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Introduction: what is ophthalmology?

The medicine and surgery of the eye, its surrounding structures and connections to the brain, in order to maintain clear, pain-free and useful vision with an aesthetic attractive appearance

Figure 1.1 Normal female eye
Normal female appearance with arched high eyebrow

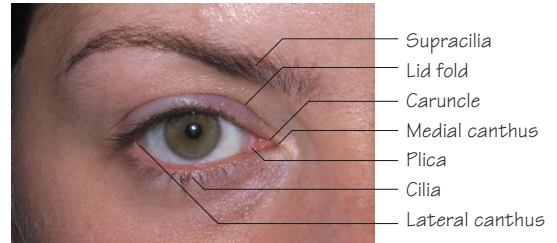
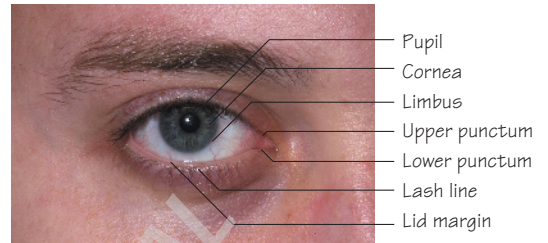


Figure 1.2 Normal male eye
Normal male eye with straighter lower eyebrow

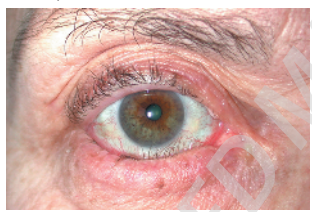


Ophthalmology sub-specialties

Figure 1.3 Paediatric ptosis:
managed in strabismus and paediatrics



Figure 1.4 Lower lid entropion
Oculoplastic, lacrimal and orbital surgery



Vision is central to the way we live; our social world, education, mobility and ability to communicate all depend on clear vision. The eyes and the face are important for interpersonal communication – 'the eyes are the window of the soul'. Economically, many occupations are dependent on precise visual requirements

Figure 1.5 Corneal laceration
External disease: Cornea, cataract and refractive surgery

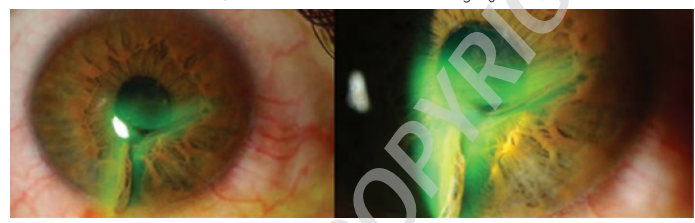


Figure 1.6 Goldmann tonometry
Glaucoma

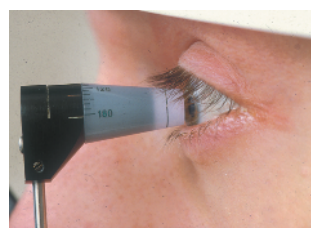


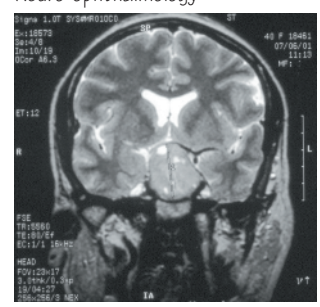
Figure 1.7 Retinal detachment
Vitreo-retinal surgery



Figure 1.8 Ocluded retinal arteriole
Medical retina



Figure 1.9 Pituitary tumour
Neuro-ophthalmology



What is ophthalmology?

Ophthalmology is a large subject for a very small organ: it is the medical and surgical care of the eye (Figures 1.1 and 1.2), the adjacent adnexal and periocular area and the visual system. It encompasses the upper and mid-face, eyebrows and eyelids, lacrimal system and orbit, as well as the globe and eye muscles, optic nerve and nervous connections all the way back to the visual cortex. Many medical conditions have ocular features as their first presentation, for example in diabetes, cardiovascular disease, rheumatology, neurology, endocrinology and oncology. There are strong links and overlap with maxillofacial, plastic, otolaryngological, dermatology and neurosurgery. There are links with neuroradiology and pathology. Ophthalmology combines medical and surgical skills and uses minimally invasive microsurgery and lasers as well as delicate plastic surgical techniques.

Type of patients

Predominantly the very young and the elderly. Also, middle-aged patients with thyroid eye disease, diabetes or inherited disorders. Ophthalmic trauma affects particularly the young adult. Very few eye patients become ill and die. Most remain ambulatory and are seen as outpatients or have day-case surgery.

Team

General practitioners, eye casualty officers, hospital ophthalmologists, medical physicists, optometrists, orthoptists and ophthalmic nurse practitioners all collaborate in the investigation and management of ophthalmic patients.

Sub-specialties

The eye can be subdivided into several sub-specialty areas. Some ophthalmologists practice general ophthalmology alone, although most have a significant sub-specialty interest. Sub-specialties include:

- Paediatric and strabismus (Figure 1.3)
- Oculoplastic, lacrimal and orbital (including oncology) (Figure 1.4)
- External eye disease, including contact lenses
- Cornea and refractive surgery, and cataracts (Figure 1.5)
- Glaucoma (Figure 1.6)
- Vitreo-retinal surgery (Figure 1.7)
- Medical retina (Figure 1.8)
- Neuro-ophthalmology (Figure 1.9)
- Tropical ophthalmology.

Ophthalmology at medical school

Exposure to ophthalmology at the undergraduate level is rather limited, and the onus is on the student to make the most of every opportunity. One should read this book prior to the attachment and use it to further reference conditions seen in clinic. Taking structured histories and becoming accustomed with using the slit lamp and direct ophthalmoscopy are the aims of the attachment. Students with keen interest can choose to do a specialist study module in ophthalmology: students with a keen interest can choose to do a specialty module in ophthalmology where they can observe, theatre, administering botulinum toxin and laser therapy and attend multi-disciplinary team meetings with the other specialties.

How to get into ophthalmology

Firstly, one must be certain that one possesses the skills to become a good ophthalmologist. Use the cataract simulator (available at the Royal College of Ophthalmologists and Moorfields Eye Hospitals) to

experience the intricacies of intraocular surgery and ensure you have the hand-eye coordination to excel at this difficult skill. Ophthalmology is an exquisitely competitive specialty, and one must ensure optimal preparation prior to selection processes. In order to get short-listed for interviews, showing commitment is key. Undertake the microsurgical skills course at the Royal College to ensure you are able to start surgery at specialist trainee one (ST1) level. Organize a 2-week 'taster' programme during your foundation training, which will also afford you insight as to the daily routine of ophthalmology training. Participate in an audit project in your local trust: if you can complete the cycle and implement change to the service, this will provide the basis to present your work at meetings. Attend the local and regional teaching programme at your deanery; if you are able to present any ophthalmic cases you have seen, all the better. Although it is not compulsory, you may wish to prepare for and sit the part one Fellowship of the Royal College of Ophthalmologists (FRCOphth) examination (no clinical experience is required to take this predominantly basic science and physics examination).

Once short-listed, the interviews are a difficult step, testing a range of skills and the ability to remain composed in an unfamiliar situation. Critical appraisal, situation judgment, role-play and manual dexterity are all tested in a 90-minute marathon!

Ophthalmology is currently a run-through specialty from the ST1 level. Targets are set throughout regular intervals and include:

- Completing the part one FRCOphth examination and 50 cataract extractions by the end of ST2.
- Passing the refraction certificate by ST4.
- Completing the exit exam and 300 cataract extractions by the advanced subspecialist training year.

Colleges

- Royal College of Ophthalmologists: www.rcophth.ac.uk
- Royal College of Surgeons of Edinburgh: www.rcsed.ac.uk
- Irish College of Ophthalmologists: www.seeico.com

Education website

- Success in MRCOphth: <http://www.mrcophth.com>

Eye associations

- American Academy Ophthalmology: www.aao.org
- American Associated Ophthalmic Plastic and Reconstructive Surgery: www.asoprs.org
- American Association Paediatric Ophthalmology and Strabismus: www.aapos.org
- Association for Research Vision and Ophthalmology: www.arvo.org
- British Oculoplastic Surgery Society: www.bopss.org

FURTHER READING

- 1 *The Wills Eye Manual. Office and Emergency Room Diagnosis and Treatment of Eye Disease.* Douglas J. Rhee and Mark F. Pyfer.
- 2 *Clinical Anatomy of the Eye.* Richard S. Snell and Micheal A. Lemp.
- 3 *Ophthalmology. An Illustrated Text.* M. Batterbury and B. Bowling.
- 4 *Training in Ophthalmology: The Essential Clinical Curriculum.* V Sundaram, A Barsam, A Alwity and PT Khaw.

KEY POINTS

- Ophthalmology is multidisciplinary.
- Interfaces with medicine.
- Involves microsurgery.