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Clinical profile and management of cataract operated patients admitted in a tertiary care Centre, Assam: A cross-sectional study

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Abstract
Cataract persists as the leading cause of reversible blindness specially in India, with a significant public health impact, particularly in rural and underserved regions such as Assam. Understanding the clinical profile and management patterns of cataract patients in tertiary care settings can guide effective planning and delivery of ophthalmic services.
This study aims to figure out the demographic and clinical profile of cataract patients admitted to a tertiary care centre in Assam and to evaluate the management strategies.
This hospital-based cross-sectional study is conducted among patients diagnosed with cataract and admitted for surgical management at a tertiary care centre in Assam over a defined study period of 6 months. Data are collected on sociodemographic parameters, clinical presentation, type and severity of cataract, associated systemic comorbidities, surgical techniques employed, intraoperative and postoperative complications. Statistical analysis was performed to identify patterns between variables.
Majority of patients were found to be younger than 60 years although there are evidences of cataract predominantly among aged population, with a slight female predominance and a higher representation from rural background. Variants of cataract found were senile cataract, complicated and traumatic ones. Small-incision cataract surgery (SICS) with posterior chamber intraocular lens implantation was the most commonly performed procedure.
This study highlights that cataract affects younger population as well, in Assam. Early detection, timely surgical intervention, and community-based awareness programs are essential to reduce the cataract-related visual disability burden in the region. Also lesser duration of hospital stays, minimal post operative complications as evident from this study can encourage the rural population suffering from cataract to undergo prompt treatment at a tertiary care centre.

Keywords: Cataract, reversible blindness, surgery, intra-ocular lens, small incision cataract surgery, phacoemulsification

Introduction
Cataracts, characterized by clouding of the eye's natural lens, are a major cause of vision loss, particularly in aging populations.[1] Cataract is the leading cause of reversible blindness and visual impairment globally. Blindness from cataract is more common in populations with low socioeconomic status and in developing countries than in developed countries. [2]
Most cataracts arise because of ageing of the crystalline lens. As new lens fibres continue to be laid down in the crystalline lens, and existing ones are not replaced, the lens is unusual in being one of the few structures of the body that continues to grow during life. Every year, an extra 1-2 million people go blind. Every five seconds one person in our world around 43.3 million goes blind [3]. In 75% of these cases the blindness is treatable or preventable. However, 90% of blind people live in the poorest sections of the developing world. [4]
Cataract constitutes 55% of total blindness in India [5]. The prevalence of cataract in Dibrugarh district is 32 % [6]
The clinical profile of the patients will help us to target the population group with respect to their age, gender and comorbidities to reduce the burden of the disease. Encouraging them to seek medical care by educating about the ease of surgical procedure and cataract surgery with respect to duration of hospital stay. Helping ophthalmologists to prioritizing surgery for the most affected eye. And also to fulfil the demand of intra-ocular lens type used for cataract surgery.

Objectives
1. To assess the clinical characteristics and associated comorbidities of the patients who underwent cataract surgery in Assam Medical College.
2. To analyze the types of cataract surgery performed and intraocular lenses (IOLs) used during management of these patients.

Materials and Methods
It is a hospital based cross-sectional study conducted at Department of Community Medicine and Ophthalmology, Assam Medical College and Hospital for a period of 6 months. The study participants are patients admitted in ophthalmology ward.
Sample size (n) was calculated using Cochran's formula $n_{\circ} = Z^2pq/e^2$, where Z is taken as 1.96 at 95% C.I, prevalence is 32% [6] so the value of q comes out to be 68. Margin of error, here e, was taken as 7%. The total sample size comes out to be 170.59 which is rounded off to 171.
All those admitted patients who were diagnosed with cataract and underwent surgery are included in our study.
Those who did not undergo cataract surgery and with missing data were excluded from our study.
For data collection, Medical record Department (MRD) and office of Department of Ophthalmology, AMCH were visited. Prior administrative permission was taken from the institutional authority. Clinical data (age, gender, medical history -diabetes, hypertension, traumatic cataract, retinal

detachment), Surgical data (Type of cataract surgery performed -phacoemulsification, extracapsular cataract extraction, intraocular lens type) were taken from bed tickets of 171 patients who were admitted in department of Ophthalmology for the past 6 months i.e., March to August 2025 for cataract surgery.

Collected data are entered in excel-sheets and analyzed in percentages and frequencies. Descriptive statistics (frequencies, percentages, means, frequency table, pie charts) summarized patients' demographics, surgical techniques, intraocular Lens (IOL) Type, comorbidities, affected eye.

Ethical clearance has been taken from Institutional ethics committee (H), Assam Medical College, Dibrugarh on 11th Oct. 2025.

Results

Demographics profile

A total of 171 patients are included in our study. The average age of patients undergoing cataract surgery was 53.50 ± 20.928 years. 41 % being over 60 years old. One of the patients belong to the age group of 0-18 years which is a case of traumatic cataract. In our study it was seen that cataract predominantly involved female gender, i.e., about 52.63%.

Table 1: Clinical profile of the participants

Category	Sub-category	Numbern	Frequency %
Comorbidities	Hypertension	80	46.78
	Diabetes	38	22.22
	Both	35	20.46
	No comorbidities	18	10.52
Commonly affected eye	Left	97	56.72

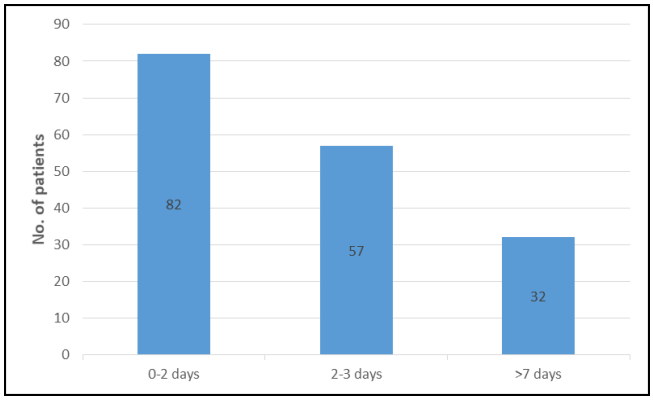

Fig1: Duration of stay in the hospital

Table 2: Lens type and surgery used

Intraocular Lens (IOL) Type	PCIOL (Posterior IOL)	133	77.77
	FIOL (flexible IOL)	38	22.22
Type of Surgery	Small Incision Cataract Surgery	112	65.49
	Phacoemulsification	59	34.50

Discussion

The present study highlights important trends in the clinical profile and management of cataract patients at AMCH.

Our study reveals majority of the patients were 50-60 years of age which is in line with a study done at Tamil Nadu [7] by Reddy C *et al*.

Also it is seen in our study that majority of the patients were females which is similar to the study done by Arepalli NR *et al*. at Visakhapatnam [8].

A significant proportion of patients (46.78) has hypertension as a comorbid condition, followed by diabetes (22.22%), while 20.46% has both conditions. This indicates a strong association between cataract and systemic non-communicable diseases, particularly hypertension, emphasizing the need for integrated chronic disease management in elderly patients.

In terms of surgical intervention, posterior chamber intraocular lenses (PCIOL) were used in the majority (78%) of cases, indicating adherence to standard surgical protocols for better visual rehabilitation. The preferred surgical technique was Small Incision Cataract Surgery (SICS), performed in 65% of cases, which reflects the resource-efficient and effective approach commonly practiced in tertiary settings like AMCH.

Regarding laterality, the left eye was more commonly affected (57%) than the right eye, though the clinical significance of this finding may require further exploration. Most of the patients are discharged within 1 to 3 days, indicating efficient perioperative management. However, a small proportion (approximately 19%) had extended hospital stays, often related to postoperative infections, especially in patients with diabetes.

Overall, the findings underscore the need for comprehensive care models that address both ophthalmic and systemic health, especially in aging populations prone to comorbidities.

Factors such as diabetes, hypertension significantly contribute to cataract, reinforcing the importance of pre-surgical screening and lifestyle modification as part of patient education. The study also highlights the higher chances of development of cataract in females. SICS is mostly performed in AMCH. Sex-specific cataract prevalence is higher in women than in men. [9], which aligns with our research. Out of the total sample 59 % are below 60 years age that indicates increasing incidence of cataract at early age. However studies show prevalence rates of cataract in people aged ≥60 years is high in India. [10]

Majority of the patients were discharged within 2 days suggesting the ease of treatment. People living in low and middle-income countries are affected by visual loss from cataract. [11] Diabetes have been identified as a factor for cataract development [12] also the risk of cataract significantly increases in populations with hypertension [13]. In our study these 2 comorbidities are found amongst the study population. Performing SICS is significantly faster [14] which is evident from shorter duration of hospital stay as only 3.4 % of patients who have undergone SICS has longer hospital stay of > 7 days. This value is 47% when it comes to phacoemulsification.

Conclusion

Most commonly elderly people of age group 60-69 years suffer from cataract. Hypertension, diabetes are the most common comorbid condition associated with cataract. Most commonly used surgery is Small Incision Cataract Surgery. Focus should be on reducing the hospital stays of cases with co-morbid conditions to reduce infections.

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