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Pre-Senile cataract: Analytical study

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Abstract: *Presenile cataract refers to an onset that occurs at any time from early adult life to age 60 years. Risk factors for presenile cataract include family history; refractive error such as high myopia, metabolic disease such as diabetes mellitus. Other possible causes are atopic dermatitis, use of corticosteroids, trauma, intra-ocular inflammation, electrical current injury, outdoor occupation and occupational exposure to heavy metals. A total of 177 Patients who were diagnosed as a case of pre-senile cataract, were included in this analytical study. All patients (Age between 18 to 45 years) with cataract with or without affected visual acuity were included in this study. An assessment of present complaints, detailed clinical histories (present and past) and personal data were obtained.. Ophthalmological check up as external examination of the eyes, visual acuity, torch light examination, slit lamp examination, refraction, direct ophthalmoscopy, were done. In this study the male female ratio in this study was almost 2:1. The most common cataract in younger age groups was traumatic cataract (34.46%) followed by, cataract due to uveitis (20.90%). Other causes include atophy (12.43%), diabetes (9.60%), and drugs (5.08%). The most common type of cataract in young age groups was Posterior subcapsular cataract (31.07%) followed by posterior polar cataract (21.47%), mixed type cataract (15.25%), nuclear cataract (12.43%), and hypermature cataract (6.78%). Most of the patients with cataract were labour and farmer by occupations (29.94%), followed by housewife (12.99%), office worker (12.43%), sportsman (9.61%), and students (6.78%). Cataract incidence in younger age groups is on the rise due to changes in the lifestyle of the individual starting from his diet, habitual addictions, occupational stress, and environmental influences*

Keywords: *Atopic dermatitis, Diabetes mellitus, Direct ophthalmoscopy Posterior subcapsular cataract, Presenile cataract, Slit lamp examination , Visual acuity.*

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I. Introduction

Cataract is the lens opacity of the eye that may cause significant loss of visual acuity and is the leading cause of avoidable blindness (48% of cases) worldwide. The most common form of cataract is senile cataract, which typically affects people over the age of 60 years with strongly increasing incidence in each successive decade of life. This may be related to the fact that despite progress made in surgical techniques, cataract cannot be prevented or treated pharmacologically. [1] Presenile cataract refers to an onset that occurs at any time from early adult life to age 60 years.[2] Risk factors for presenile cataract include family history; refractive error such as high myopia, metabolic disease such as diabetes mellitus, in which glycosylation of lens crystallins occurs resulting in accumulation of glycation derived crosslinks, thereby causing aggregation of high molecular weight material responsible for lens opacification.[3-6] Other possible causes for presenile cataract include atopic dermatitis, long term use of corticosteroids that is related to dose and duration of treatment, and mode of administration whether systemic, topical, subconjunctival and in inhaled form leads to cataract formation.[7] Active smoking, alcohol use, severe malnutrition, ultra violet ß– radiations (290 nm to 320 nm), severe diarrhea causing dehydration is among other risk factors for cataract formation. In young patients the ionizing radiations such as X–rays (0.001 to 10 nm) wave length can cause cataract development. [8-10]. Other etiological factors include trauma, intra-ocular inflammation, electrical current injury, outdoor occupation and occupational exposure to heavy metals.[7,11,12] Recently the incidence of early onset cataract is on the rise. This will definitely add on to the currently existing burden of age related cataract.

II. Method and material

A total of 177 Patients who were diagnosed as a case of pre-senile cataract, were included in this analytical study conducted in the Department of Ophthalmology, Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh, India over a period of 12 months from Nov. 2016 to Oct. 2017. The procedures followed were in accordance with the ethical standards committee on human experimentation (institutional or regional) and with

the Helsinki Declaration of 1975, as revised in 2000. The necessary permission from the Ethical and Research Committee was obtained for the study.

Inclusion criteria:

- All patients (Age between 18 to 45 years) with cataract with or without affected visual acuity.
- Both male and female patients were included in the study.
- The age group of the patients to be studied was between 18 to 45 years.

Exclusion criteria:

- Patients with history of any ocular surgery were excluded from this study.
- Patients with cataract, below the 18 years were not included in this study.
- Patients with cataract, above the 45 years were not included in this study.

An assessment of present complaints, detailed clinical histories (present and past) were obtained. Age, sex, occupation, and socio-economic status of the patients were recorded. Ophthalmological check up as external examination of the eyes, visual acuity, torch light examination, slit lamp examination, refraction, direct ophthalmoscopy, was done. B-scan was done in selected cases.

III. Results

A total of 177 patients who were diagnosed as a case of cataract, were included in this analytical study, in which 118 were male and 59 were female. The male female ratio in this study was almost 2:1.

Table 1: Etiology and type of cataract wise patient's distribution (n=177)

Etiology	No. of patients	Most common type of cataract	Percentage (%)
Trauma	61	Mature, Mixed, star shaped cataract	34.46%
Diabetes	17	Posterior subcapsular, Mature	9.60%
Uveitis	37	Immature, Mature	20.90%
Atophy	22	Posterior subcapsular	12.43%
Drugs	09	Posterior subcapsular	5.08%
Burn	02	Sutural cataract	1.13%
Unknown	29	Immature, Mature, Posterior subcapsular	16.38%
Total	177		100%

Table 1 describes that, the most common cataract in young age groups was traumatic cataract (34.46%) followed by, cataract due to uveitis (20.90%). Other causes include atophy (12.43%), diabetes (9.60%), and drugs (5.08%). Least common cataract in this study was burn induced cataract (5.08%). Rest 29 patients (16.38%) had unknown etiology.

Table 2: Cataract wise patient's distribution in study (n=177)

Types of cataract	No. of patients	Percentage (%)
Mature cataract	17	9.61%
Hypermature cataract	12	6.78%
Posterior subcapsular cataract	55	31.07%
Nuclear cataract	22	12.43%
Posterior polar cataract	38	21.47%
Lamellar cataract	02	1.13%
Sutural cataract	03	1.69%
Star shaped cataract	01	0.5%
Mixed type cataract	27	15.25%
Total	177	100%

Table 2 describes that, the most common type of cataract in young age groups was Posterior subcapsular cataract (31.07%) followed by Posterior polar cataract (21.47%), Mixed type cataract (15.25%), Nuclear cataract (12.43%), and Hypermature cataract (6.78%). The least common types of cataract found in this study were Star shaped cataract (0.5%), lamellar cataract (1.13%) and Sutural cataract (1.69%).

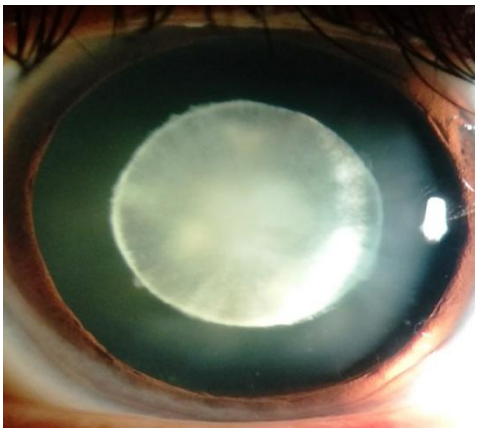

Fig-1: Lamellar cataract in 22 year old student

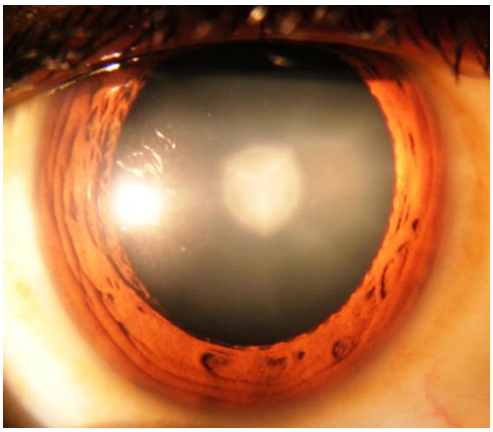

Fig 2: PSC in 35 year old diabetic female

Table 3: Occupations wise patient's distribution (n=177)

Occupation	No. of patients	Percentage (%)
Student	12	6.78%
Farmer and labour	53	29.94%
Driver	09	5.09%
Housewife	23	12.99%
Sportsman	17	9.61%
Technician	07	3.96%
Welder	05	2.82%
Chemical factories workers	03	1.69%
Office workers	22	12.43%
Others	26	14.69%
Total	177	100%

Table 3 describes that the most of the patients with cataract were labour and farmer by occupations (29.94%), followed by housewife (12.99%), office worker (12.43%), sportsman (9.61%), students (6.78%).

IV. Discussion

A total of 177 patients/eyes were evaluated. The mean age was 38.24 years. There were 118 males and 59 females in the study. In this study the most common type of cataract identified among the study group was posterior sub capsular cataract (PSC). The major causes identified in this study were Trauma (34.46%), Uveitis (20.90%), Atophy (12.43%), and Diabetes (9.60%). Rest other had unknown etiology (16.38%) due to lack necessary/special investigation in the institution, inappropriate history given by patients, various modifiable or compounding factors in this study. In this study traumatic cataract was male predominated because of most commonly outdoor activities like agriculture, livestock, driving, sports etc. The most of the patients with cataract were labour and farmer by occupations (29.94%), followed by housewife (12.99%), office worker (12.43%), sportsman (9.61%), students (6.78%). All cases of burn induced cataract were found in female due to more chances of burn exposure during household activity like cooking. Other risk factors were observed in this study which affects the incidence of cataract in young age group were smoking, alcoholism, poor nutrition, working environment, etc.

V. Conclusion

Cataract incidence in younger age groups is on the rise due to changes in the lifestyle of the individual starting from his diet, habitual addictions, occupational stress, and environmental influences. The awareness and literacy of the individuals and improvement in medical health sector has also increase the early detection of the cataract. So, as an ophthalmologist, early detection, approaches to the risk factors and proper management of cases will decreases the community burden and improve the life style of the patients.

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