



ROLE OF USG B-SCAN IN PREOPERATIVE ASSESSMENT OF PATIENTS UNDERGOING CATARACT SURGERY WITH OPAQUE OCULAR MEDIA

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ABSTRACT **Objective:** To visualize and assess the posterior segment of the eye in patients undergoing cataract surgery with opaque ocular media with B scan ultrasound. **Methods:** We performed diagnostic B-scan ultrasound on 300 eyes with dense cataract preoperatively at out-patient department, RIO, IGIMS over period of 12 months. Thorough history and ocular examination was done. The patients were divided into two groups (i) Traumatic and (ii) non traumatic. Patients in the age range of 1 to 80 years of both sexes were included in the study. Patients having already posterior segment lesions and those who had previous history of ocular surgery were excluded from the study. **Results:** Out of 300 eyes with dense cataract, 45 eyes had posterior segment lesions. Among traumatic group of 31 patients, 15 had positive posterior segment lesions, while in the non-traumatic group of 269 patients, 19 cases had positive posterior segment lesions. Out of the 19 positive cases, 3 had retinal detachment, 9 had posterior vitreous detachment, 5 had vitreous haemorrhage, 2 had posterior staphyloma. **Conclusion:** We conclude that B-scan ultrasound is very important diagnostic tool for the assessment of posterior segment before cataract surgery, as it helps in detecting posterior segment pathology and counselling the patient regarding the visual outcome post-surgery.

KEYWORDS : B-Scan ultrasound, Cataract, Posterior Segment.

INTRODUCTION

The most recent estimates from WHO reveal that in the south Asia region which includes India has 51% blindness due to cataract¹. USG B- scan is one of the most useful non-invasive technique for the evaluation of posterior segment of the eye. Many posterior segment lesions occurring in the eye can be evaluated accurately by high resolution sonography since clinical and ophthalmoscopy are less informative². Ocular trauma is a major cause of vision loss particularly in young population. In these cases B Scan provides useful information regarding the presence of ocular foreign body of any kind when other radiological investigations (X-ray) become negative³. It can detect any intraocular abnormality in the presence of opaque media like corneal opacity, corneal edema, total hyphaema, dense cataract and vitreous hemorrhage. Ocular sonography is painless, non-invasive, safe, rapid, cost effective, non-ionizing real time diagnostic tool that provides valuable diagnostic information of various ophthalmic disorders not obtainable by any other means⁴. The most frequent posterior segment lesions seen on B-scan ultrasound were retinal detachment, vitreous hemorrhage, intraocular foreign body, neoplasia and posterior vitreous detachment. This study was done with the purpose to visualize the status of posterior segment with B-scan ultrasound in preoperative dense cataract patients to find out any posterior segment lesions.

MATERIALS AND METHODS:

This is a cross-sectional observational study. We performed diagnostic B-scan ultrasound on 300 eyes with dense cataract preoperatively at out-patient department, RIO, IGIMS over a period of 12 months (March 2023 to March 2024).

Thorough history and ocular examination was done. Patients with very dense cataract whose posterior segment could not be visualised using 90 D lens and slit lamp and indirect ophthalmoscope were selected for the study. The patients were divided into two groups (i) Traumatic and (ii) non traumatic cataract group. Patients in the age range of 1 to 80 years of both sexes were included in the study. Patients with pre existing posterior segment lesions and those who had previous history of ocular surgery were excluded from the study. Patients were briefly explained the procedure. USG B-scan with the probe of direct contact (Mindray DC 70) was used. USG probe was placed over the globe of the eye with closed lid after application of the gel and then B-scan was taken.

RESULTS:

Out of the 300 eyes examined, 31 eyes were in traumatic group and 269 were in non-traumatic group. Traumatic cataract was more common in male patients (25 males out of 31 patient).

It was more common in less than 20 years old patient. Out of 31 traumatic cataract eyes, 15 had posterior segment lesions (8 were

Retinal detachment, 4 were choroidal detachment and 6 were vitreous hemorrhage) (Image 1 to 3).

Non traumatic cataract was more commonly seen in male patients (149 patients out of 269 patients). Most patients were in 40-60 years of age group. Out of 269 non traumatic cataract eyes, 19 had posterior segment lesions (3 had retinal detachment, 9 had posterior vitreous detachment, 5 had vitreous detachment and 2 had posterior staphyloma (Table 1).

Table 1: Showing Gender Distribution And Distribution Of Cataract.

	Traumatic cataract	Non traumatic cataract
Male	25	149
Female	6	120
Retinal detachment	8	3
Vitreous hemorrhage	6	5
Choroidal detachment	4	-
Posterior vitreous detachment	-	9
Posterior staphyloma	-	2

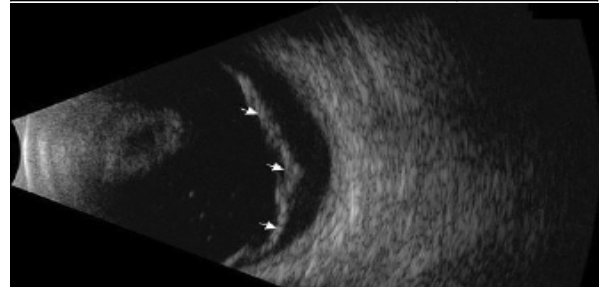


Image 1: Showing Retinal detachment

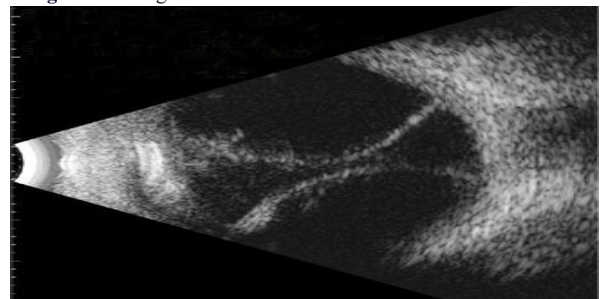


Image 2: Showing Choroidal detachment



Image 3: Showing vitreous hemorrhage

DISCUSSION:

Cataracts is an important cause of blindness in developing countries like India and many cases have dense cataracts that hampers the visualization of fundus prior to surgery⁵. B-scan ultrasonography has enabled us to study posterior segment of the eye even in the presence of opaque media like dense cataract. Posterior segment of a total of 300 eyes were examined under B-scan ultrasound in 1–80 years old patients, divided into two groups.

Majority of the patients (269 patients) belonged to the non-traumatic cataract group and a small number (31 patients) to traumatic cataract group. Similar groups in different age ranges have also been discussed in other studies. These findings were in concordance with studies done by Shaikh et al. and Salman et al⁶⁻⁷.

Findings of posterior segment lesions (11.3%) in this study were similar to study conducted by Mobin et al⁸. Out of 11.3% of patients, 56% patients were in non-traumatic cataract group and 44% patients in traumatic cataract group. Qureshi and Laghari S and Garg et al reported posterior segment lesions in 11% non traumatic cataract patients and in 65.85% patients with traumatic cataract⁹⁻¹⁰.

CONCLUSIONS:

B-scan ultrasound is very important diagnostic tool for the assessment of posterior segment before cataract surgery in patients with opaque ocular media, as it helps in detecting posterior segment pathology and counselling the patient regarding the visual outcome post-surgery. It is specially important in young patients with history of trauma as there is high chance of finding posterior segment pathology like retinal detachment, vitreous haemorrhage and choroidal detachment.

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