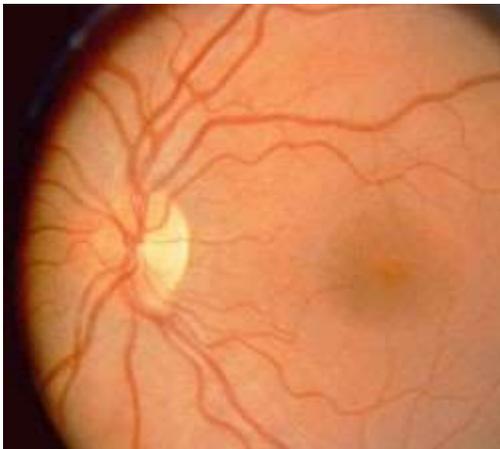


## Optic Nerve Drusen

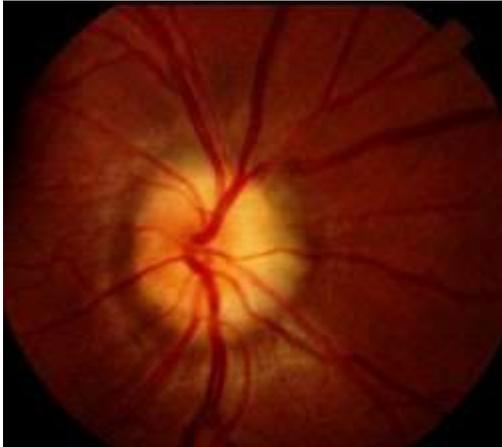
### What are optic nerve drusen?

The optic nerve is the physical connection between the eye and the brain. Visual information received by the eye is transmitted to the brain along the optic nerve. Optic nerve drusen are abnormal collections of protein and calcium that accumulate within the optic nerve. Drusen are often present in both eyes (bilateral), but sometimes occur in only one eye (unilateral).

The pictures below illustrate the appearance of the optic nerve as seen by your ophthalmologist. The optic nerve is the round, yellow/pink area with the blood vessels radiating out from the center. Figure 1 shows a normal optic nerve. Notice that the optic nerve is circular with sharp edges. Figure 2 shows an eye with optic nerve drusen. This nerve is elevated with “bumpy” edges and the margins are blurry/indistinct.



**Fig. 1:** Normal optic nerve.



**Fig. 2:** Optic nerve with drusen.

## **HOW COMMON ARE OPTIC NERVE DRUSEN?**

Optic nerve drusen are estimated to occur in about 1-2% of the population. Many cases go undiagnosed because most patients with drusen experience no visual symptoms.

## **HOW ARE OPTIC NERVE DRUSEN DIAGNOSED?**

Since they often lack symptoms, optic nerve drusen are usually found as an incidental finding by your ophthalmologist. They are usually diagnosed during your eye examination. Your ophthalmologist may observe obvious drusen after looking at your optic nerve following pharmacologic dilation. Obvious drusen are usually present on the surface of the optic nerve. Some optic nerve drusen are “buried.” Buried drusen can be more difficult to observe and diagnosis may require the use of imaging (ultrasound or CT scan), photography (fluorescein angiography/autofluorescence), or optical coherence tomography (OCT). Drusen can be inherited, so it may be helpful to examine other family members.

## **HOW CAN OPTIC NERVE DRUSEN AFFECT VISION?**

Although optic nerve drusen do not usually affect vision, peripheral vision loss may occur. It is usually mild and goes unnoticed by the patient. Visual field exams may be performed to monitor for decreased peripheral vision in older children. Choroidal neovascular membranes are an extremely rare complication of optic nerve drusen. These membranes are a collection of abnormal blood vessels that grow beneath the retina near the optic nerve. These membranes may rarely bleed, in which case they can cause a sudden decrease in central or “straight ahead” vision.

## **CAN OPTIC NERVE DRUSEN CAUSE OTHER PROBLEMS?**

The biggest problem with drusen is that they may be a source of confusion. Patients are occasionally referred to an ophthalmologist for “suspicious” optic nerves. A suspicious optic



nerve is worrisome for possible swelling, which is known as edema. Swollen optic nerves may be caused by high pressure within the brain (known as papilledema). Papilledema is a medical emergency and may require urgent neuroimaging, lumbar puncture, and hospitalization to determine the cause. Drusen may cause the optic nerve to appear as if it is swollen when in fact it is normal. This is called PSEUDOpapilledema because the nerve is not truly swollen. Therefore, these two conditions- optic nerve drusen and papilledema- may look similar but are actually very different. Distinguishing between these two conditions is very important to avoid an unnecessary work-up. Most ophthalmologists can make this distinction.

## **HOW ARE OPTIC DISC DRUSEN TREATED?**

There is no effective treatment for drusen. For the rare case of choroidal neovascularization (see above) laser treatment may be indicated to treat bleeding.

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