



Upper Eyelid Nodule - An Unusual Presentation of Ocular Demodicosis

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ABSTRACT

Introduction: Demodex mite is an external parasite which is implicated in various ocular conditions like anterior blepharitis, posterior blepharitis, meibomian gland dysfunction, chalazia and others. Although demodex has been shown to be a causative agent of chalazia, occurrence of a solitary inflammatory nodule due to demodex infestation has not been reported in literature.

Case: Our case describes the occurrence of an upper eyelid mass in a 62-year-old female which was found to have an associated demodex infestation.

Conclusion: This is the first report of demodex infestation presenting as a nodular eyelid mass. This parasite needs to be considered in the differential diagnosis of eyelid masses as this condition requires specific management.

Key words: Chalazion, Demodex, Ivermectin, Lid mass, Solitary inflammatory nodule.

INTRODUCTION

Demodex mite is an external parasite belonging to the Phylum Arthropoda (class Arachnida and order Acarina) (Burns, 1992). The two species of Demodex that live in the human pilosebaceous unit are *Demodex folliculorum* and *Demodex brevis*. Ocular demodicosis

has various clinical manifestations including anterior blepharitis, posterior blepharitis and meibomian gland dysfunction. It can also cause keratoconjunctivitis, madarosis, trichiasis or chalazia (Liu et al, 2010). Even though many different presentations of ocular demodicosis have been reported, the formation of an eyelid nodule due to demodex infestation is unusual

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and is the first presentation of a kind. Here we present the first report of a Demodex associated eyelid nodule in a 62 year old healthy female.

CASE

A 62 year old female presented with a complaint of right upper eyelid swelling noticed for the last two months. It was gradual in onset, painless and slowly progressive. Systemic history was uneventful. On examination, the best corrected visual acuity (BCVA) was 20/20 in both the eyes. There was fullness of the right upper eyelid above the tarsal plate (Figure 1). No facial asymmetry was noted. Extraocular movements were full and free. On palpation, approximately 1cm x 1cm nodular mass lesion could be appreciated just above the upper border of tarsus. It was firm in

consistency, mobile, non-tender and overlying skin was within normal limits. External ocular examination showed inflamed eyelid margins and a scaly 'cylindrical dandruff' at the base of eyelashes in both the eyes. Anterior segment and posterior examination were within normal limits. Excisional biopsy was performed. The mass was excised completely and sent for histopathology. Histopathological examination revealed normal epidermis. The follicular infundibulum contained a demodex mite. Upper dermis below the demodex mite showed mild perivascular lymphomononuclear infiltrate. Signs of dysplasia or malignancy were absent (Figure 2). The patient was given two doses of 12 mg oral ivermectin, two weeks apart. At 6 months follow up, the patient was doing well with no recurrence of the mass lesion.



Figure 1: Clinical picture of the patient showing a solitary, nodular mass lesion above the tarsal plate in the right upper eyelid.

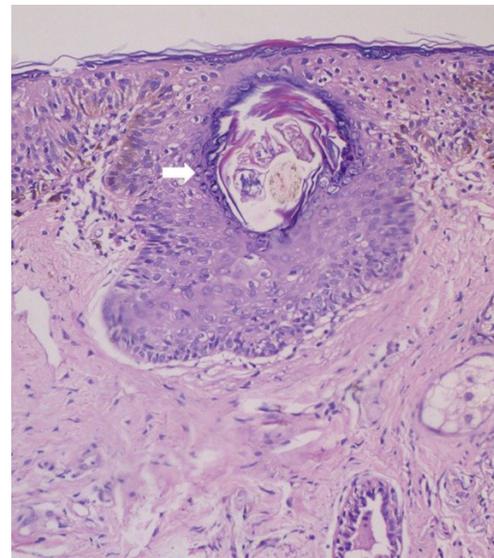


Figure 2: Histopathological examination with haematoxylin and eosin staining showing a normal epidermis. The follicular infundibulum contains a demodex mite surrounded by mild perivascular lymphomononuclear infiltrate.



DISCUSSION

Demodex mite is an external parasite belonging to the Phylum Arthropoda (class Arachnida and order Acarina) (Burns, 1992). It was first reported by Jacob Henle in ear wax in 1841. Desch and Nutting confirmed morphologically in 1972 that two species of Demodex reside in the human pilosebaceous unit: *Demodex folliculorum* and *Demodex brevis*. *Demodex folliculorum* predominantly resides in the upper infundibular portion of the pilosebaceous unit whereas *Demodex brevis* resides deeper in contact with the glandular portion (Desch et al, 1972). *Demodex* species are a part of the normal skin fauna of most mammals without causing any disease. The change in role from normal fauna to pathogen appears to correlate with increased proliferation of the mite population (Ayres, 1961). Demodex has been implicated in many human skin disorders including pityriasis folliculorum, pustular folliculitis of the face, granulomatous and papulo-pustular rosacea, androgenic alopecia and perioral dermatitis (Forton, 2012; Forton et al, 1993; Dolenc-Voljc et al, 2005). Ocular involvement can occur in the form of anterior blepharitis, posterior blepharitis, meibomian gland dysfunction, keratoconjunctivitis, madarosis, trichiasis or chalazia. However, ocular demodicosis presenting as a solitary eyelid nodular mass has not been reported until now.

Our case is of a healthy 62-year-old female, who presented to us with an upper eyelid nodule. Pathological examination was consistent

with *Demodex* related inflammation. Ocular demodicosis is diagnosed by eyelash sampling followed by microscopic examination. This is the current definitive method of identification of species. However, our case was diagnosed on tissue sampling followed by haematoxylin and eosin staining by which identification of species is very difficult. Thus, accurate identification of species remains the limitation of this report.

There are reports in literature describing a significant association between ocular demodicosis, especially by *Demodex brevis* infestation, and chalazia (Liang et al, 2014). Chalazia are known to arise from meibomian glands of the tarsal plate and are characteristically present as a firm, and painless lid nodule. Our patient however, presented with a firm, painless 1cm x 1cm nodular lesion above the tarsal plate. Therefore, we could diagnose this lesion to be a solitary inflammatory nodule rather than a chalazion.

Various treatment options have been described for demodicosis. Some of them include 1% mercury oxide ointment, sulphur ointment, pilocarpine gel and camphorated oil (Liu et al, 2010). Lid scrub with 50% tea tree oil (TTO) every week and lid scrub with tea tree shampoo daily has been shown to be effective in the treatment of demodex. (Gao et al, 2005). Also, oral ivermectin (12 mg OD and repeated after 2 weeks) was found to be an efficient and safe treatment option in patients with recalcitrant blepharitis (Filho et al, 2011). As our patient had no clinical signs of blepharitis like cylindrical



dandruff, collarettes etc, she was treated with excisional biopsy followed by oral ivermectin alone. The patient had a successful outcome, with no recurrence noted at 6 months follow up.

an eyelid nodule. This parasite needs to be considered in the differential diagnosis of eyelid masses as this condition requires specific management.

To the best of our knowledge, this is the first report of ocular demodicosis presenting as



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