THE BASIC STRUCTURE OF THE EYE AND POTENTIAL DISEASE



The eye is comprised of several structures, each with its own specific, individual purpose.

**THE CORNEA**

The cornea is transparent and comprises of five layers; the epithelium, bowmans, stroma, descements and the endothelium. As the cornea is located at the front of the eye it may be affected by trauma such as burns, abrasions, ulcers, infections and foreign bodies. The cornea and lens refract light to the back of the eye; the lens is clear but may become clouded causing a cataract, during cataract surgery the lens is removed and replaced with an artificial one.

**AQUEOUS HUMOUR**



The aqueous humour nourishes the lens and cornea and helps to maintain intraocular pressure; it drains from the anterior chamber through the pupil and exits via the angle. When drainage is impaired, intraocular pressure may increase and glaucoma can occur.



**THE VITREOUS**

The vitreous is a jelly like substance that fills the area between the lens and the retina; it helps to maintain the shape of the eye and refracts light to the retina at the back of the eye. Examples of impairments in this area are vitreous haemorrhage, vitreous detachment and floaters.

**THE ORBIT**



The eye sits in the protective structure of the orbit; this comprises of seven bones: maxilla, frontal, lacrimal, ethmoid, sphenoid, zygomatic and palatine. Soft tissue, muscles, blood vessels, nerves and fat surround the structure and also help to protect the eye. Cellulitis, enopthalmus, exopthalmous, orbital fractures, tumors and thyroid eye disease may affect this area.



**MUSCLES**

Seven muscles control the movement of the eyes enabling us to look up, down, left and right. When working correctly the eyes move together, in the same direction and at the same time. If the muscles are weak or not working properly diplopia (double vision) and strabismus (squint) can occur. People are often seen by Orthoptists who can assess the severity of the problem and may also help with exercises to strengthen the muscles; spectacles can be adapted by the use of a prism.

**THE UVEAL TRACT**

The main components of the uveal tract are the iris, ciliary body and choroid. Problems include iris prolapse and melanoma, hyphema, uveitis, choroiditis and panuveitis.

**THE OPTIC NERVE**

The optic nerve and optic disc are located at the back of the eye, the optic nerve connects the eye to the brain; neuropathy, optic nerve atrophy and neuritis may occur in this part of the eye. Patients may require neurological care and a joint ophthalmic and neurology clinic takes place once a month.

**THE CONJUNCTIVA**

The conjunctiva is a transparent membrane which covers the globe and lines the eyelids; conjunctivitis, subconjunctival haemorrhage, pinguecula, melanoma, concretions and conjunctival cysts may be found in this area.

**THE PUPIL**

The pupils should be equal in size and react equally to light; abnormalities may indicate Horners Syndrome, pupil block and relative afferent pupil defect.

**THE SCLERA**

The sclera is the white of the eye, it is made of collagen fibres and extends from the cornea to the optic nerve. When it becomes inflamed it is known as scleritis. The episclera covers the surface of the sclera.

**THE RETINA**



The retina is located at the back of the eye. It is covered in blood vessels which may become blocked or leak. When this happens vision may become severely affected. Other conditions related to the retina include; macular oedema, macular hole, retinal haemorrhage and retinal detachment. To enable a full examination of the back of the eye, the patients needs to have their pupil dilated using drops. An OCT or FFA are useful tests for identifying and monitoring problems within the retina and macular.

Age related macular degeneration usually affects people over 50 years of age and results in loss of central vision. Patients may experience a shadow or missing area of vision, straight lines may appear distorted and colour less vivid.

There are two forms of AMD;

**Dry AMD** is the most common form and occurs when cells in the macular break down.

**Wet AMD** causes vision loss due to the growth of abnormal blood vessels. These blood vessels grow in the wrong place and are fragile and often leak, causing damage to the macular. Anti-VEGF treatment can be injected into the vitreous of the eye to help stop the blood vessels from forming.

**THE OUTER EYE**

The eyelids and lashes protect the eye from injury and excessive light. Blinking helps to keep the eye moist. Lumps and bumps sometimes found around the outer eye may include, basal/squamous cell carcinoma, chalazion, xanthelasma, cystic lesions, basal/ squamous cell papilloma and blepharitis (affects the eyelids and lashes).

Patients attending ocular plastics clinic may present with drooping lids (ptosis), the lid margin may turn inwards (entropian) or outwards (ectropian).