

Vascular Anomalies of the Macula

An Essay
Submitted for partial fulfillment of
M. Sc. Degree in
Ophthalmology

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بسم الله الرحمن الرحيم

"وقل رب زدني علماً"

صدق الله العظيم

سورة طه ١١٤

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INTRODUCTION

INTRODUCTION

Retinal vascular anomalies with macular manifestations consist of either focal or diffuse dilation of various segments of the vascular tree, or hamartomatous proliferations of existing vascular structures. These include Coats' disease, capillary hemangiomas, cavernous hemangiomas, arteriovenous communications, retinal arterial macroaneurysms, and parafoveal telangiectasis (Reddy and Capone, 1993).

Many of these retinal vascular anomalies have important systemic associations. Accurate diagnosis is, therefore, critical. In most instances, careful ophthalmoscopic examination is sufficient. In some cases, however, ancillary tests such as intravenous fluorescein angiography, ultrasonography, and computed tomography are necessary either to confirm the diagnosis or to rule out associated systemic lesions (Duker and Brown, 1992).

Various other diseases, as diabetic maculopathy, branch retinal vein occlusion, or radiation retinopathy can result in segmental picture of capillary changes including telangiectasis, microaneurysmal, and saccular dilation. Based on careful history, clinical presentation, and pathogenesis, these conditions can be easily diagnosed (Reddy and Capone, 1993).

ANATOMICAL AND PHYSIOLOGICAL BACKGROUND

ANATOMY OF THE MACULA

Topographic Anatomy

Anatomically, the *macula* includes the entire area of the retina where the ganglion cell layer is more than a single cell layer in thickness. This region is about 5 to 6 mm in diameter and lies between the superior and inferior temporal arcades (Fig. 1) (Sigelman and Ozanics, 1992).

What is clinically referred to as the macula is actually the *anatomical fovea*, a central depression about 1.5 mm in diameter, approximately the size of the optic disc. Clinically, the boundary of this central depression often produces a slightly oval light reflex, greater in the horizontal dimension (Fig. 2) (Kincaid, 1993).

The *anatomic foveola*, often referred to clinically as the fovea, is that pit consisting of pure cones and forms the central floor of the fovea. It is about 0.35 mm in diameter and located 3.4 mm from the temporal edge of disc margin and 0.8 mm inferior to disc center. Its center is called the umbo. In younger persons a tiny bright dot of light overlying the center of this pit can be seen (Hogan et al., 1971).



Fig. (1): Topographic anatomy of the macula.
A = foveola, B = fovea, C = parafovea,
and D = perifovea
(Scuderi et al. 1987)

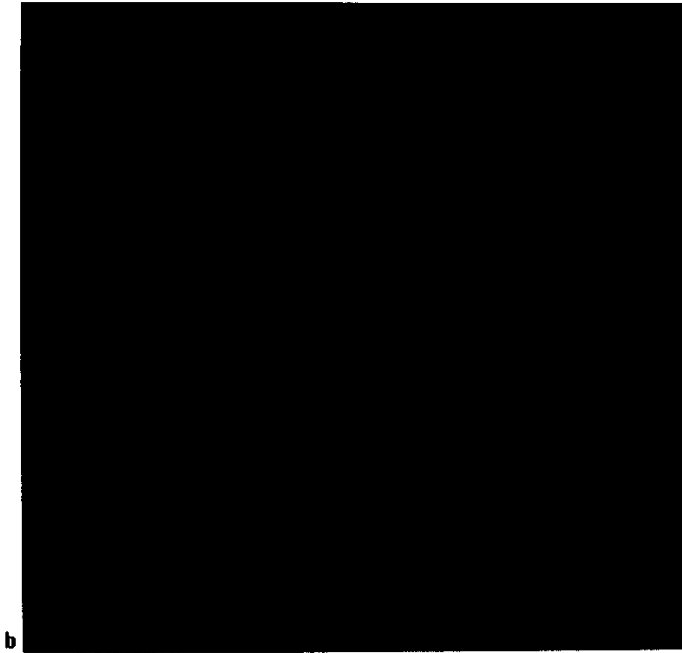


Fig. (2): Normal foveal reflex
(Scuderi et al., 1987)