Royal Cornwall Hospitals
NHS Trust

# Age-related macular degeneration


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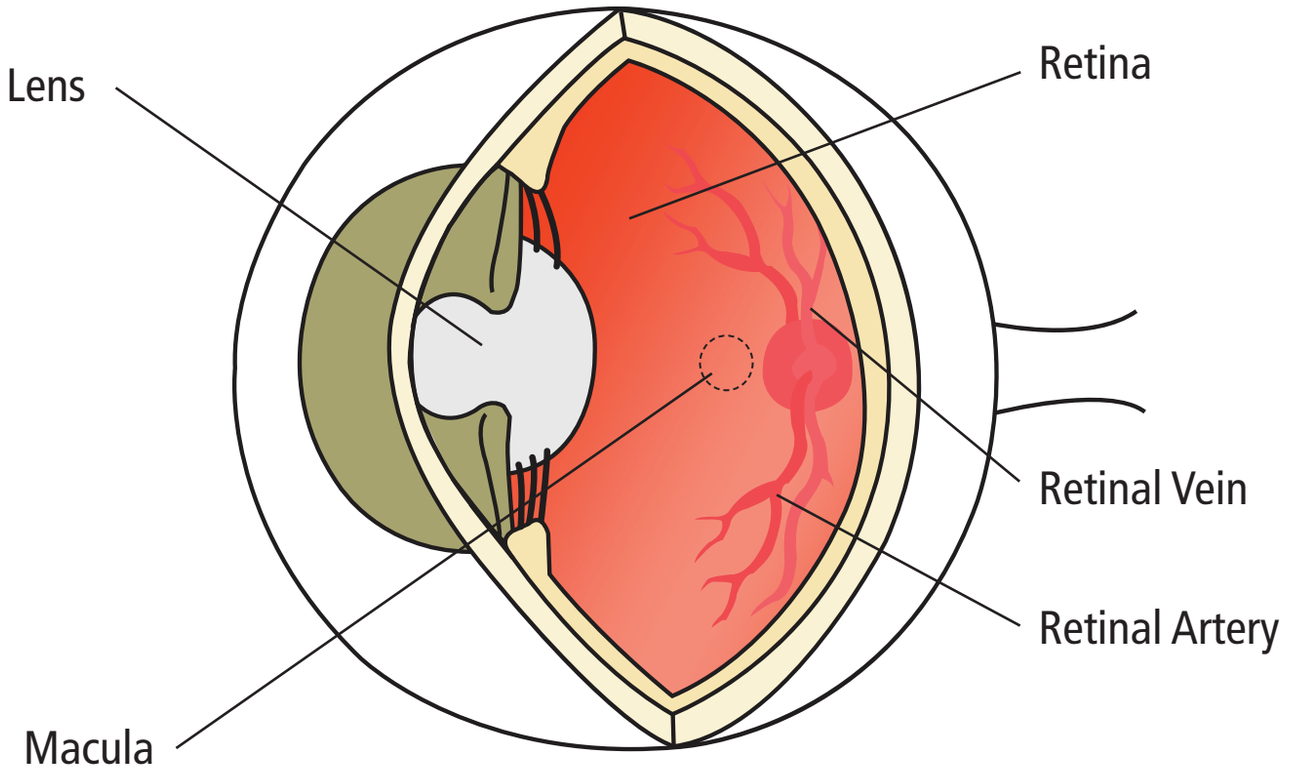
## What is the macula?

The tissue at the back of the eye is the retina, it can be thought of as being like the film in a camera. The central part of the retina, which provides the detailed sharp central vision is called the macula. It provides detailed sharp central vision and the ability to appreciate colour.




## What is macular degeneration?

Macular degeneration simply means wear and tear in the macula. When these changes happen due to aging it is called age-related macular degeneration (AMD or ARMD).

## What causes macular degeneration?

There is no known cause but cells in the macula break down due to the aging process. Important risk factors are a family history of ARMD and smoking tobacco. Less commonly, macular degeneration can occur in severely shortsighted people or certain genetic conditions.

## What are the symptoms?

In the initial stage you may not have any symptoms. As the condition progresses, you may experience blurred vision and distorted images.

It affects your ability to see what is directly in front of you. Reading, writing and close work such as knitting is affected the most. Later on you may experience significant vision loss in the centre and be unable to recognise faces. However this condition does not affect the side/peripheral vision and so you will never experience complete loss of vision.

## What are the types of macular degeneration?

There are two types of changes that occur in macular degeneration, 'dry' and 'wet'. The terms 'dry' and 'wet' have nothing to do with tears or dry eyes but refer to the way changes progress in the macula.

- **Dry macular degeneration** – This is the commonest form and almost everyone starts off with dry ARMD changes. In this form, the light-sensitive cells in the macula slowly break down, leading to gradual blurring of the central vision. As it gets worse, the macula becomes increasingly thin and the central blurred patch increases. These changes progress very slowly.
- **Wet macular degeneration** – Around 10% of patients develop fragile and leaky blood vessels under the macula. These abnormal vessels cause an accumulation of fluid and blood under the macula, hence the term 'wet'. If untreated, it leads to permanent damage to the macula and formation of a scar. Wet macular degeneration can happen suddenly leading to rapid loss of sight.

## How is the diagnosis made?

Specialized photographs of the macula are taken to confirm the type of macular degeneration and to decide the appropriate treatment course:

- **OCT retinal scan** – this is a simple test which uses a light beam to build up a detailed picture of the macula. It can highlight abnormal blood vessel growth that happens in wet macular degeneration.
- **Fundus fluorescein angiography** – in this test a dye is injected in the arm and photographs are taken of the dye as it passes through the blood vessels at the back of the eye.

## What is the treatment for dry macular degeneration?

Unfortunately there is no treatment for dry ARMD. Stopping smoking is certainly beneficial. Wearing sunglasses to protect from the sun's rays and eating a healthy diet rich in antioxidants such as green leafy vegetables and citrus fruits may be beneficial. Age Related Eye Disease Study 2 (AREDS 2) showed that supplements containing vitamins C (500 mg), vitamin E (400IU), lutein (10 mg), Zeaxanthin (2 mg), zinc (80 mg) and copper (2 mg) when taken daily may benefit in slowing down the disease but it does not prevent ARMD from advancing. Smokers or ex-smokers must avoid any supplements containing Beta Carotene due to risk of lung cancer.

## What is the treatment for wet macular degeneration?

Wet macular degeneration is treated by injection of a medicine into the jelly at the back of the eye under local anaesthesia. The medicine is known as anti-VEGF agent because it works by blocking the vascular endothelial growth factor (VEGF). Lucentis, Eylea and Beovu are the drugs approved by NICE in this category. The new drug Vabysmo, also approved by NICE, works by dual action of blocking VEGF and Ang-2 receptors thereby allowing longer duration of action. All these drugs work by stopping the leakage from new blood vessels to help reduce the fluid in the macula.

## How frequently is the treatment given?

The treatment regime is known as Treat and Extend. The treatment is usually started with monthly injections. After 3 or 4 months, the injections are given every 8 to 12 weeks depending upon the drug used. The interval between the injections is increased or decreased based on the response of the treatment.

## How successful is the treatment in the beginning?

The treatment stabilises vision in almost 90% of patients. Around 30% of patients experience improvement in their sight. 10% of patients do not benefit from the treatment.

## What is the long-term success?

The treatment delays the progression of vision loss but does not necessarily reverse it. Despite initial success some patients experience slow decline in their sight. Sometimes a sudden vision loss can occur in spite of initial success.

## How long is the treatment required?

The treatment will continue as long as it is helping your eye. The treatment will be stopped if injections are not effective or your sight deteriorates significantly despite treatment.

## Are there any risks or complications?

As with all procedures, there are some possible risks, but the benefits usually outweigh the risks. An injection carries a small risk (0.3%) of sight-threatening infection in the eye (endophthalmitis). There is a small risk of glaucoma (increased pressure in the eye) and cataract (cloudy lens). With frequent injections there is a small risk (1-2%) of cardiovascular events such as heart attack and stroke.

## Are there any other treatment alternatives?

No. The anti-VEGF drugs are the most successful in preventing vision loss. The other options will be considered either as an additional treatment or when anti-VEGF treatment cannot be given. These include laser treatment or photo dynamic therapy. Both these treatments entail applying laser to the leaky blood vessels. Your doctor will discuss these options with you if appropriate.

## How is the injection given?

It is an outpatient procedure and takes only a few minutes:

1. The nurse will instill antiseptic and local anaesthetic drops into your eye and then the eye will be cleaned with an antiseptic solution.
2. The injection is given into the eye. It is not a painful procedure but most people describe it as a brief 'sharp scratch'.
3. Antibiotic eye drops are instilled at the end of the procedure.
4. You may be asked to wait for 5-10 minutes before you go home. Use of topical lubricating drops for 2-3 days can be useful in case of gritty, sore eyes. These drops can be used 6 to 8 times a day and can be purchased from any pharmacy.

## What are the side effects?

You may experience temporary blurring of vision. Some patients experience minor discomfort for a day. You may see a few 'floaters' or 'bubbles' for a few days.

## What happens next?

If you are attending your first appointment, the doctor will assess your eyes and may suggest some tests to rule out Wet ARMD. If Wet ARMD is confirmed the treatment will be started immediately. If you are already on the treatment for Wet ARMD you will be assessed regularly and more injections will be given when needed.

## Any questions?

This leaflet provides just an overview of macular degeneration. If you have any questions please don't hesitate to speak to us during your clinic visit. Further information can also be obtained by contacting:

**Royal National Institute for Blind** (RNIB) on **0303 123 9999**

**Macular Disease Society** (MDS) on **01264 350 551** or

**Macular Service co-ordinator** on **01872 253402.**

If you would like this leaflet in large print, braille, audio version or in another language, please contact the General Office on 01872 252690

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