

# Needle-like subtarsal foreign body in a patient with no history of injury: case report

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### Abstract

Subtarsal foreign bodies (FB) are a significant cause of ocular discomfort and are often missed on slit lamp examination of the everted upper eye lid. We report a patient with a needle-like subtarsal FB which was missed on repeated examinations over a three-month period. Staining with fluorescein and observation of scratch marks on epithelial surface of the cornea can give a clue to the presence of such a FB.

**Key words:** Subtarsal foreign bodies, ocular morbidity, fluorescein staining, case report,

### Introduction

Subtarsal foreign bodies (FB) are a significant cause of ocular morbidity and a reason for repeated visits to clinicians. They lie beneath the tarsal surface and are easily missed on slit lamp examination of the everted eye lid. The tip may be concealed by oedema of the conjunctiva but can scratch the surface of cornea, causing severe discomfort, pain, and FB sensation. Fluorescein staining reveals characteristic linear scratch marks on the epithelium of the cornea.

We present a patient with a needle-like vegetative subtarsal FB which was missed on successive examinations over a three-month period during which the patient suffered pain, tearing and FB sensation. We also report three similar patients whose subtarsal FBs were missed on initial examination.

### Case reports

#### Case 1

Case 1 was a 68-year-old male who presented to the eye clinic at Mutare Medical Centre on 17 June 2020 complaining of pain, tearing and foreign body sensation in the right eye since March 2020. There was no history of trauma or a feeling of a FB entering the eye. He had gone to a local primary care clinic on 27 March 2020 complaining of FB sensation. No FB was seen on examination and



Figure 1. Note the swollen eye lid and hyperaemia of the conjunctiva in the right eye compared to the left eye (Credit Dr Wani)

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he was discharged on tetracycline eye ointment. On 28 May 2020 he presented to the District Eye Clinic with symptoms of pricking pain and a gritty sensation in the right eye. Examination showed a visual acuity of 6/36 in each eye, improving to 6/18 with pinhole. An inflamed pinguecula was noted but no FB was seen. He was discharged on topical steroid/antibiotic ointment.

The patient presented to Highlands Eye Clinic on 17 June 2020; examination showed visual acuity was 6/18 in each eye; the right eye had oedema of the eye lids, and mild hyperaemia of the conjunctiva (Figure 1).

When stained with fluorescein and examined under white light the cornea appeared clear with no visible epithelial defects or infiltrates (Figure 2A). Examination with cobalt blue filter revealed linear scratch marks on corneal surface (Figure 2B) signalling the presence of a foreign body under the upper eye lid.

Slit lamp examination of the everted upper eye lid showed no obvious FB on the surface of tarsus. A localized area of granulomatous swelling of the conjunctiva overlying the tarsal plate was noted close to the lid margin – see arrow in Figure 3. Pressure on the sides of this area revealed the tip of a needle-like black FB beneath the center of the swelling. Under high magnification the tip was grasped with a fine forceps and a long needle like FB pulled out. This was placed on the surface of the tarsal conjunctiva and photographed – see Figure 3.

The patient gave verbal consent for the photographs which were taken with Samsung Galaxy J7Core Android phone camera attached to the Slit Lamp eye piece via special adapter.

#### Other cases

Three other patients with similar presentations are described below.

The first was a white Zimbabwean school boy who presented to the Government Eye Unit in Mutare in 1999 with a history of FB sensation in the left eye. On fluorescein staining of the cornea and examination with a cobalt-blue filter, linear scratch marks were seen on the epithelial surface of the cornea. The upper lid was everted and on Slit Lamp examination of the conjunctiva overlying the tarsal plate, a needlelike sub tarsal FB was seen projecting from beneath the surface of the tarsal plate. The FB was removed giving immediate relief of symptoms.

The second was a young man who presented to a private eye clinic in Mutare Zimbabwe with a history of FB sensation in the left eye without preceding history of trauma. The eye was minimally inflamed but examination of the everted eye lid in the left eye revealed no FB. He was discharged on chloramphenicol ointment but returned the

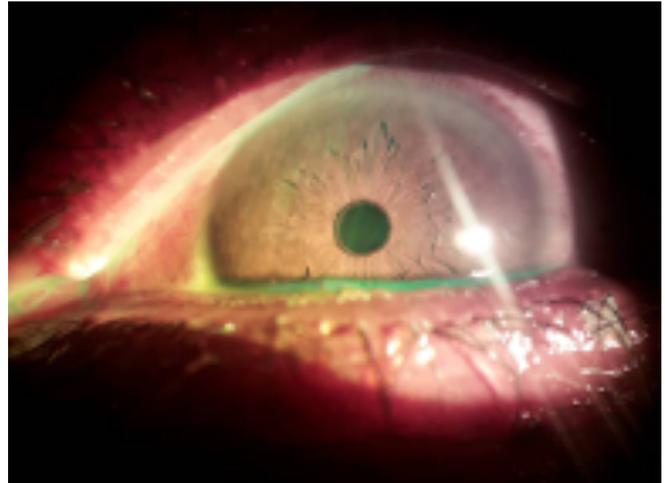


Figure 2A. Cornea before examination with cobalt blue filter (Credit Dr Wani)



Figure 2B. Examination with cobalt blue filter of fluorescein-stained cornea showing scratch marks (Credit Dr Wani)

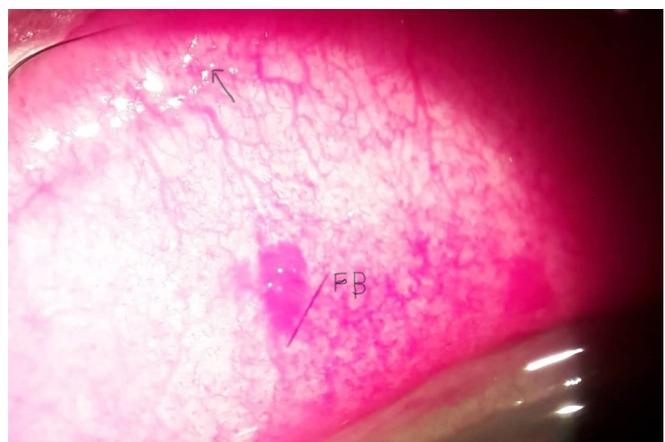


Figure 3. Needle like FB photographed on surface of the tarsal plate (Credit Dr Wani)

same day with the same symptoms.. Staining revealed the presence of scratch marks on the cornea and a search with an operating microscope at high magnification revealed the tip of a small needle-like FB concealed by oedematus conjunctiva. Removal of the FB gave immediate relief and the patient never returned

The third was a senior Member of Parliament in the Republic of South Sudan who presented to the eye clinic in Juba in 2014 with a two-month history of FB sensation, pain and swelling of the eye lids in the right eye. He had previously travelled to Cairo and then Dubai to seek treatment for these symptoms. No FB had been detected at either consultation and the patient had been put on topical antibiotic treatment which did not relieve the symptoms. On examination he had an inflamed tearing eye with swollen eye lids. Fluorescein staining and examination with cobalt blue filter revealed linear scratch marks on the cornea and under high magnification the tip of a needle-like subtarsal FB was found lying beneath the swollen conjunctiva overlying the tarsal plate. Under high magnification in the operating theatre the FB was removed resulting in complete resolution of symptoms.

### Discussion

These patients represent an unusual but challenging clinical problem. We are used to finding a metallic FB, a shell or wing of insect sitting on the tarsal surface of the everted upper eye lid on examination of patients with these symptoms. A subtarsal FB can be easily missed for various reasons. First, there is usually no history of trauma of which the patient is aware, or that can be associated with the onset of symptoms. Second, there usually is no entry wound on the skin of the eye lid. Third, the FB is not usually visible on slit lamp examination of the everted eye lid.

The literature on this problem is quite scanty. Quirke<sup>[1]</sup> described several cases of needle like FB that penetrated the tarsal plate with a projecting tip scratching the cornea and causing severe symptoms of irritation and FB sensation. A microscopic study of these FBs showed that they were either of vegetative or animal origin. Madhusudhana and Chakraborty<sup>[2]</sup> reported a patient with a metallic FB on tarsal plate that was missed on initial examination and was only discovered after a skull X-Ray revealed presence of a radio opaque object in the orbit.

Our patient (Case 1) had a fine needlelike FB which probably penetrated the skin, muscle and tarsal plate to project a small portion on tarsal surface. There was no entry wound on the skin of the eye lid and patient had

no history of trauma. Movement of the eye lid during blinking resulted in corneal abrasion. Quirke<sup>[1]</sup> observed that secondary tarsal conjunctival oedema and granuloma formation may conceal the FB making it difficult to detect on slit lamp examination.

That our patient gave no history of trauma is probably explained by the fact that the FB was so fine it could penetrate the skin and other layers of the upper lid without the patient feeling any pain. This situation can mislead the clinician who is likely to attribute the patient's symptoms to other incidental findings found on examination. Our patient's symptoms had been attributed to a pinguecula on one of the occasions he was seen and probably this was because no other findings could explain the symptoms. The sources of this type of FB may include hair, or make-up brushes, or fine thorns, The trauma event resulting in the FB for Case 1 is not known.

A high index of suspicion is needed to detect this kind of fine FB. A patient complaining of FB sensation in whom no FB is seen on Slit lamp examination of the cornea and everted eye lid should have fluorescein staining of the cornea and examination with a cobalt blue filter. Observation of scratch marks should prompt a further search for subtarsal FB on the everted eye lid. Note that its presence may be concealed by reactionary oedema or granuloma of the conjunctiva overlying the tarsal plate in the area of the FB. Lack of an entry wound does not exclude the presence of such a foreign body.

In conclusion it is noted that subtarsal FBs can cause distressing symptoms forcing patients to seek multiple consultations with different practitioners in different health insitutions in order to obtain relief. Fluorescein staining of the cornea can alert the clinician to the presence of a FB and prompt a more through search leading to its discovery and removal.

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### References

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