

The globe

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The cornea is the 12-mm-diameter window of the eye, 550 μm thick centrally on average; its clarity is due to the regular arrangement of collagen bundles and relative dehydration. It merges into the sclera at the corneoscleral junction (the limbus), the insertion of the bulbar conjunctiva. The sclera, which is 1 mm thick, constitutes four-fifths of the wall of the eye and gives attachment to the extraocular muscles (Figure 49.1). It is perforated by the long and short posterior ciliary arteries and the vortex veins and is contiguous with the optic nerve sheath. -

The value of special investigations • When specialist referral is appropriate • Recent advances in ocular surgery • Choroid Sclera Superior Lens Retina re ctus Conjunctiva Canal of Schlem m Central re tinal Cornea artery Optic nerve Iris Macula Vascular choroid Ciliary body Inferior Vitreous re ctus Uvea humour Figure 49.1 Anatomy of the eye.

Photoreceptor cells in the outer retina sense light and send impulses to retinal ganglion cells in the inner retina via bipolar cells. The retinal pigment epithelium underlies the photo- receptors and is responsible for reprocessing of photopigments. The optic nerve conveys the axons of retinal ganglion cells from the eye to the brain. The most high-resolution part of the retina - the macula - lies at the posterior pole within the vascular arcade. The biconvex lens and capsule are suspended by the lens zonules, over 300 tiny fibres attached to the ciliary muscle. Aqueous humour arises from the ciliary processes, hydrates the vitreous gel, passes through the pupil into the anterior chamber between the iris and the cornea and then drains out through the trabecular meshwork into Schlemm's canal in the drainage angle and from there to the episcleral venous circulation. The balance between production and drainage of aqueous humour determines the intraocular pressure, which in most normal eyes is regulated at a level of 10-21 mmHg. The inner retina is supplied by the central retinal artery and drained by the central retinal vein. The globe

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