

OPHTHALMOLOGY

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I. Goal

The goal of teaching of students in ophthalmology is to provide such knowledge and skill to the students that will enable them to

1. Diagnose and manage common ophthalmic diseases, ocular manifestations of systemic diseases and emergencies.
2. Knowledge of using common drugs keeping in mind their adverse reaction.
3. Knowledge of common ophthalmic investigations and interpretation of results.

II. Objectives

A. Knowledge

1. Aetiology, Clinical features and treatment of conjunctival infections, allergies, pterygium, xerosis and trachoma.
2. Aetiology, Clinical features, complications and treatment of corneal ulcers, keratomalacia and other inflammations of sclera and cornea.
3. Basic principles of corneal blindness eye donation and corneal transplant (keratoplasty).
4. Aetiopathogenesis and complications of ectropion, entropion, ptosis, lagophthalmos, symblepharon and lid inflammations.
5. Aetiology, clinical features and treatment of lacrimal sac infections and causes of epiphora.
6. Classification, clinical features, diagnosis and treatment of various forms of congenital and senile cataract.
7. Classification, clinical features, diagnosis and treatment of various forms of glaucoma.
8. Classification, etiology, clinical features, complications and management of various diseases of uveal tract.

9. Classification, aetiology, clinical features and treatment of various refractive errors and presbyopia.
10. Types of blindness causes and their management .
11. Objectives of National Program for Control of Blindness, Trachoma control Program and vision 2020.
12. Aetiology, Clinical features and treatment of common retinal disorders including retinopathies vascular occlusions, degenerations, inflammation and detachment.
13. Types of ocular trauma, clinical features, complications and management including sympathetic ophthalmia.
14. Aetiology, Clinical features and management of optic nerve disorders including optic atrophy, differentiation of papilloedema and optic neuritis.
15. Aetiology, clinical features and management of orbital diseases common causes of proptosis.
16. Ocular manifestation of systemic diseases including diabetes, hypertension, tuberculosis, leprosy, anemia, AIDS and pregnancy induced hypertension.
17. Ocular side effects of systemic drugs.
18. Aetiology, Clinical features and principles of treatment of vitreous disease, e.g., haemorrhage, degeneration, endophthalmitis.
19. Recent advances in ophthalmology-lasers, intraocular lens implantation.

B SKILLS

1. Determine visual acuity
2. Test Colour vision
3. Anterior segment examination using torch light and slit lamp biomicroscope
4. Use of direct ophthalmoscope.

5. Determine field of vision by confrontation method
6. Removal of extra ocular foreign body
7. Perform epilation of eyelashes.
8. Incise and drain lid abscess
9. First aid for chemical injuries.

C. INTEGRATION

The Under graduate training in ophthalmology will provide an integrated approach towards other disciplines like Neuro-Sciences, Dermatology, Dental, ENT, Obstetrics & Gynaecology, Pediatrics, General Surgery and General Medicine.

II TEACHING HOURS - 100

1. Lectures – 64hours,
2. Theory TESTS-3x2=06 hrs
3. Integrated Lectures – 20 hours
4. Demonstration - 4 hours
5. seminars --6 hours

III TEACHING METHODOLOGY

- Didactic lectures,
- Seminars,
- Short lectures,
- Case presentations,
- **DEMONSTRATION**
- Theatre live surgical demonstration,
- Attending ward round,
- Minor theatre- foreign body removal, syringing nasolacrimal duct,
- Visual acuity testing.

IV THEORY SYLLABUS

1. Anatomy of orbit, eye ball & adnexa.
2. Anatomy of visual pathway, pupillary pathway
3. Physiology of eye.
4. Bio-chemistry of ocular tissues.
5. Lid swellings, blepharitis
6. Ptosis, Lagophthalmos, ectropion, entropion, symblepharon

7. Anatomy of lacrimal drainage system, dacryocystitis and management
8. DD of limbal nodule,
9. Scleral, Episcleral affections
10. Pterygium, pseudo pterygium and its management
11. Etiology, Clinical features and management of Allergic conjunctivitis, ophthalmia neonatorum, and other conjunctivitis.
12. Etiopathogenesis and clinical features, complications and management of Bacterial, fungal, viral and protozoal corneal ulcer,
13. Etiology and types of cataract, preoperative evaluation, different types of cataract surgery and post operative complications
14. Classification, etiopathogenesis, clinical features and management of various glaucomas.
15. Various types of refractive errors and management. Retinoscopy and pinhole, & Colour vision test
16. Differential Diagnosis of Red eye.
17. Clinical features, Management and complications of uveal tract diseases.
18. Causes and types of blindness. National Program for Control of Blindness(NPCB) District Blindness Control Society(DBCS) VISION 2020, Eye Bank, Hospital corneal Retrieval Program (HCRP) – objectives and functions
19. Aetiology, Clinical features and management of optic neuritis, optic atrophy and papilloedema
20. Diabetic retinopathy, Hypertensive retinopathy, retinal detachment, Retinitis pigmentosa, retinopathy of prematurity, retinal vascular occlusion
21. Signs of thyroid ophthalmopathy.
22. Ocular manifestations of systemic disease.
23. Ocular motor nerve palsies
24. Types of ocular injuries, clinical features and management of chemical, blunt injuries, sympathetic ophthalmia
25. Causes of proptosis, clinical features, complications and management of orbital cellulitis
26. White reflex in pupillary area.
27. Watch incision and curettage for chalazion, incision and drainage for lid and lacrimal abscess, removal of corneal foreign body, epilation, enucleation and evisceration
28. Lasers in ophthalmology
29. Ocular anaesthesia.
30. Types of strabismus, cover uncover test, Hirschberg's test
31. Types of amblyopia and management
32. Dry eyes & thyroid ophthalmopathy.

33. Ocular manifestations of rheumatological diseases.
34. Clinical presentation and discussion of ophthalmic cases
35. Medical ethics- Bioethics
 - Benefits & harm,
 - human dignity & human rights

V PRACTICAL SYLLABUS

LIDS;

- Ptosis, lagophthalmos, entropion, ectropion.
- Blepharitis, Chalazion, hordeolum internum, hordeolum externum,
- Pterygium, limbal nodule, bitot's spot, subconjunctival hemorrhage
- Chronic dacryocystitis

LENS:

- Cataract
- Lens induced glaucoma

GLAUCOMA

- Primary glaucoma
- Secondary glaucoma

UVEITIS

CORNEA

- Corneal opacities, corneal ulcers (purulent & non purulent)
- Anterior staphyloma

SURGICAL INSTRUMENTS, slides, (microbiology, pathology
Specimens, Drugs used in ophthalmology

INVESTIGATIVE tools (Fluorescein strips, ophthalmoscope etc)

- Visual Field charts, imaging, (CT, MRI, USG)
- Refraction set, pinhole, maddox rod,
- slit lamp examination
- Tonometry
- Colour vision

VI - REFERENCE LEARNING BOOKS

- Parson's Diseases of the eye
- Kanski's Text Book of ophthalmology
- Kanski's Atlas in ophthalmology

- Corneal opacity, Corneal ulcers, iritis, Pterygium, Bitots spots, Hordeolum Internum & externum, Subconjunctival hemorrhage, blepharitis, ectropion, entropion, trichiasis.

IX --VIVA

VIVA = **10 marks (4 x2.5)**

- Refraction 2.5 marks
- Community ophthalmology 2.5 marks
- Systemic ophthalmology (includes Basic) 2.5 marks
- Instruments & Pharmacology 2.5 marks

X INTERNAL ASSESMENT = 20 Marks

- *Theory (average of minimum 3 tests)* 10 marks
- *Practical*
 (*Practical 5 marks + Log Book 5 marks*) 10 marks
- *Log Book to be approved by HOD*

FORMATIVE ASSESSMENT-WHEN TO SUBMIT –

-Formative assessment is an ongoing assessment wherein students in groups are allotted to be with a specific tutor/ consultant in the hospital during OPDs, theatre – everyday for about an hour.

-At the end of the each (3) posting, the tutor/consultant does a formative assessment of the students who are posted with him/her.

Schedule for Formative assessment

PERIOD	POSTING DURATION	TESTS
4th Semester	4 Weeks	One theory test
6th Semester	4 Weeks	Two theory tests and two clinical test
9th Semester	2 Weeks	One theory and one clinical test

Subjects wise Tests: (To be held according to clinical postings)

Test 1- Anatomy, physiology, biochemistry, pharmacology & pathology

Test 2-Cataract, glaucoma, cornea

Test 3-Uvea, Retina, Refraction, Neuro ophthalmology, systemic & community ophthalmology

Test 4-Model examination (Complete Syllabus including recent advances).

INTERNAL ASSESSMENT TEST-UNIT WISE – submitted as below

X INTERNAL ASSESSMENT = 20 Marks

III. Theory (average of minimum 3 tests) 10 marks

IV. Practical 10 marks

V. For practicals – the following can be added- Practical assessment is done by end of posting practical exam and OSCEs similar to the university exams. .

MEDICAL ETHICS-RESPECT OF CADAVER needs to be covered during their induction into MBBS before anatomy dissection and classes.

MEDICAL ETHICS needs to be covered when students are introduced to clinics.

Separate medical ethics lecture or classers not required separately in ophthalmology.

INTEGRATED TEACHING – needs to be addressed at a higher pan departmental meeting involving the overall UG curriculum in- charge and all the departments. Not possible by one department alone to decide on integrated teaching.

RECORD / LOG BOOK – submitted- log book approved by the HOD has to be submitted at the time of university practical examination. The formatted log book has already been made and available with the academic officer.

CRRI Orientation programme based on the clinical subjects- once again has to be done by the overall UG curriculum in – charge during overall orientation sessions.

Separate session needed for ophthalmology.

- Foreign body removal
- Syringing of nasolacrimal duct
- Observing IOP recording, perimetry recording,
- Other investigative procedures

THEORY SYLLABUS

MUST KNOW:

1. Anatomy of eye and various structures(parts)
2. Anatomy of visual pathway, pupillary pathway

3. Anatomy of lid - lid swellings, blepharitis, ptosis, lagophthalmos, ectropion, entropion, symblepharon
4. Anatomy of lacrimal drainage system - dacryocystitis and management
5. VITAMIN A -Clinical features and WHO classification and management of Vit A deficiency
6. DD of LIMBAL NODULE
- vernal, phlycten, episcleritis, scleritis, pterygium, pseudopterygium and its management
7. CONJUNCTIVITIS -Etiology, clinical features and management of Allergic conjunctivitis, ophthalmia neonatorum, and other conjunctivitis.
8. CORNEAL ULCER -Etiopathogenesis and clinical features of Bacterial, fungal, viral and protozoal corneal ulcer and its complications and management
9. CATARACT -Etiology and types of cataract, preoperative evaluation, different types of cataract surgery and post operative complications
10. GLAUCOMA -Classification, etiopathogenesis, clinical features and management of various glaucomas
11. REFRACTIVE ERRORS -Various types of refractive errors and management. Retinoscopy and pinhole test
12. RED EYE -Differential Diagnosis of Red eye. Clinical features, management.
13. UVEITIS -Iridocyclitis, clinical features and management
14. Causes and types of BLINDNESS. National Programme for Control of Blindness(NPCB), District Blindness Control Society(DBCS), VISION 2020, EYE BANK, Hospital Corneal Retrieval Programme(HCRP) - Objectives and Functions
15. Differentiation of optic neuritis, optic atrophy and papilloedema
16. Layers of retina. Diabetic retinopathy, hypertensive retinopathy, retinal detachment, retinitis pigmentosa, retinopathy of prematurity, central retinal vein occlusion(CRVO) and branch retinal retinal vein occlusion(BRVO)
17. Tests for visual acuity, colour vision, recording IOP, direct ophthalmoscopy
18. FIELD TESTING Confrontation method and Bjerrum screen
19. Medical ethics.

DESIRABLE TO KNOW:

1. Types of ocular injuries. Clinical features and management of chemical injuries, blunt injuries, sympathetic ophthalmia.
2. Causes of Proptosis. Clinical features, complications and management of Orbital cellulitis
3. Ocular manifestations of Tuberculosis, Leprosy, AIDS, Eclampsia, Anemia
4. Antibiotics, antifungal, antiviral, steroids, mydriatics and cycloplegics. Antiglaucoma drugs- dose, mode of action and side effects
5. Incision and curettage for chalazion. Incision and Drainage for lid and lacrimal abscess. Removal of corneal Foreign body, epilation
6. LASERS in ophthalmology

NICE TO KNOW:

1. Origin, insertion, nerve supply and actions of Extra ocular muscles
2. Types of strabismus, cover uncover test, Hirschberg's test
3. Types of amblyopia and management

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Practical syllabus

Must know;

1. Basic examination of the eyes
2. Visual acuity recording- presence of refractive error or other ocular pathology
3. Detection of conjunctivitis, presence of extra ocular foreign body, cataract, iritis
4. First aid for ocular trauma-in particular chemical injuries
5. Management of conjunctivitis
6. Referring patients requiring ophthalmic opinion to the eye specialists.
7. Counseling for the patients with diabetes mellitus, hypertension, thyroid disorders, pregnancy induced hypertension for a thorough ophthalmic check by the competent ophthalmologists

Desirable to know;

1. To check for presence of glaucoma
2. Neurological disorders requiring ophthalmic opinion- papilloedema-raised intra cranial pressure
3. Presence of diplopia – ocular motor nerve palsies= to R/O DM, HT, SOL
4. To give a thorough irrigation of eyes with clean water in the presence of chemical injuries
5. To detect corneal pathology & refer the patients to an ophthalmologist.

Nice to know;

1. The presence of intra ocular infections
2. The presence of retinopathies
3. To detect papilloedema
4. To remove conjunctival foreign body (not corneal foreign body)
5. Refer patients with any suspected ophthalmic diseases to the competent ophthalmologist.

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