Intra Ocular Fibrin Response Complicating Vitreo - retinal Surgery

Essay

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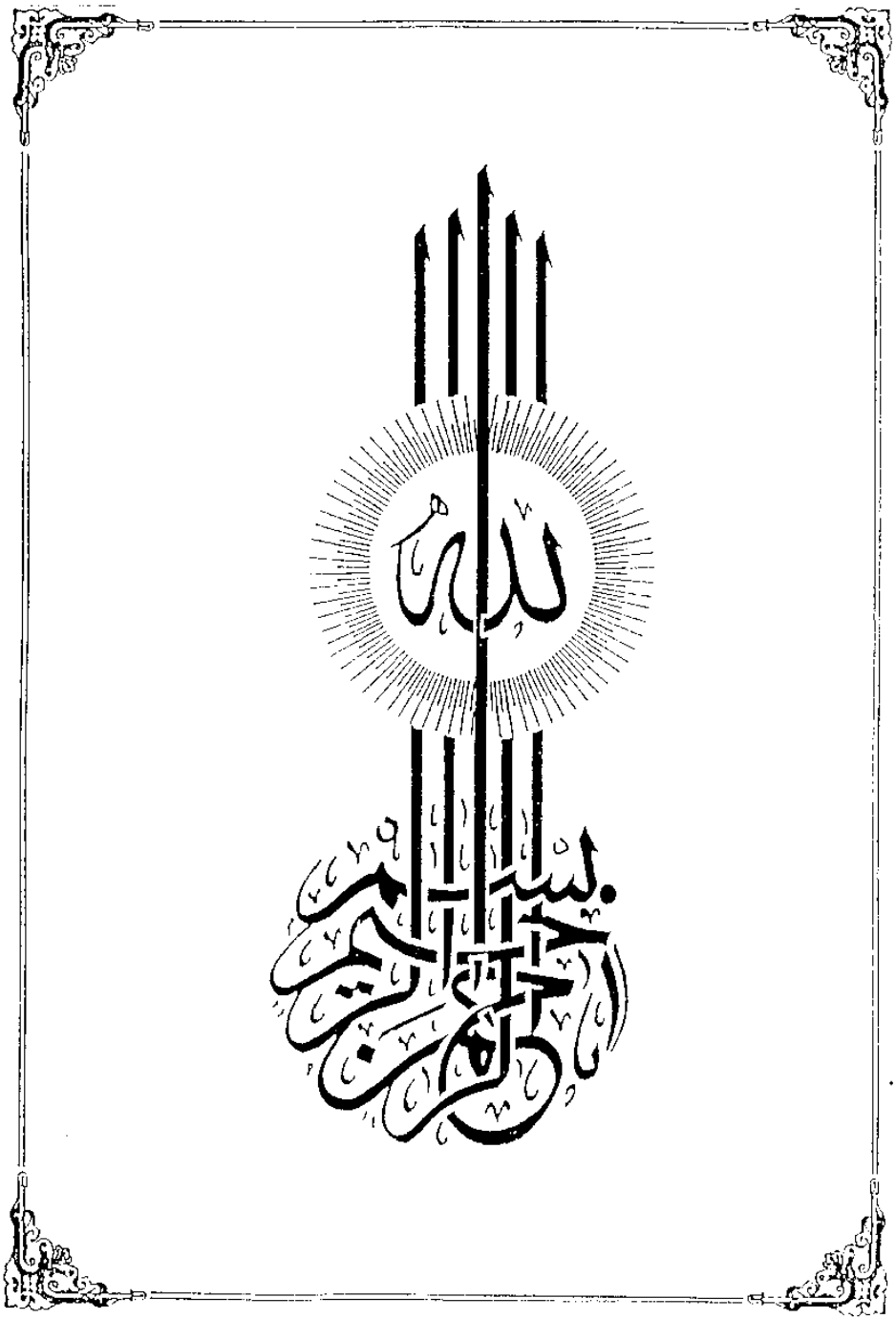

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LIST OF FIGURES

ANATOMY

ANATOMY OF THE RETINA

The retina is the photosensitive membrane that extends from the optic disc to the ora serrata . Beyond this zone it extends as a single layer of non - pigmented epithelium which covers the pars plana ciliaris .

The attached retina is transparent except for its blood vessels . When detached , the retina appears as a translucent grey veil with darker than normal blood vessels . A transparent detached retina is the result of atrophy or stretching . The retina and its blood vessels are much thicker around the posterior pole than peripherally except in the fovea. When the macula is attached it is darker red than its surroundings because the inner macular layers contain yellow pigment . Detached or edematous macula is yellow .

The vitreous base is the area of firmest attachment between the vitreous gel and the peripheral retina and posterior part of the pars plana . It is 2.6 m.m. wide and straddles the ora serrata The anterior margin of the vitreous base is 1 m.m. to 2 m.m. anterior to the ora serrata and the posterior margin is 1 m.m. to 4 m.m. posterior to the ora serrata .

The posterior border of the retinochoroidal ttachment coincides everywhere with the posterior limit the vitreoretinal symphysis . The anterior border ıcides almost completely with that of the symphysis he temporal side , on the nasal side it reaches the or limit of the symphysis at the anterior tips of the rata teeth only .(Schepens, C.L. 1983)

tion on the retina may detach it from its

choroidal attachments , thus extending a retinal detachment under the non - pigmented epithelium as far as the posterior border of the ciliary processes . Extension of the retinal detachment under the ciliary epithelium occurs more readily nasally than temporally because the retinochoroidal attachment is narrower on the nasal side .

Other attachments of the retina to the vitreous can occur along retinal vessels , at the macula , at the edge of lattice degeneration of the retina , and at intermittent points marked by glial tufts of the retina .

The posterior pole is located in the visual axis and measures about 6 m.m. in diameter . The clinical macula , or the anatomic fovea , is the central area within this zone where the major retinal vessels terminate and measures about 1.5 m.m in diameter . The macula has a darker appearance than the surrounding fundus because the cells of the retinal pigment epithelium are higher and more pigmented here than elsewhere It has a yellowish colour due to xanthophyll pigment located in the inner retinal layers . The clinical macula is centered 3.4 m.m. temporal to the margin of the optic nerve head .

In the center of the macula is the clinical fove (anatomic foveola) . It is an area 0.35 m.m. in diame with a thickness of only 0.13 m.m. The equatorial re of the retina lies approximatly 15 mm. posterior t corneoscleral junction in an emmetrope . The terminate anteriorly in an irregular,wavy edge. serrata . The distance from the equator to the or is estimated clinically at 3 disc diameters .

Layers of the Retina :

Based on light microscopic findings , the whole retina was said to be composed of ten layers , these are from outside inwards as follows :

1- The pigment epithelium .

2- The rods and cones (photoreceptors).

3- The external limiting membrane .

4- The outer nuclear layer .

5- The outer plexiform layer .

6- The inner nuclear layer .

7- The inner plexiform layer .

8- The ganglion layer .

9- The nerve fibre layer .

10- The internal limiting membrane .

Blood Supply of the Retina :

The outer plexiform layer of the sensory retina divides the retina into two halves; the inner vitreal half receives its blood supply from the central retinal artery , the outer half contains no blood vessels and is supplied by the choroid capillaries derived from the ciliary vasculature . It follows , therefore , that in simple retinal detachment outer retinal degeneration occurs , caused by the separation of the neural retina from the underlying choroidal vascular supply .

Specialized Areas of the Neural Retina :

The Macula and Fovea :

The macula has a diameter of 1.5 mm., with much of it devoted to the curved walls of the clivus , which lead down to the 0.35 mm. wide floor of the foveal pit . At its

center the fovea is only 0.13 mm. thick . The only cells at the center of the fovea are the photoreceptors . Almost all of these are cones , which are present in a density of approximately 147.300 per square mm. with a total of 35000 cones in the central fovea . The high density of the cone photoreceptors and their parallel orientation perpendicular to the surface of the retina permits the greatest visual sensitivity at the Fovea . On the slopes of the Fovea , leading up from the clivus , the retina thickens as it accumulates the additional layers progressively from external towards internal layers . This thickening is greatest in a ring centred around the fovea at a distance of 1.25 mm. from the center of the clivus . The thickening results from the densest accumulation of nerve cells in the entire retina . Around the fovea , the outer plexiform layer forms the thickened Henle's layer by the accumulation of the multitudinous axons that extend from the photoreceptors in the clivus and its slope . Peripheral to the parafoveal ring , the retina assumes the configuration it retains to the far periphery . In this area the outer plexiform layer and the inner nuclear layer are not as thick as in the parafoveal zone because the outer plexiform layer no longer has to carry the axons of the foveal cones . The inner plexiform layer is reduced to six ; or seven rows of nuclei in the perimacular region as the bipolar cell density decreases from its high level near the fovea . The inner ploxiform layer and the ganglion cell layer now show their regular configuration with gradual attenuation in their thickness out toward the retinal periphery . (Sigelman , J., 1984) .