

Optic Nerve Drusen

What are optic nerve drusen?

The optic nerve is the physical connection between the eye and the brain. All the visual information taken in by the eye is transmitted to the brain along the optic nerve.

Optic nerve drusen are abnormal globular collections of protein and calcium salts which accumulate in the optic nerve. Drusen usually become visible after the first decade of life but can be seen before age ten in some children. Often, they are present in both eyes (bilateral), but sometimes occur in only one eye (unilateral).

The pictures below show the inside of the eye. The optic nerve is the round, yellow/pink area with the blood vessels radiating out of the center. Figure 2 shows an eye with optic nerve drusen. You can see that this nerve appears elevated and the edges are “bumpy” and less sharp than the normal optic nerve in figure 1- which is flat and has sharp borders.

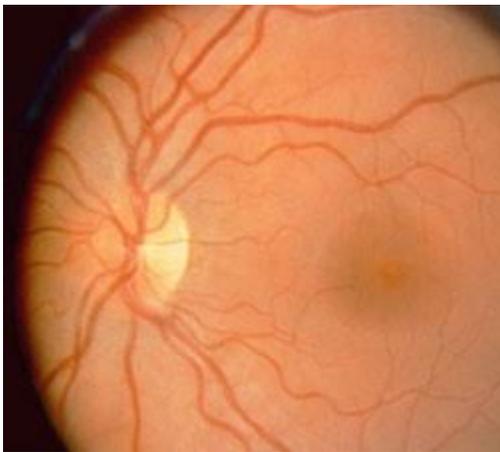


Fig. 1: Normal optic nerve.

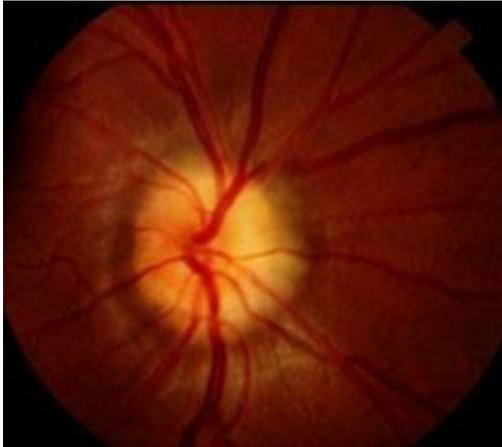


Fig. 2: Optic nerve drusen.

How common are optic nerve drusen?

Optic nerve drusen are relatively common and estimated to occur in about 1-2% of the population. However, many cases are never diagnosed because most patients with this condition have no problems with their vision.

How are optic nerve drusen diagnosed?

Your doctor will do a full (dilated) eye exam and can often diagnose this condition based on the appearance of the optic nerve. Ocular ultrasound, CT scan and/or fundus photography can also aid in the diagnosis. Drusen can be inherited, so it may be helpful to examine other family members.

How can optic nerve drusen affect vision?

Optic nerve drusen usually do not affect vision. However, peripheral vision loss may occur slowly and be so minimal that the abnormality is never noticed. Less commonly there may be an abrupt, painless loss of part of the peripheral vision. Visual field exams may be performed to monitor for decreased peripheral vision in older children.

A rare complication from optic nerve drusen is choroidal neovascular membrane. This is a collection of abnormal blood vessels which grow beneath the retina near the optic nerve. If these abnormal vessels bleed, they can cause a sudden decrease in central or “straight ahead” vision.

Do optic nerve drusen resemble any other optic nerve abnormalities?

Sometimes when the margins of the optic nerve are blurred by drusen it can appear as though the nerve is swollen. Swelling of the optic nerves is called “papilledema,” and is a serious condition which indicates the pressure in the brain is too high.



These two conditions- optic nerve drusen and papilledema- may look similar but are very different. As mentioned before, ocular ultrasound and other tests may be used to help make the correct diagnosis and differentiate these two conditions. It is important to be aware of drusen so that unnecessary tests for papilledema are not performed.

What are "buried" optic nerve drusen?

In many individuals, particularly children, drusen are not visible on the optic disc surface but are instead buried deeper within the nerve tissue. The optic disc appears swollen despite the drusen not being visible on the surface. As the drusen enlarge and the overlying tissue (nerve fiber layer) thins with age, the disc drusen become more apparent.

How are optic disc drusen treated?

There is no treatment for drusen. In the rare cases (with choroidal neovascularization) laser treatment may be indicated.

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