Back of the eye glossary

Diabetic retinopathy (DR)

Diabetic retinopathy can be subdivided into two basic forms:

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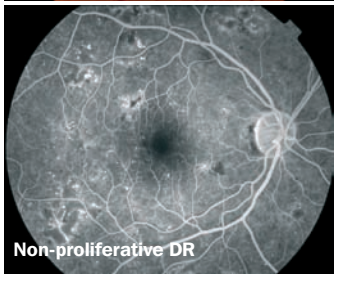

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1. Non-proliferative

Non-proliferative disease can be identified by a number of clinical findings: microaneurysms, 'dot and blot' haemorrhages, cotton wool spots.

Clinically significant macular oedema (CSME) is defined as:

- Retinal thickening within 500 microns of the centre of the fovea
- Hard exudation within 500 microns of the centre of the fovea if associated with retinal thickening
- Retinal thickening of one disc area, any part of which is located within one disc diameter (1,500 microns) from the centre of the fovea.

Eyes with CSME benefit from focal/grid laser photocoagulation to the macula.

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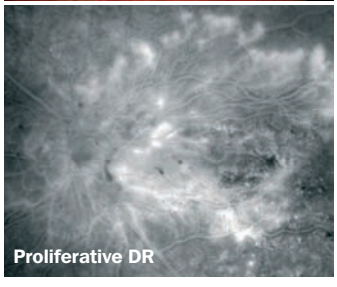

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2. Proliferative

In proliferative diabetic retinopathy, the eyes demonstrate, singularly or in combination, neovascularisation of the disc (NVD), neovascularisation of the retina (neovascularisation elsewhere NVE), or neovascularisation of the iris (NVI) capillaries and veins.

High-risk characteristics include:

- NVD greater than or equal to one fourth to one third of a disc area (one quarter of a disc area in eyes with large optic discs and one third of a disc area in eyes with small optic discs)
- NVD of any size associated with preretinal or vitreous bleeding
- NVE at least 0.5 disc area and associated with preretinal or vitreous bleeding.

Eyes of high-risk characterisitics benefit from panretinal laser photocoagulation.

Age-related macular degeneration (AMD)

Age-related macular degeneration (AMD) is a progressive deterioration of Bruch's membrane, retinal pigment epithelial, choriocapillaris, and outer retina in the macular area. There are two variants:

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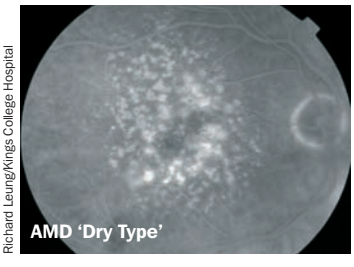

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1. 'Dry Type': Drusen and associated retinal pigment epithelial changes (atrophy and clumping). The majority of these eyes have moderate visual disturbance. Extensive or 'geographic' atrophy of the retinal pigment epithelium, however, can result in marked visual acuity loss.

2. 'Wet or Exudative Type': Choroidal neovascularisation (or 'membrane') with associated fluid, lipid exudate, and haemorrhage under either the retinal pigment epithelium or neurosensory retina. This typically causes moderate to severe loss of central vision. The natural history is poor, often leading to subretinal fibrosis and scarring. This type can be further divided into the 'classic' membrane and the 'occult' membrane using fluorescein angiography.

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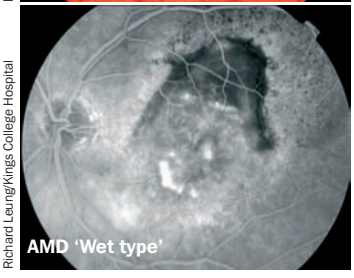

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Retinopathy of prematurity (ROP)

The condition was initially referred to as retrolental fibroplasia. There are five stages in classification:

Stage 1 is defined as a thin structure within the plane of the retina that separates vascularised from avascular retina.

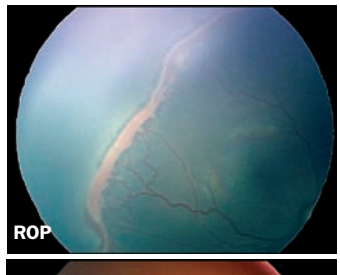
Stage 2 represents an elevated ridge that has extended beyond the plane of the retina.

Stage 3: there is extraretinal fibrovascular proliferation or neovascularisation at the ridge.

Stage 4: there is a partial traction-like retinal detachment.

Stage 5 is defined as a total retinal detachment in an open or closed funnel configuration.

The term 'plus disease' denotes significantly dilated and tortuous retinal vessels in the posterior pole. It indicates extensive vascular incompetence, and can be associated with vitreous haze, iris vessel engorgement, and poor pupillary dilation. 'Plus disease' is a poor prognostic sign in ROP.



Anna Ells

Anna Ells

Retinal detachment

A retinal detachment occurs when the retina's neurosensory layer and pigment epithelial layers separate. There are three types of retinal detachments:

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Rhegmatogenous

This is the most common type and occurs when there is a break in the sensory layer of the retina, and liquefied vitreous seeps underneath, causing the two layers of the retina to separate.

Tractional

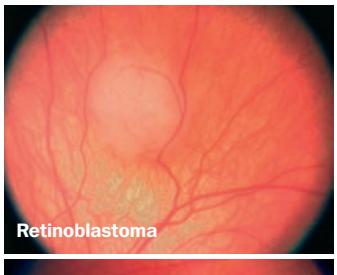
The second most common type occurs when strands of vitreous or scar tissue create traction on the retina, pulling it loose.

Exudative

This results from an accumulation of fluid under an intact neurosensory retina. This usually occurs in conjunction with another disease, e.g posterior scleritis, choroidal inflammatory conditions and neoplasms.

Retinoblastoma

Retinoblastoma is a primary malignant intraocular neoplasm that arises from immature retino-



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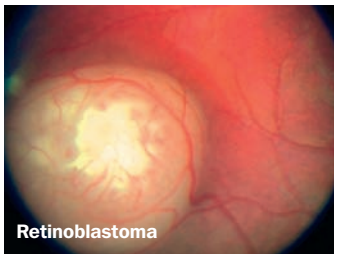

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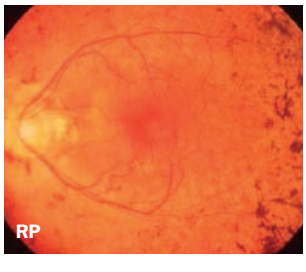
blasts within the developing retina. It is the most common primary intraocular malignancy of childhood. Most cases occur in children younger than six years of age.

The most common presenting symptoms of retinoblastoma are leukocoria (a white pupil), in the tumour-containing eye or eyes, strabismus or symptomatic or asymptomatic visual loss. Retinoblastoma can be hereditary.

Retinal dystrophies – Retinitis pigmentosa (RP)

A group of hereditary retinal conditions that cause degeneration of the retina.

Retinal cells are among the most specialised cells in the human body and depend on a number of unique genes to create vision. A disease-causing mutation in any one of these genes can lead to vision loss. RP results from a large and as yet unknown number of gene defects, of which around a hundred have been found so far. RP can be passed to succeeding generations by one of three genetic inheritance patterns: autosomal dominant, autosomal recessive, or X-linked inheritance. RP causes the degeneration of photoreceptor cells from the outer edges of the retina, causing a progressive loss of peripheral vision, night blindness and reduced or absent electroretinogram (ERG) recordings.



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www.mrcophth.com/retinalcases/rp.html

Cochrane Eyes and Vision Group (CEVG) systematic review activity on posterior segment treatments

Cochrane Eyes and Vision Group
International Centre for Eye Health, London School of Hygiene & Tropical Medicine, Keppel Street, London, WC1E 7HT, UK.

The following list presents the current evidence on back of the eye treatments, as well as reviews which are planned or underway. All Cochrane reviews and protocols are completed using strict methodology and are peer-reviewed at both protocol and review stage. They are published in *The Cochrane Database of Systematic Reviews*, one of several databases in *The Cochrane Library*.

Published reviews

A published review follows a structured format detailing, among other things, methods used, inclusion/exclusion criteria, search strategies for finding randomised controlled trials, and meta-analysis (where performed). CEVG-published reviews relevant to back of the eye treatments are:

- Antioxidant vitamin and mineral supplements for age-related macular degeneration
- Antioxidant vitamin and mineral supplements for preventing age-related macular degeneration
- Ginkgo Biloba extract for age-related macular degeneration
- Interventions for acute central retinal artery occlusion
- Interventions for asymptomatic retinal breaks and lattice degeneration for preventing retinal detachment
- Laser photocoagulation for choroidal neovascularisation in pathologic myopia
- Non-steroidal anti-inflammatory agents for treating cystoid macular oedema following cataract surgery
- Photodynamic therapy for neovascular age-related macular degeneration
- Radiotherapy for exudative age-related macular degeneration.

Published protocols

A published protocol outlines the background, rationale and methods of the review. CEVG-published protocols relevant to back of the eye treatments are:

- Antiangiogenic therapy with anti-VEGF modalities for neovascular age-related macular degeneration
- Haemodilution treatment for retinal vein occlusion
- Interventions for acute retinal necrosis
- Intravitreal steroids for macular oedema in diabetes
- Laser photocoagulation for neovascular age-related macular degeneration
- Surgical implantation of steroids with antiangiogenic characteristics for treating exudative macular degeneration.

Working titles

A working title is a protocol in progress prior to being submitted for publication. Working titles dealing with back of the eye treatments currently registered with CEVG are:

- Acupuncture for age-related macular degeneration
- Blood pressure control for the management of diabetic retinopathy
- Calcium dobesilate for diabetic retinopathy
- Carbonic anhydrase inhibitors for cystoid macular oedema
- Chinese herbal treatment for diabetic retinopathy
- Fish oils and vitamin A for hereditary retinal disease
- Intravitreal steroid for retinal vein occlusion
- Laser photocoagulation for retinal vein occlusion
- Laser treatment for diabetic retinopathy
- Laser treatment of drusen in age-related macular degeneration
- Pars plana vitrectomy for diabetic macular oedema
- Pharmacotherapy for preventing proliferative vitreoretinopathy in retinal detachment surgery
- Statins for age-related macular degeneration
- Sub-threshold laser treatment for diabetic maculopathy
- Surgical interventions for repairing simple rhegmatogenous retinal detachments
- Tamponade in surgery for retinal detachment associated with proliferative vitreoretinopathy
- Traditional Chinese medicine for retinitis pigmentosa.

Available titles

CEVG invites people from around the world interested in preparing a review on the following titles that do not have authors. Available titles for CEVG reviews in the area of back of the eye treatments are:

- Interventions for cytomegalovirus retinitis
- Sub-macular surgery for age-related macular degeneration.

Access to Cochrane systematic reviews

The Cochrane Library is available by subscription, either on CD-ROM or via the internet. Residents in a number of countries, including Australia, New Zealand and South Africa, can access the *Library* free of charge through a 'national provision'. Higher Education and Further Education residents can access the *Library* using an Athens password.

Further information

You can either visit the CEVG website at **www.cochraneeyes.org** or email Anupa Shah, Review Group Co-ordinator at **cevg@lshtm.ac.uk**