Pathologies of the Eye Observable via Fundus Imaging

Diabetic retinopathy is the leading cause of blindness among working-age adults[1]. It's projected that 414 million people globally are currently living with diabetes and by 2040 the number will grow to 642 million[2]—80% will eventually develop some level of diabetic retinopathy[3].

And even though early detection and treatment of diabetic retinopathy can prevent up to 95 percent of vision loss cases[4], typically only half of patients with diabetes see an eye specialist for an annual retinal exam[5].

One of the best opportunities to help eradicate this leading cause of preventable blindness is to arm primary healthcare providers with simple and affordable teleretinal screening systems that enable retinal assessment by a retinal specialist during a diabetic patient's routine office visit.

LIKE ADDING A RETINAL SPECIALIST TO YOUR TEAM

"Retinal specialists at RetinaVue P.C. sometimes find indications for other systemic diseases in RetinaVue™ fundus images—including retinitis pigmentosa (RP), papilledema, hypertension, macular degeneration (Stargardt, AMD, etc.), and cancer—in addition to identifying, classifying and documenting all levels of diabetic retinopathy from very mild to vision threatening."

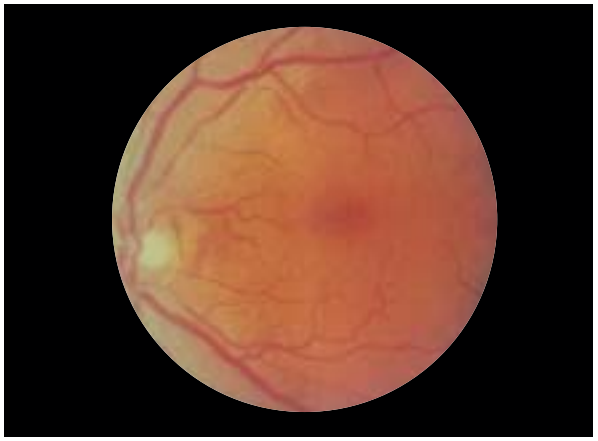
EDWARD CHAUM, M.D., PH.D.
Chief Medical Officer, RetinaVue P.C.

Fundus images from the Welch Allyn RetinaVue™ Network are interpreted by RetinaVue P.C.'s nationwide network of board-certified retinal specialists.

[1] CDC Vision Health Initiative (VHI), Common Eye Disorders. http://www.cdc.gov/visionhealth/basics/ced/index.html
[2] IDF Diabetes Atlas, Seventh Edition 2015, page 50. www.idf.org
[3] Preferred Practice Pattern® Guidelines, page 6. American Academy of Ophthalmology; 2014. www.aao.org/ppp.
[4] National Eye Institute, Facts about Diabetic Eye Disease. https://nei.nih.gov/health/diabetic/retinopathy
[5] Monitoring Visual Status: Why Patients Do or Do Not Comply with Practice Guidelines; Frank A. Sloan, Derek S. Brown, Emily Streyer Carlisle, Gabriel A. Picone, and Paul P. Lee; HSR: Health Services Research 39:5 (Oct. 2004)

Welch Allyn®

Common Pathologies of the Eye

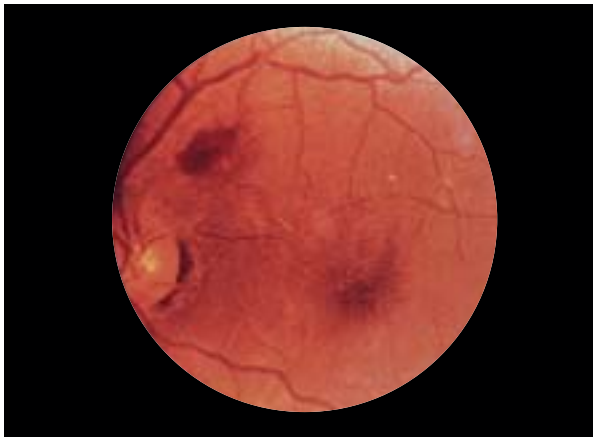


NORMAL FUNDUS

Disc: Outline clear; central physiological cup is pale

Retina: Normal red/orange color, macula is dark; avascular area temporally

Vessels: Arterial/venous ratio 2 to 3; the arteries appear a bright red, the veins a slightly purplish color

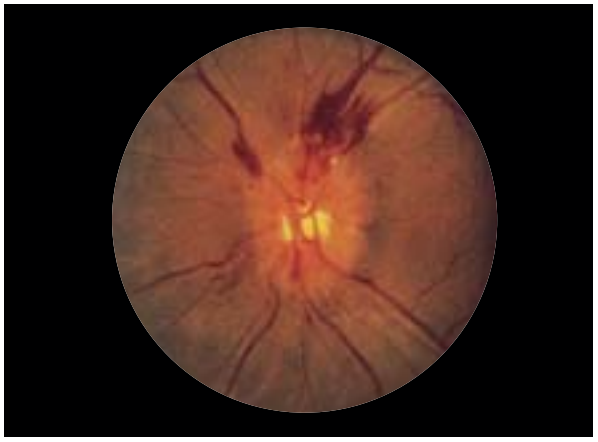


HYPERTENSIVE RETINOPATHY

Disc: Outline clear

Retina: Exudates and flame hemorrhages

Vessels: Attenuated arterial reflex

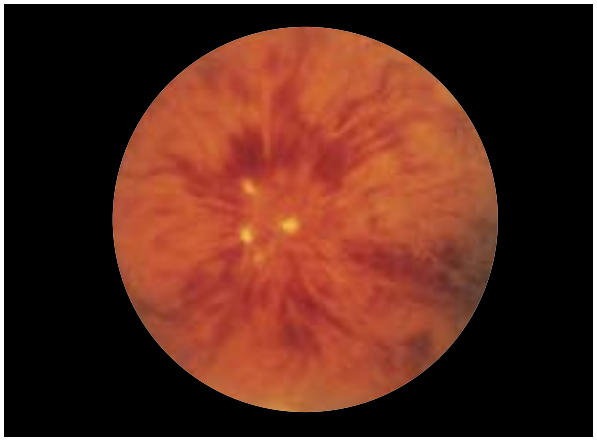


HYPERTENSIVE RETINOPATHY (ADVANCED MALIGNANT)

Disc: Elevated, edematous disc; blurred disc margins

Retina: Prominent flame hemorrhages surrounding vessels near disc border

Vessels: Attenuated retinal arterioles

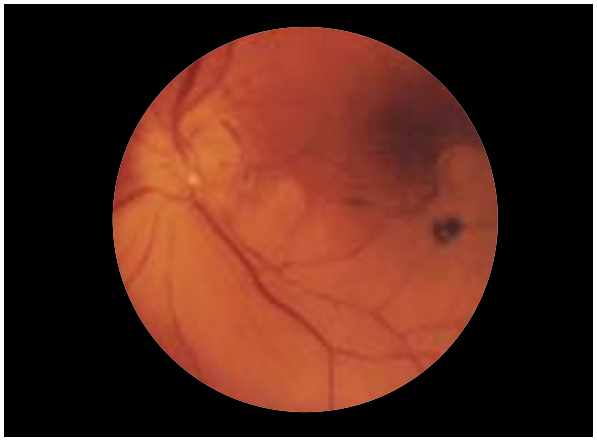


CENTRAL RETINAL VEIN OCCLUSION

Disc: Virtually obscured by edema and hemorrhages

Retina: Extensive blot retinal hemorrhages in all quadrants to periphery

Vessels: Dilated tortuous veins; vessels partially obscured by hemorrhages

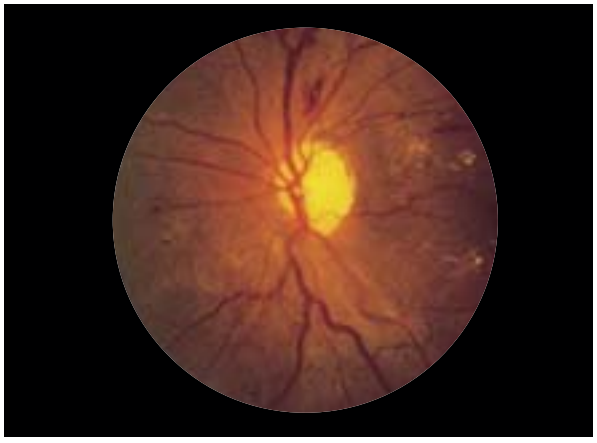


INFERIOR BRANCH RETINAL ARTERY OCCLUSION DUE TO EMBOLUS

Disc: Prominent embolus at retinal artery bifurcation

Retina: Inferior retina shows pale, milky edema; superior retina is normal

Vessels: Inferior arteriole tree greatly attenuated and irregular; superior vessel is normal



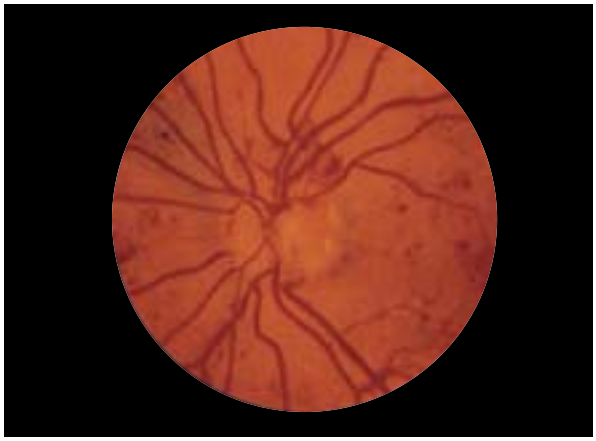
NONPROLIFERATIVE DIABETIC RETINOPATHY

Disc: Normal

Retina: Numerous scattered exudates and hemorrhages

Vessels: Mild dilation of retinal veins

Common Pathologies of the Eye

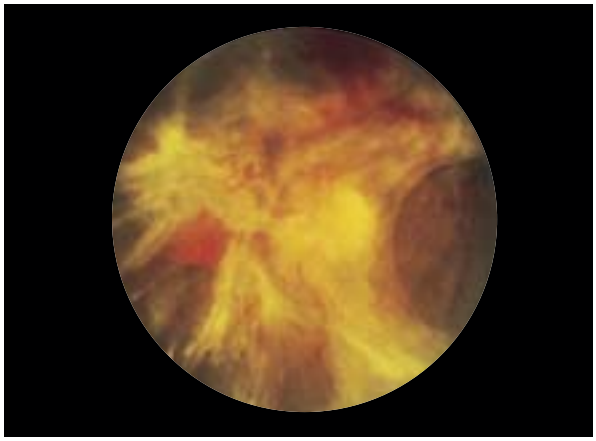


PROLIFERATIVE DIABETIC RETINOPATHY

Disc: Net of new vessels growing on disc surface

Retina: Numerous hemorrhages, new vessels at superior disc margin

Vessels: Dilated retinal veins



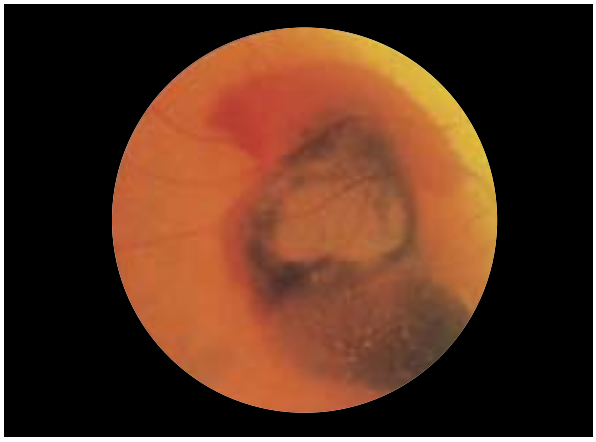
END STAGE DIABETIC RETINOPATHY

Disc: Partially obscured by fibrovascular proliferation

Retina: Obscured by proliferating tissue; small area of retina with hemorrhage seen through "window" of fibrovascular membrane

Vessels: Abnormal new vessels in fibrous tissue

Vitreous: Prominent fibrovascular tissue

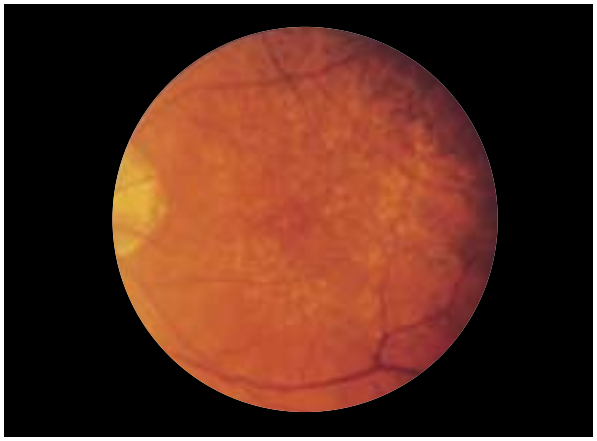


ADVANCED HEMORRHAGIC MACULAR DEGENERATION

Disc: Normal

Retina: Large macular scar with drusen; prominent macular hemorrhage

Vessels: Normal

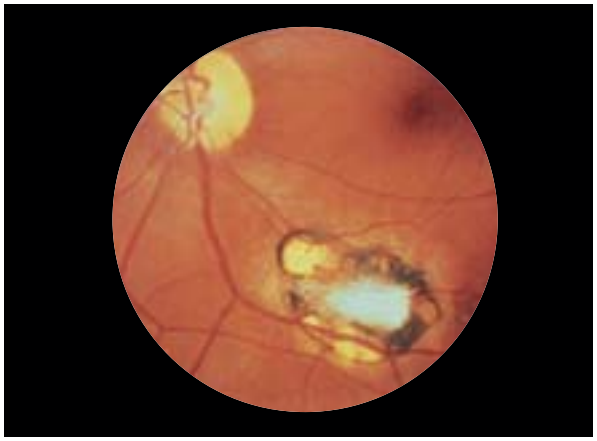


MACULAR DRUSEN (COLLOID BODIES)

Disc: Normal

Retina: Extensive white drusen of the retina

Vessels: Normal

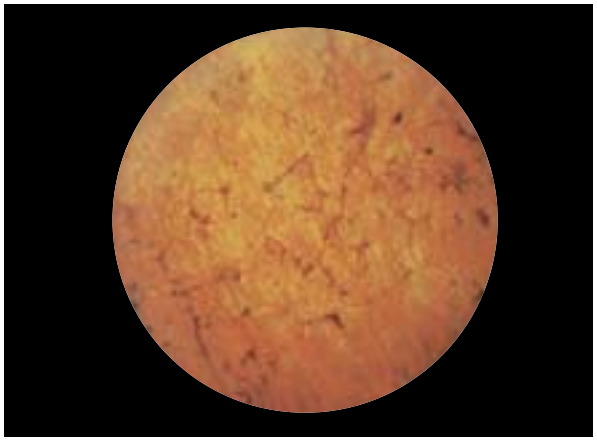


INACTIVE CHORIORETINITIS (TOXOPLASMAS)

Disc: Normal

Retina: Well-circumscribed lesion with areas of hyperpigmentation and atrophy of retina, white sclera showing through

Vessels: Normal



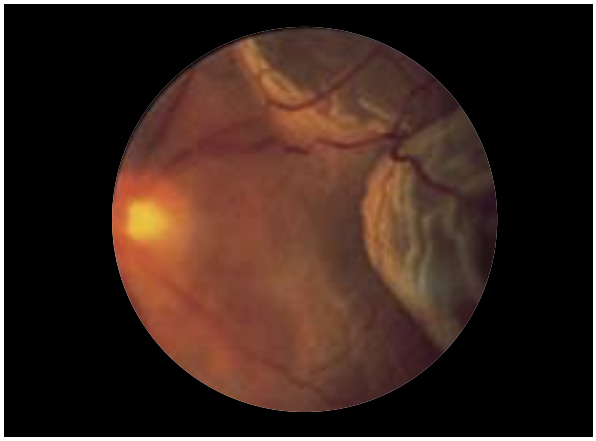
ADVANCED RETINITIS PIGMENTOSA

Disc: Normal

Retina: Scattered retinal pigmentation in classic bone spicule pattern

Vessels: Greatly attenuated

Common Pathologies of the Eye

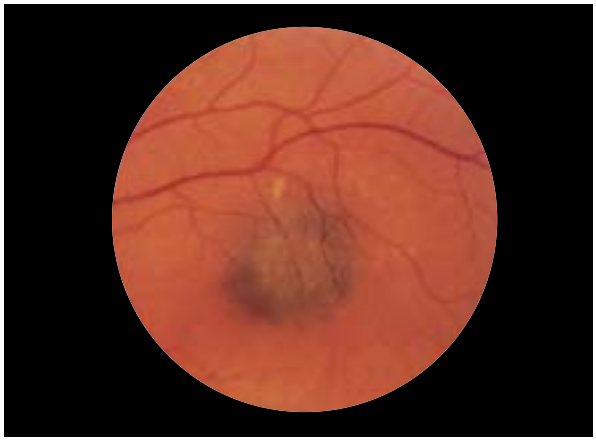


RETINAL DETACHMENT

Disc: Normal

Retina: Gray elevation in temporal area with folds in detached section

Vessels: Tortuous and elevated over detached retina



BENIGN CHOROIDAL NEVUS

Disc: Normal

Retina: Slate gray, flat lesion under retina; several drusen overlying nevus

Vessels: Normal

PAPILLEDEMA

Disc: Elevated, edematous disc; blurred disc margins; vessels engorged

Retina: Flame retinal hemorrhage close to disc

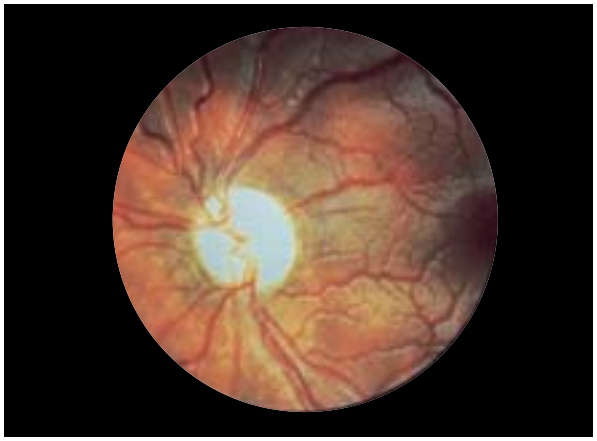
Vessels: Engorged tortuous veins

OPTIC NEURITIS

Disc: Elevated with blurred margins

Retina: Mild peripapillary edema

Vessels: Mild dilation of vessels on disc

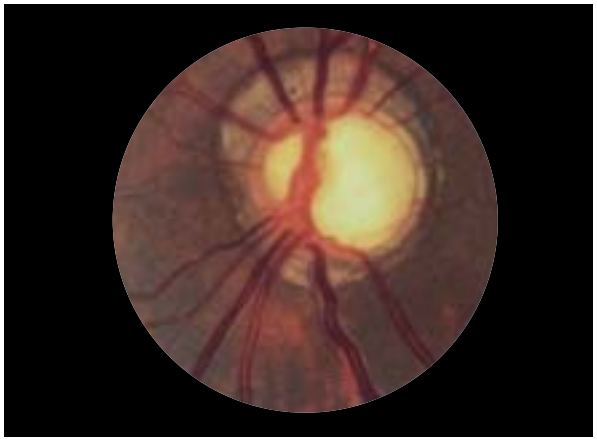


OPTIC ATROPHY

Disc: Margins sharp and clear; pale white color

Retina: Normal

Vessels: Arteries attenuated; veins normal



GLAUCOMATOUS CUPPING OF DISC

Disc: Large cup, disc vessels displaced peripherally; pale white color; pigment ring surrounding disc

Retina: Normal

Vessels: Normal