 PRIMARY ANGLE CLOSURE-STATUS OF THE SECOND EYE WITH EVALUATION OF IOP, OPTIC DISC AND ANGLE OF THE ANTERIOR CHAMBER

Peram Venkataratnam1, Srihari Atti2, Goli Sridhar3, Superna Mahendra4, Thandra Sai Shreya5

1Associate Professor, Department of Ophthalmology, Osmania Medical College(Govt.), Sarojini Devi Eye Hospital & Regional Institute of Ophthalmology, Hyderabad, Telangana.
2Associate Professor, Department of Ophthalmology, Osmania Medical College(Govt.), Sarojini Devi Eye Hospital & Regional Institute of Ophthalmology, Hyderabad, Telangana.
3Assistant Professor, Department of Ophthalmology, Osmania Medical College(Govt.), Sarojini Devi Eye Hospital & Regional Institute of Ophthalmology, Hyderabad, Telangana.
4Assistant Professor, Department of Ophthalmology, Osmania Medical College(Govt.), Sarojini Devi Eye Hospital & Regional Institute of Ophthalmology, Hyderabad, Telangana.
5Postgraduate Student, Department of Ophthalmology, Osmania Medical College(Govt.), Sarojini Devi Eye Hospital & Regional Institute of Ophthalmology, Hyderabad, Telangana.

ABSTRACT

BACKGROUND
Primary Angle Closure is a common cause of Blindness.

The objectives of this study is to know the status of the second eye with evaluation of IOP, Optic Disc and Angle of Anterior Chamber in the Clinical Presentation of the Primary Angle Closure.

MATERIALS AND METHODS
The study group was the second eye of the 30 patients who were diagnosed clinically as primary angle closure using International Society of Geographical and Epidemiological Classification (ISGEO) and by Gonioscopy. Data of age, sex and laterality were noted. Comprehensive eye examination of Visual Acuity by Snellen’s Chart, Anterior Segment examination by Slit Lamp, IOP measurement by Goldman’s applanation tonometer, Gonioscopy by 4-Mirror Goniolens (Sussmann and Posner) and posterior segment examination by stereo-biomicroscopy with + 90 D Lens and Indirect Ophthalmoscopy by + 20 D lens was done. Gonioscopy grading was based on the angle structures actually visualised (Shaffer’s Grading).

RESULTS
Age distribution was 6 (20.0%) in 40 - 50 yrs, 17 (56.7%) in 51 - 60 yrs, 7 (23.3%) in 61 – 70 yrs. Males were 13 (43.3%) compared to Females 17 (56.7%). Laterality was RE in 7 (23.3%) and LE in 23 (76.7%). Visual Acuity (VA) was 6/6 - 6/18 in 5 (16.7%), < 6/18 - 6/60 in 23 (76.7%), < 6/60 - 3/60 in 2 (6.6%) and < 3/60 - PL +ve in no case (0.0%). IOP was < 20 mmHg in 7 (23.3%), > 20 - 25 mmHg in 23 (76.7%). Optic Cup/Disc ratio was < 0.5 - 1 in 15 (46.7%), 0.5 - 1 in 10 (33.3%) and 0.6 - 1 in 6 (20.0%). Gonioscopy showed occludable angles in 22 (73.4%) and peripheral anterior synechiae in 8 (26.6%).

CONCLUSION
Evaluation of the second eye in primary angle closure showed occludable angles of the anterior chamber with a need to identify the risk group early to prevent angle closure disease related to blindness in our community.

KEYWORDS
Primary Angle Closure, Second Eye, Intraocular Pressure, Optic Disc, Angle of Anterior Chamber.


BACKGROUND
Glaucoma is a chronic progressive optic neuropathy with IOP as a major risk factor.(1) Glaucoma is the second most common cause of visual morbidity and blindness after cataract. Glaucoma was estimated to affect 60.5 million persons by 2010 and 79.6 million by 2020 globally. In India, Glaucoma is fast emerging as a major cause of blindness with the estimated 8.9 million blind in India, 12.8% are due to Glaucoma. By 2020, 5.59 million people may suffer from primary angle closure disease.(2,3)

The five population-based Glaucoma studies over the last decade in India, three from Tamil Nadu (Vellore Eye Disease Study - VES, Chennai Glaucoma Study - CGS and Aravind Comprehensive Eye Diseases Survey - ACES), one from Andhra Pradesh (Andhra Pradesh Eye Diseases Study - APEDS) and one from Bengal (West Bengal Study - WBGS) have required optic disc changes to diagnose glaucoma and have not used intraocular pressure for glaucoma diagnosis except when visual field or optic disc data is not available according to International Society for Geographical and Epidemiological Ophthalmology (ISGEO) guidelines on structural (optic disc) or functional (visual field) damage to diagnose glaucoma.(3,4) Majority of glaucoma in India is undiagnosed, as most patients
are unaware of their own disease. So, there is a need for case
detection to identify the risk group early.

**Aim**
To know the status of the second eye with Evaluation of IOP,
Optic Disc and Angle of Anterior Chamber in the Clinical
Presentation of the Acute Primary Angle Closure.

**MATERIALS AND METHODS**
This was a tertiary hospital study in the Glaucoma Clinic,
Sarojini Devi Eye Hospital and Regional Institute of
Ophthalmology (RIO), Osmania Medical College, Hyderabad
over a period from August 2012 to August 2014. The study was
approved by the Institute of Ethical Committee with the
informed consent taken from all the patients of the study
group. The study group was the second eye of the 30 patients
who were diagnosed clinically as primary angle closure using
International Society of Geographical and Epidemiological
Classification (ISGEO) guidelines and by Gonioscopy. Data of
age, sex and laterality were noted. Comprehensive eye
examination was done which includes Visual Acuity by
Snellen’s Chart, Anterior Segment examination by Slit Lamp,
Intraocular Pressure measurement by Goldman’s
applanation tonometer, Angle of the Anterior Chamber by 4
Mirror Gonioscopy (Sussmann and Posner) and Posterior
segment examination by stereo-biometry with + 90 D
Lens and Indirect Ophthalmoscopy by + 20 D lenses. Quantitative
and qualitative evaluation of optic nerve head which includes
OD size, CDR, RNFL defects, contour of the ONRR, OD
haemorrhage and papillary atrophy was done. Gonioscopy grading was based on the angle structures actually
visualised (Shaffer’s Grading). The data thus collected was
analysed by simple statistical methods.

**RESULTS**
The study group was the second eye of the 30 patients
who were diagnosed clinically as primary angle closure.

**Sl. No.** | **Age Group** | **Males** | **Females** | **No. of Patients** | **%**
--- | --- | --- | --- | --- | ---
1 | 40 – 50 | 4 | 2 | 6 | 20.0
2 | 51 – 60 | 6 | 11 | 17 | 56.7
3 | 61 – 70 | 3 | 4 | 7 | 23.3
**Total** | **13** | **17** | **30** | **100.0**

**Table 1. Age and Sex Group Distribution**

Age group distribution was 6 (20.0%) in 40 – 50 yrs, 17
(56.7%) in 51 – 60 yrs, 7 (23.3%) in 61 – 70 yrs. Males were
13 (43.3%) and Females were 17 (56.7%).

**Sl. No.** | **Laterality** | **Males** | **Females** | **Total** | **%**
--- | --- | --- | --- | --- | ---
1 | RE | 1 | 6 | 7 | 23.3
2 | LE | 12 | 11 | 23 | 76.7
**Total** | **13** | **17** | **30** | **100.0**

**Table 2. Laterality Distribution**

Laterality was RE in 7 (23.3%) and LE in 23 (76.7%).

**DISCUSSION**
Glaucoma is a lifelong disease and majority of glaucoma in
India is undiagnosed, as most patients are unaware of their
own disease. Case detection with a comprehensive eye
examination of intraocular pressure measurement,
gonioscopy and optic disc evaluation at the primary health
care centres is important to prevent millions to suffer from
glaucoma associated morbidity, especially with a greater life
expectancy and an expanding aging population.(45)

Our study age distribution was 20.0% in 40 – 50 yrs.,
56.7% in 51 – 60 yrs, 23.3% in 61 – 70 yrs, similar to the
studies by Dandona L et al,(6) Garudadri et al,(7) Vijaya L et
al,(8) Ramakrishnan R et al,(9) Jacob A et al,(10) Rayachaudari

Visual Acuity (VA) was 6/6 - 6/18 in 5 (16.7%), < 6/18 -
6/60 in 23 (76.7%), < 6/60 - 3/60 in 2 (6.6%) and < 3/60 - PL
+ve in no case (0.0%).

Optic Cup/Disc ratio was < 0.5 - 1 in 5 (16.7%), 0.5 - 1 in
10 (33.3%) and 0.6 - 1 in 6 (20.0%).

Gonioscopy showed Occludable angles in 22 (73.4%) and
Peripheral Anterior Synchiae in 8 (26.6%).
Sihota R et al.\textsuperscript{(15)} Our study sex distribution was Males 43.3\% compared to Females 56.7\%, similar to the studies by Dandona L et al.\textsuperscript{(6)} Garudadri et al.\textsuperscript{(7)} and Vijaya et al.\textsuperscript{(8,9)} Laterality was RE in 23.3\% and LE in 76.7\%.

Visual Acuity (VA) was 6/6 - 6/18 in 16.7\%, < 6/18 - 6/60 in 76.7\%, < 6/60 - 3/60 in 6.6\% and < 3/60 - PL +ve in no case (0.0\%). IOP was < 20 mmHg in 23.3\% and > 20 - 25 mmHg in 76.7\%. Optic Cup/Disc ratio was < 0.5 - 1 in 46.7\%, 0.5 - 1 in 33.3\% and 0.6 - 1 in 20.0\%. Gonioscopy showed occludable angles in 73.4\% and peripheral anterior synechiae in 26.6\%.

Evaluation of the second eye of primary angle closure in our study showed a visual acuity of < 6/18 - 6/60, IOP of 20 – 25 mmHg, optic cup/disc ratio of 0.5 – 1 and occludable angles of the anterior chamber in majority of the cases with no comparative studies in the literature.

**CONCLUSION**

Evaluation of the second eye in primary angle closure showed occludable angles of the anterior chamber with a need to identify risk group, especially above 40 yrs. and to create awareness in the society for early detection of the disease to prevent angle closure disease related blindness in our community with a greater life expectancy and an expanding age population.

**REFERENCES**