NPV is 95.45%.

Table -8 Cases OfVitreous Loss In 26 Patients

	Number	Percentage
With Vitreous loss	4#	15.4%
NO Vitreous loss	22	84.6%



(Figure-8)

The table above shows number of cases of vitreous loss in 26 patients. 4 patients (15.4%) had vitreous loss, while in 22 patients (84.6%) there was no loss of vitreous.

1 patient showed vitrous loss in which posterior capsule is intact.

Table-9 Post operative vision after 6 week BCVA

Pot op log MAR BCVA	No.	%
>0.176 (>6/9)	18	69.23
0.176 -0.301, (6/9-6/12)	6	23.07
0.301 -0.477,(6/12-6/9)	2	7.69

DISCUSSION:

Dealing with posterior polar cataract is quite challenging but good clinical expertise and little bit pay attention during surgery causes lesser intraoperative complication(most common : **posterior capsular rent and vitrous loss**) and result into much better outcome good post-operative vision . Slit Lamp is not always possible for **identifying the pre-existing posterior capsule weakness or to identify the posterior capsule intact or dehiscence**. A reliable means to identify the posterior polar cataract that is at high risk or low risk for rupture of posterior capsule and the pre operative information to surgeon as well as counselling to patients preoperatively about posterior capsule rupture during phacoemulsification.

Osher RH, Yu BC, Koch DD. Et al(1990) phacoemulsification or planned extracapsular cataract extraction on posterior polar cataracts in 31 eyes of 22 patients and experienced eight cases of posterior capsular rupture (26%). Capsular rupture occurred during removal of the posterior polar opacity or during cleaning of the posterior capsule after the opacity had been removed.

Gavriş M , Popa D,et al (2014) Prospective study which comprises 10 eyes with posterior polar cataract (8 patients), operated by the same surgeon. Phacoemulsification with low parameters was performed in all cases, and acrylic and PMMA intraocular lenses were implanted in 9 eyes.

Ken Hayashi, Hideyuki Hayashi et al (2003) Of the 28 eyes, 25 (89.3%) with a small to medium posterior polar opacity had standard phacoemulsification or aspiration surgery.

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Eyes with clinically diagnosed **posterior polar cataract that had AS-OCT imaging and phacoemulsification** were included. Each eye was graded according to the features of the posterior lens opacity and the underlying capsule. Eyes were categorized as having grade 1 or grade 2 cataract depending on the amount of clearance between the posterior opacity and the capsule (≥ 50% clearance and <50% clearance, respectively). Grade 3 represented the absence of an intact posterior capsule. The incidence of intraoperative PCR was compared with the AS-OCT grading to identify eyes at high risk for PCR.Similar to our study in these study preoperative AS-OCT was done then patient underwent for surgery

Chan TC, Li EY, Yau JC et al (2014) Anterior segment OCT can be used to grade posterior polar cataracts and identify eyes at high risk for PCR, allowing better surgical planning and preoperative counselling.

Gurudatha Pawan Kumar et al[12] (2018) In a Prospective observational study, Preoperative AS-OCT imaging was performed to assess the integrity of the posterior capsule. Anterior segment OCT images of the posterior capsule were graded as "intact" or "dehiscent." Phacoemulsification was performed by the same surgeon who was masked from the AS-OCT findings. The integrity of the posterior capsule was evaluated by the surgeon intraoperatively.

Benjamin Youn, Venkatesh Brahma, Emily Li, et al (2018) AS-OCT images of the PPCs were obtained and the states of the PCs were assessed by a single observer. Capsules were deemed "intact" if the capsular margin was visualized below the PPC without any defects or discontinuities and "dehiscent" if the contrary was true. All patients had their cataracts removed by a single, experienced surgeon who was

masked to the AS-OCT findings.

Our study revealed percentage of male patients as 30.76% (8 patients) while percentage of female patients was 69.23% (18 patients).Number of presenting female patients was higher in various other studies also. **Gurudatha Pawan Kumar et al[12] (2018)** also did a study in which percentage of female patients (57.8%) was slightly higher as compared to male patients (42.2%).

Study of **Chan TC et al[7] (2014)**was very much in accordance with our study in which percentage of female patients (64.9%) was much higher as compared to male patients (35.1%).

S Das, R Khanna, S M Mohiuddin (2008) conducted study in which 48 men (79%) and 11 women (21%).Almost similar difference has been exhibited in our study also. Contrary to this a study done by **Sunil Kumar et al[11]** in 2010 exhibited almost statistically insignificant difference in percentage of female and male patients and male patients. They observed percentage of female patients as 49% and male patients as 51%. **H Siatiri and S Moghimi et al (2006)** In total, 38 eyes of 23 patients were included in the study. Of them, 12(52%) were male and 11(48%) were female patients.This is clearly expressing almost equal number of male and female patients. However presentation of male and female patients is hardly capable of matong only aetiological and prognostic difference.

In our study maximum percentage (number) of patients 69.23% (18) presented in 50-65 years age group while above 65 we encountered only 2 (7.69%) patients. However mean age group in our study has been detected as 50.35 +9.372 years. Regarding age at presentation various studies are in accordance with our observation. **Gurudatha Pawan Kumar et al[12]** in 2018 found mean age at presentation as 50.1+10.3 years. The mean age [is] 53 years in a study done by **Osher RH, Yu BC et al[3]**.

There are several studies available exhibiting almost similar age at presentation as patients of posterior polar cataract. Mean age reported in three other studies **Chan TC et al[7], S Das R Khanna et al[9] and Stanic R, Bucon K et al[10]**is 65.4+11 year, 46+11 years and 45.5+13.3 years respectively.

We believe that laterality of presented eye is a co-incidental finding but while analysing the initial statistics we observed that left eye (57.7%) we more involved as compared to right eye (42.3%). Similar analysis was shown by **Gurudatha Pawan Kumar et al[12]**.Where left eye (56.3%) was involved in slightly higher number of patients (43.8%).

Contrary to this a significant difference was observed by **Chan TC et al[7]**in 2012.They observed that percentage of right eye involvement (64.9%) was much higher as compared to left eye (35.1%). However as we have already stated that this finding is more co-incidental rather that of any result oriented significance.

In our study the maximum percentage (number) of patients (70%) presented with posterior polar cataract only, while 7.7% patients presented with nuclear sclerosis grade 1 and 15.4% patients presented with posterior polar cataract with nuclear sclerosis grade 2.We also found in our study that the size of the posterior polar cataract opacity was either less or equal to 4 mm. We divided the patients into 3 groups on the basis of posterior polar cataract opacity. Grade 1 having size of the posterior polar cataract 1-2 mm & contained 2 patients (3.8%). Grade 2 having the size of posterior polar cataract slightly larger than 2-3 mm and contained 4 patients (15.4%). Grade 3 having largest posterior polar cataract of 3-4 mm in size and contained maximum number of cases i.e. 15 (57.7%). We evaluated that in most of the cases only posterior polar cataract of larger size was found. The study of **Gurudatha Pawan Kumar et al** (2018) was very much in accordance with our study in which percentage of posterior polar cataract happens to be 79.7%, posterior polar cataract with nuclear sclerosis grade 1 was found to be 3.1%, and also found posterior polar cataract with nuclear sclerosis Grade 2 was 17.2%.They also found that in most of the cases size was equal to or less than 4 mm.

Tommy C.Y. Chan, , MMedSc, Emmy Y.M. Li, et al The study assessed 37 eyes, 19 with grade 1 cataract, 13 with grade 2, and 5 with grade 3. Posterior capsule rupture occurred in 8 eyes (21.6%), 1 (5.3%) with grade 1 cataract, 4 (30.8%) With grade 2, and 3 (60.0%) with grade 3.

Sunil Kumar et al did a study in **2010** to look for the relation of size of lens opacity which surgical outcome. In eyes with size of opacity 4 mm or more, there was 30.43% incidence of posterior capsule rupture. However in ise with less than 4 mm size, the incidence was only 5.7%. This is a statistically significant difference.

H kalantan et al had similar findings, hence we conducted but the incidence of posterior capsule rupture is directly proportional to the size of opacity.

Osher RH, Yu BC et al did not find a relation between capsule rupture and age, sex or family history. In our study posterior polar capsule rupture in only 15.4% cases and a similar result of 11% it was observed by **MW Lee, YC Lee et al.**

Gurudatha Pawan Kumar et al also noticed posterior capsule rupture in 7.3% of their subjects. **Chan TC et al (2012)** analyse posterior capsule rupture ine only 21.6%. **Osher RH, Yu BC et al** and **Vasavada AR, Singh R et al** also noticed posterior capsule rupture in 26% and 36% respectively.

In our study, we used preoperatively AS-OCT to evaluate eyes with PPC to recognize any posterior capsule deficit. In 26 eyes of 26 patients, we could exactly predict in techniques of posterior capsule. We also encountered 4 cases of posterior capsule rupture in which 3 cases were detected as dehiscent by AS-OCT before surgery, and one case of posterior capsule rupture occurred which was labeled as intact posterior capsule before surgery. Preoperatively AS-OCT actually detected four cases as dehiscent, but only 3 cases were detected as dehiscent by the surgeon under the operating microscope.

According to the surgeon, 1 case of false dehiscence detected preoperatively by AS-OCT was due to density of posterior polar opacity, where the plaque might have obstructed the imaging of posterior capsule, causing an art factual appearance of posterior capsule dehiscence. In these 4 eyes, a posterior capsule rupture occurred at the time of posterior polar cataract black removal during cortex aspiration, suggesting the adherence of posterior polar opacity plaque to posterior capsule or a pre existing posterior capsule defect.

Similarly in the study of **Gurudatha et al,** there were 8 cases found dehiscent preoperatively by AS-OCT, but only 5 of them were confirmed by the operating surgeon at the time of surgery. Also, these five cases underwent posterior capsule rupture during phacoemulsification. According to them 3 false positive dehiscent cases detected by preoperative AS-OCT may be either due to artifactual effect of dense posterior polar opacity plaque or there maybe presence of multiple minute areas of posterior capsule deficit. Sensitivity of AS-OCT for detecting posterior capsule dehiscence was 100% and specificity was 94.9%.

In a similar study **Kymionis et al**[8] also identified 2 cases out of 3 with preexisting dehiscence by preoperative AS-OCT and suggested the potential of this imaging modality for identifying high risk cases. Another study by Chan et al also stated similar results that 8 cases out of 37 cases were found dehiscent on preoperative AS-OCT and all 8 cases underwent posterior capsule rupture during surgery. They found that AS-OCT had a sensitivity of 87.5% and specificity of 62.1 % in identifying pre existing tear.

In our study, posterior capsule rupture with vitreous loss occurred in 4 cases (15.3%). Out of these three cases had dehiscent posterior capsule as detected preoperatively by AS-OCT. 1 case had intact posterior capsule. In all these 4 cases, a 3-piece foldable IOL was implanted in the sulcus after anterior vitrectomy. Other 22 cases had a 1-piece foldable IOL implanted with an intact capsular bag.

In a similar study of **Gurudatha Pawan Kumar et al**, 5 cases (7.8%) were of posterior capsule rupture vitreous loss, and 1 case (1.6%) had PCR with dropped cortex. All patients had 1-piece foldable intraocular lens implanted with intact capsular bag. In case of posterior capsule rupture, a 3-piece foldable IOL (ABOTT MEDICAL OPTICS) was implanted within the sulcus after automated anterior vitrectomy

In a study by **Chan TC et al**, total 37 cases were taken in which 8 cases (21.6%) were PCR and 29 cases (78.4%) we're intact posterior capsule. In 29 out of 37 cases, IOL was implanted in the capsular bag, while in 7 out of 8 cases IOL was implanted in the sulcus and 1 case (2.7%) was left aphakic.

In our study, BCVA gain after 6th week patients 14(53.8%) had >6/9 ,9 (34.6%) patients 6/9 -6/12, 2(7.7%)patient 6/12-6/18,1(3.8%) patient had <6/18 vision. Similarity of result study conducted by **Usher RH et al (1990)** 31 patients and 97% having better vision **. Hayashi K et al (2003)** 31 out of 28 patients showed visual improvement postoperative about 20/20. **MW Lee, YC Lee et al (2003)** out of 36 patient 94.4% patient vision improve after cataract surgery.

Sujata Das et al (2008) study shows >20/30vision in 76 eyes. **Kumar S et al(2010)** 94% out of 58 eye shown significant visual improvement. **Ken Hayashi, Hideyuki Hayashi et al (2003)** Of the 28 eyes, 25 (89.3%) with a small to medium posterior polar opacity had standard phacoemulsification or aspiration surgery and gained significant visual improvement . In few patient cause of the low acuity was amblyopia in 4 eyes (14.3%), impaired foveal function after retinal detachment in 2 eyes (7.1%), and macular degeneration in 1 eye (3.6%).

In our study 4 patient developed macular edema (out of 3 shown virous loss) shows relation of PCR and vitrous loss (P=.0004) similar to **Irvine SR et al (1953)**[16] relation to development of macular edema.

In our study sensitivity is 75 % and specificity is 95.45% positive predictive value is 75% and negative predictive value is 95.45% . **Gurudatha Pawan Kumar et al** sensitivity of detecting dehiscence 100% and the specificity was 94.9%. The positive predictive value of posterior capsule dehiscence on AS-OCT was 62.50% and the negative predictive value was 100%. **Chan TC et al**, AS-OCT had a sensitivity of 87.5% and specificity of 62.1%.

CONCLUSION:

PPC is quite challenging during phacoemulsification but careful handling and low parameter in phaco setting we can deal it..During the cataract surgery there is significant risk of PCR .There is chance of vitrous loss managed by anterior vitrectomy .Implantation of lens is done in the bag or in the sulcus. After the phacoemulsification visual outcome is good .Few of patient developed macular edema which is associated with vitrous loss .There is no gender wise or laterality wise association of PPC .By use of AS-OCT we can easily predict the outcome during surgery and it may help in preoperative counseling and intraoperative events and postoperative outcome . AS-OCT is quite sensitive to detect preexisting posterior capsular dehiscent.

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