YEAR 4 Back to Campus Tutor Guide

CLINICAL SKILLS: FUNDOSCOPY QUIZ

Learning Objectives

- Practice approach to reading fundoscopy images
- Identify diagnoses from fundoscopy pictures
- Match correct diagnosis from extended matching options set

OVERVIEW

In this session you will identify fundoscopic diagnoses from retinal pictures using a list of extended matching answer options. You will practice using a structured approach to reading fundoscopy pictures to identify the abnormalities.

Normal Right Eye Identify optic disc (head of optic nerve) Macula/Fovea Vessels https://www.verywellhealth.com/retina-anatomy-3421686
Age related Macular Degeneration Left eye of a patient with intermediate age-related macular degeneration with large drusen https://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2808%2961759-6/fulltext
Papilloedema Optic disc photograph showing earliest stage of papilloedema with swelling of axons at the lower and upper margins Causes: space-occupying lesions, optic neuritis (e.g. multiple sclerosis), malignant hypertension and uveitis (e.g. tuberculosis, sarcoidosis). https://www.eyenews.uk.com/features/ophthalmology/post/papilloedema-an-update
Early background diabetic retinopathy Fundus photograph of early background diabetic retinopathy showing multiple microaneurysms Stages: Background diabetic: Microaneurysms, dot and blot haemorrhages (small localised leaking of capillaries into retina) Pre-Proliferative: Cotton wool spots (retinal ischaemia causing damage and accumulation of dead nerve cells) Previously called soft exudates Proliferative: Insufficient retinal perfusion and release of vascular endothelial growth factor causing neovascularisation Advanced: Vitreous haemorrhage from areas of neovascularisation, rubeosis (neovascularisation at the iris increasing ocular pressure) https://emedicine.medscape.com/article/1225122-overview
Pan Retinal photocoagulation Laser burns https://imagebank.asrs.org/file/5338/prp-laser
Diabetic maculopathy Hard exudates which leak from blood vessels that have become permeable due to diabetes. Once over the macula, the exudates can cause irreversible vision loss.

https://www.sciencephoto.com/media/255946/view/ophthalmoscopy-of-eye-with-diabetic-maculopathy
Inferior branch retinal artery occlusion
Retinal whitening surrounding the occluded artery is noted
Death of nerve fibres causing pale appearance (segment rather than retina in CRAO) Inferior branch supplies lower part (superior branch occlusion would be higher) Cherry red spot on fovea (Contrast against pale ischaemic retina).
Sudden loss of vision from embolus
https://emedicine.medscape.com/article/1223362-overview
Central retinal vein occlusion
Classic 'blood and thunder' appearance from widespread haemorrhages that obscure most fundal details. Neovascularisation
Severe tortuosity and engorgement of retinal veins, deep haemorrhoages, cotton wool spots and optic disc swelling.
Secondary to atherosclerotic thickening of central retinal artery occluding central retinal vein at a common crossing point. Occlusion causes retinal hypoxia, endothelial damage and extravasation of blood.
https://litfl.com/a-woman-of-singular-vision/
Malignant hypertension
Retina, left eye. Blurring of the optic nerve head and diffuse peripapillary cotton-wool spots, flame-shaped, haemorrhages, diffuse exudates, and a macular star. Intraretinal haemorrhages are noted in the nasal fovea, or central part, of the macula.
Grade 1 Hypertensive retinopathy: Subtle arteriolar narrowing
Grade 2 Hypertensive retinopathy: Focal narrowing with compression at venules – AV nipping
Grade 3 Hypertensive retinopathy: retinal haemorrhages, hard exudates, cotton wool spots
Grade 4 (Malignant): Addition of optic disc swelling. May have headaches, eye pain, reduced acuity, focal neurology
https://onlinelibrary.wiley.com/doi/full/10.1111/j.1524-6175.2005.04147.x