



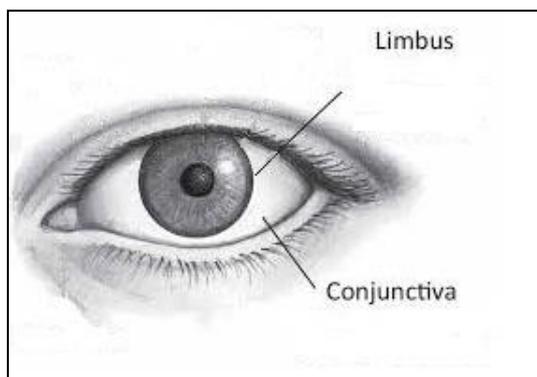
Advice to Patients

July 2017

Stem cells and the cornea

What are stem cells?

Stem cells are the body's '*building blocks*'. They maintain and repair damaged tissue by dividing to form new cells. The stem cells for the surface of the cornea (the eye's window) are located at the 'limbus', this is the area between the cornea and the conjunctiva (the clear layer covering the white of the eye).



What is Limbal stem cells deficiency?

Limbal stem cell deficiency (a shortage of cells) results in the surface of the cornea having difficulty healing itself. This can happen after injury or even from day to day wear. At times when these cells are lost, the conjunctiva can grow onto the cornea. This growth means the clear window becomes cloudy and eyesight can be lost.

Limbal stem cell deficiency often occurs because of a severe injury to the eye such as:

- Infection
- Inflammation
- Severe dry eye
- Overwearing contact lens
- A burn or a chemical splash.
- Eye drops with strong preservatives over a long period of time
- Other rare causes such as *aniridia* (a person is born without an iris)

What are the symptoms?

The symptoms of limbal stem cell deficiency vary; it usually causes pain, decreased eyesight and sensitivity to light.

What tests are performed?

Most often limbal stem cell deficiency will be diagnosed using a microscope called a slit lamp. Occasionally a sample may be taken from the eye. The sample is tested in the laboratory to see if the cells come from the cornea or the conjunctiva. Eye imaging devices may also be used.

What is the treatment?

In the early stages of limbal stem cell deficiency, drops that help cushion the surface of the cornea and/or drops that decrease inflammation may be all that are needed. Your long-term eye medications may also need to be reviewed.

If there is enough damage, the conjunctival cells may be scraped back and the corneal cells allowed to heal. This procedure may need to be done more than once. Sometimes a piece of amniotic membrane is used like a bandage and can help heal the cornea afterwards. The amniotic membrane is from the sac in which a baby grows.

In more severe disease a transplant of cells from the limbus of your eye that is not affected or if both eyes are affected, from a donor (another person), may be required. Sometimes these cells are grown in the laboratory on contact lenses or on amniotic membranes and are then transferred to the eye.

Your eye doctor will discuss with you the best option for your eyes.

What is the long term effect?

Limbal stem cell deficiency is a chronic condition, so your eyes will need to be checked regularly for a long time. Your eye doctor will try to preserve your stem cells as long as possible so you will need to follow his/her instructions closely.

If your eyes become red or sore you will need to have your eyes checked so that any problems can be picked up as early as possible. Before you leave the hospital ask your doctor who you contact if you have any of these problems.