



## An Insight into Reasons For Increase in the Proportion of Hypermature Cataract and Its Complications on Presentation Due to Covid-19 Related Delay

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### ABSTRACT

**Purpose:** To assess the increase in the proportion of hypermature cataract, associated complications and to evaluate the reasons for delayed presentation during the era of COVID 19 pandemic.

**Materials and Methods:** an observational and interview based study was undertaken among -398 patients with hypermature cataract, over a year (post COVID 19 lockdown) in the Ophthalmology department of Mysore medical college and research institute. Presence of complications like phacolytic glaucoma and subluxations was noted. Increase in the proportion of hypermature cataract was calculated and compared with the previous year morbidity, resulting from hypermaturity, from institutional records. Reasons for delayed presentation was evaluated with standard questionnaire.

**Results:** A two fold increase in the proportion of hypermature cataract was observed in our study during the study period. Among 398 cases, (152) 38.19 % were male patients and (246) 61.8% were female patients. Majority of patients belonged to age group of 61 to 70 years. About 69% (270) were hailing from rural area, whereas the remaining 31% (128) patients were from the urban area. 76(19%) patients had more than one reason for delayed presentation. Elective OT shut down, lack of public transportation, lockdown, fear of being tested as COVID positive followed by isolation, systemic illness, reluctance by caretakers were some of the other reasons.

**Conclusion:** as a result of COVID 19 lockdown backlog, a statistical surge in the number of patients presenting with hypermature cataract and its complications was observed. Change in outlook of patient during the pandemic towards seeking medical attention was the most important factor for late presentation.

**Key Words:** Delayed presentation, hypermature cataract, phacolytic glaucoma, subluxation



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### INTRODUCTION

Cataract still forms one of the major causes of total blindness (62.6%). As per NPCB incidence of cataract is 0.4 to 0.5 % thus the number of new cases of cataract to be operated upon each year comes to 61.5 lakhs (6.15 million).

<sup>(1)</sup>Hypermature cataract is defined as the stage of senile cataract which develops due to liquefaction and absorption of cortical matter, leaving behind a small shrunken nucleus with an overlying fragile capsule that may have undergone calcification and fibrosis. All the cataracts should be operated before they reach the stage of hypermaturity. The complications associated with Hyper mature senile cataract include lens-induced uveitis, phacolytic glaucoma, and rarely spontaneous dislocation of nucleus. Chances of intra- and post-operative complications are also high in cases with hypermature cataracts. Associated phacolytic glaucoma, which is a potentially preventable condition, continues to be a cause of irreversible vision loss in India, especially among patients from rural areas. Intra-operative complications can arise due to various reasons like difficulty in doing continuous curvilinear capsulorhexis (CCC), zonular dehiscence during nuclear emulsification or nucleus removal due to weak zonules. Postoperative complications such as striate keratopathy, raised intraocular pressure, and prolonged inflammation are more commonly seen in individuals with hypermature cataract undergoing cataract surgery. Patients with phacolytic glaucoma might have poor visual recovery post operatively due to optic disc damage. (2,3) Due to these factors hypermature cataract continues to form a significant percentage of overall cataract burden.

In early 2020 WHO declared the outbreak of the disease COVID 19, caused by a new variant of coronavirus 2019-nCoV as a global pandemic. Following which, the government of India ordered a nation wide lockdown for 21 days, further extended to a total of over 50 days, thus limiting movement of people as a preventive measure.

The COVID-19 pandemic halted non-emergency surgery across India. Elective cataract surgery postponed during the pandemic invariably led to longer wait and possible anxiety among patients. Patients' apprehension about having cataract surgery during the easing of COVID-19 lockdown should not be ignored.

Despite significant changes that were made within the Ophthalmology services during this time, there is scarcity of research centred on statistical analysis of increase in the burden of hypermature cataract which highlights on the concern for visual outcome.

We undertook this observational study as our centre is located close to the suburbs of Mysore and a high volume of cataract patients regularly undergo cataract surgery in our institute every year. But since COVID 19 first wave, followed by second wave, we have witnessed a significant increase in the proportion of cataract patients presenting with hypermaturity and related complication since one year.

#### **Materials and methodology :**

A hospital-based observational study was undertaken over a period of 1 year from post COVID 19 lockdown Aug 2020 to Aug 2021 in the ophthalmology department of Mysore medical college and research institute. An ethical committee clearance was obtained before commencing the study. A total of 398 patients were included in our study.

#### **Inclusion criteria :**

All patients with features of hypermature cataract and its complication like subluxation and phacolytic glaucoma presenting late due to COVID 19 related delay, were included in the study after obtaining written/ informed consent from each patient in local vernaculum.

#### **Exclusion criteria:**

Patients with other comorbid conditions in the eye like pre-existing glaucoma, those diagnosed as phacomorphic glaucoma, and pseudoexfoliation syndrome or trauma leading to subluxation were excluded from the study.

The patients were interviewed one on one based on a face validated questionnaire designed for the history taking by following COVID 19 safety measures.

A detailed history of the age, gender, address with regard to rural or urban area, duration of diminution of vision and the reasons for the late presentation was recorded. Patients who had already undergone cataract surgery in the fellow eye were interviewed to find, if they were informed about the need to undergo cataract surgery in this eye during the previous surgery by the operating surgeon, nursing staff or ophthalmic assistant. Patients were also asked about being informed about the chances of developing a painful blind eye if the other eye was left unoperated and whether they would have consulted ophthalmologist earlier if there was no such pandemic situation. Willingness of the patients to get operated after vaccination was enquired.

A detailed ophthalmic examination was done of both the eyes. The lens status of the other eye was noted. Intraocular pressure was measured using applanation tonometry in both the eyes. On slit lamp examination hypermature cataracts with shrunken /calcified lens capsule due to absorption of liquified cortex, deep anterior chamber, iridodonesis and (phacodonesis) may or may not with subluxation were classified as sclerotic cataract. Patients who presented with liquified milky white appearing cortex and settled nucleus at bottom were classified as morgagnian type. Those presenting with symptoms like acute pain with prolonged diminution of vision, and with signs like deep anterior chamber, anterior chamber reaction, hazy cornea were grouped under phacolytic glaucoma.

(Patients presenting with the shallow anterior chamber and intumescent cataract were classified as phacomorphic glaucoma). In addition, gonioscopy was performed in patients with clearer corneas. All patients were tested negative for COVID 19 by RTPCR. Patients with LIG were treated medically with anti-glaucoma medications before taking them up for surgery. Data collected during this study period was compared with previously consecutive corresponding year from institutional records to calculate the increase in the proportion of hypermature cataract cases.

#### **Statistical analysis:**

All the data collected was tabulated and analysed.

#### **Results:**

Among 398, 152 (38.19%) were male patients and 246 (61.8%) were female patients. The age of the patients ranged between 40 and 70 years [Table 1]. About 69% (270) were hailing from rural area, whereas the remaining 31% (128) patients were from the urban area.

Out of various types of presentation of hypermaturity, majority belonged to mature sclerotic cataract (table 4)

**Table 1: Age distribution**

Age group (years)	Number of patients in that age group, n (%)
40-50	76 (19.09)
51-60	122 (30.06)
61-70	145 (36.43)

>70	55 (13.81)
Total 398 (100.0)	

**Table 2: Gender distribution**

gender group	Number of patients in that gender group, n (%)
Female	246(61.8)
Male	152 (38.19)
Total 398 (100.0)	

**Table 3 :Population distribution**

Group	Number of patients in that population group, n (%)
Rural	270(67.8)
Urban	128(32.16)

**Table 4 :Clinical presentation**

Types of clinical presentation	number of cases in each group , n (%)
Morgagnian cataract	76(19.09)
Mature sclerotic	151(37.93)
Phacolytic glaucoma	105(26.38)
Subluxation	66(16.58)

In the corresponding pre COVID year about 5000 cataract cases were operated in the department of ophthalmology at MMCRI of which 384 cases presented with hypermaturity.

But since a year from the commencement COVID 19 pandemic only 2500 cataract were operated ,as the elective surgery was halted for several months during first and second wave of covid 19 pandemic , out of which 398 patients presented with hypermaturity.

Proportion of hypermature cataract during pre covid era = no . of hypermature cataract / total number of cataract per year

$$=384/5000 =7.68\%$$

Proportion of hypermature cataract during covid era =398/2500= 15.92

Thus there was a two fold increase in the number of hypermature cataract cases .

**Table 5: Number of patients with different reasons for delayed**

Reason for delayed presentation	Number of patients
Restricted mobility / lack of public transport facility	38
Lockdown	47
Fear of getting infected with COVID , during hospital visits	22
Lack of support from family members / no accompanying attenders to hospital	32
Patient himself or his attenders were tested positive / with severe COVID infection	37
Fear of being tested positive during routine pre op investigation , which mandates isolation	35
Surgery denied due to cancellation of elective surgery for 3-4 months	57
Reduction /cancellation of government held cataract camps , specially in rural area	25
With the ease of restriction ,preference for getting systemic comorbidity treated over eye problems	29
More than one of the above reasons	76(19%)

### Reasons for delayed presentation :

On being asked about delayed presentation to the hospital most of the patients had more than one reason, followed by lockdown and cancellation of elective surgery being the next most answered question. Details are mentioned in Table 5

### DISCUSSION

Reasons for late presentation according to the previous studies are lack of caretakers, poverty, poor awareness, poor health education, acceptance of poor vision as a part of aging, unwillingness for surgery, and coexisting systemic diseases.<sup>(5,6)</sup> Early diagnosis and timely surgical intervention are crucial in the management of hypermature cataract and There is a need to increase awareness among people about sight threatening complications of neglected senile cataract by government outreach activity<sup>(7,8)</sup>, gear up survey and essential surgical facility to tackle this challenge specially in a developing country like India.

### CONCLUSION:

In spite of wide coverage under national program hypermature cataracts are commonly found in the rural and suburban population of India. COVID 19 pandemic has definitely resulted in a setback on these program. an effort was made by this study to analyse the burden.

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