Cotton wool spots (Soft exudates) are small, fluffy white opacities (Figure 1) in the nerve fibre layer of retina. These usually result from infarction of small retinal arterioles in nerve fibre layer. The reduced perfusion in the inner retina causes ischemia of the nerve fiber layer which in turn disrupts axoplasmic flow. This build up of axoplasm is visible ophthalmoscopically as a “cotton wool spot”

**Etiology:** In most of the cases, cotton wool spots are an indicator of underlying systemic vascular diseases, the most common being Diabetic Mellitus. Cotton wool spots can be associated with a large number of disorders. Table 1 summarises the important causes of cotton wool spots.

**History and Examination:** The history in patients with cotton wool spots is aimed primarily at finding the underlying cause. The common disorders like Diabetes and Hypertension should always be asked prior to examination.

**Symptoms:** Mostly these are asymptomatic but sometimes, patients can have complaints of small scotoma of acute onset.

**Signs:** Typically fluffy white opacities are seen in superficial retina which may or may not obscure underlying blood vessels (Figure 2). The spots usually resolve in weeks to few months, leaving a small depression known as “Depression Sign”.

On fluorescein angiography (FFA), cotton wool spots are

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*Figure 1: Multiple cotton wool spots in the left eye of a patient with Hypertensive retinopathy*
seen as hypo fluorescent spots. The hypo fluorescence is because of blockage by the axoplasm stasis as well as capillary non-perfusion. This may be associated with surrounding aneurysms and altered capillary bed (Figure 3).

On Optical Coherence Tomography (OCT) cotton wool spots are seen as hyper-reflective lesion in the inner retinal layers.

*Best corrected visual acuity:* Is documented for records.

*Anterior segment examination:* Detailed anterior segment examination with special emphasis on Intraocular pressure, pupillary reactions and rubeosis iridis is done.

*Dilated fundus examination:* A dilated fundus examination is then done with slit lamp biomicroscopy. The cotton wool spots are predominantly seen in peri-papillary region or at posterior pole. The associated findings like microaneurysms, retinal hemorrhages (dot-blot or flame shaped), preretinal hemorrhages, hard exudates, disc or macular edema should be noted.

*FFA/OCT:* This in association with good history provides us the diagnosis in majority of the patients.

*Treatment:* Cotton wool spots do not require any treatment on their own. They tend to disappear in weeks to months. However they may persist for long in certain patient with diabetes. Treatment is aimed at the underlying cause.

Figure 2: Cotton wool spots along with other diabetic changes in a case of Non-proliferative diabetic retinopathy (NPDR).

Figure 3: FFA of the patient with NPDR shows hypo fluorescent areas corresponding to cotton wool spots with micro-aneurysms at the edges.

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