Myopia, Pathological Myopia and Myopic macular degeneration

Myopic macular degeneration is a type of macular degeneration that occurs in people with severe myopia.

Myopia is commonly known as short sightedness; people who are myopic have a larger or longer shaped eyeball. The distance between the front of the eye and the retina at the back of the eye, is therefore longer. As a result, light entering the eyes from a distance is focussed in front of the retina, rather than being sharply focused on the retina, resulting in the inability to focus on distant objects.

People with myopia are unable to focus sharply on distant objects and are only able to see sharply if the object is quite close up. Hence the term short-sightedness.

To help people with myopia focus in the distance, prescription spectacle or contact lenses have to be worn. The more severe the myopia the stronger the prescription lens is required.

The strength of prescription lenses is measured in 'dioptres' (D). People who are myopic will have a negative dioptre. Up to -3.0 D is mildly myopic; -3.0 to -6.0 D moderately myopic; and over -6.0 D is highly myopic.

It is thought that very high myopia results from an abnormal and progressive stretching and elongation of the eyeball. This can start in childhood, leading to the need for strong corrective lenses even at a young age.

In those people with very high myopia and very elongated eyes, the walls of the eyeball have been extremely stretched out. All the layers that make up the wall of the eyeball

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become very thin. This abnormal and progressive thinning of the layers of the eyeball is called pathological myopia.

The abnormal stretching is thought to be responsible for making the myopic eye more prone to develop a variety of sight-threatening problems such as, glaucoma, vitreous degeneration, retinal detachment and myopic macular degeneration.

Although myopia is very common, adults with less than 6D of myopia are very unlikely to have pathological myopia. Adults with more than 10D of myopia are at a higher risk of developing pathological myopia.

There are approximately 200,000 people in the UK with pathological myopia but the incidence is increasing rapidly. The cause of this increase may be linked to factors associated with our modern lifestyle as well as genetic factors.

In pathological myopia, the retina and other layers at the back for the eye become so thin that the cells in the retina can die slowly. %This leads to atrophy and a slow decline in central vision. This condition is sometimes called myopic atrophy or degeneration secondary to pathological myopia. This is similar to atrophy secondary to dry age-related macular degeration (AMD), seen in the elderly population, but in pathological myopia, atrophy and central visual decline can start at a much earlier age.

The thinning in the back of the eye can also cause cracks in the deeper layers under the retina leading to further atrophy or even bleeding in the centre of the macula. Just like in AMD these dry changes can lead to the formation of abnormal new blood vessels under the macula. This is called choroidal neovascularisation secondary to pathological myopia and is

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similar to choroidal neovascularisation secondary to wet (AMD) in the elderly population.

Choroidal neovascularisation secondary to pathological myopia can cause irreversible loss of central vision rapidly and requires urgent treatment with repeated injections of drugs, such as Lucentis® or Eylea®, into the eye.

Higher levels of myopia result in a greater risk of myopic degeneration. People with high myopia need to have regular eye checks to look out for cataracts or glaucoma. Urgent eye examination is advised if there are sudden changes in vision, such as flashing lights, distorted vision and floaters.

An onset of floaters or dots and flashing lights could indicate a retinal detachment. Distortion of vision especially for reading could be due to myopic macular degeneration.

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