

Nodular eyelid swelling caused by Demodex mite: A rare case report

Zhen-Hua Chin, MBBS¹, Wan Mariny MK, MSurg (Ophthal)¹, Amizatul S, MPath², Keng-Yin Loh, MMed(FamMed)³

¹Department of Ophthalmology, Hospital Serdang, Selangor, Malaysia, ²Department of Pathology, Hospital Serdang, Selangor, Malaysia, ³Department of Family Medicine, Taylor's University Malaysia

SUMMARY

Demodex infestation of the eyelid is a rare clinical presentation. It is caused by *Demodex folliculorum* and *Demodex brevis* mites. Common clinical presentations include eyelid itching, increase lacrimation, erythematous eyelid, and cylindrical dandruff seen at the base of eyelashes. This case report illustrated a 74-year-old diabetic patient who presented with bilateral nodular eyelid swelling, which increased in size over 3 years. Tissue biopsy confirmed Demodex infestation of both eyelids. He was successfully treated with 1 month oral doxycycline.

INTRODUCTION

Eyelid swelling is a common ocular presentation seen in eye clinics. Common causes of eyelid swelling include chalazion, stye, meibomian gland disease, lid abscess, preseptal cellulitis, dacryocystitis, and lid malignancy. Solitary nodular eyelid swelling occurs in chalazion, stye, meibomian gland disease, and eyelid malignancy such as basal cell carcinoma, squamous cell carcinoma, sebaceous gland carcinoma, and lymphoma. Parasitic infection of the eyelid is rare. Previous publication reported eyelid infestation by mites such as Demodex can produce nodular lid swelling. Among the presenting symptoms of Demodex are itching, burning, foreign body sensation, crusting or matted lashes, tearing, blurry vision, ocular discomfort, or irritation. The common signs are trichiasis, distichiasis, madarosis, and erythema of the eyelid margin. Cylindrical dandruff seen at the base of eyelashes is pathognomonic of ocular demodicosis. This condition is usually responding to tea tree oil topical treatment. This case illustrated a patient with underlying diabetes mellitus presented with nodular eyelid swelling which was confirmed with Demodex infestation by histopathological examination.

CASE REPORT

A 74-year-old diabetic man presented with multiple small nodular swellings of the upper and lower lids of both eyes. The problem started with a small reddish nodule that measured 0.5 mm × 0.5 mm but subsequently increased in number and size over the past 3 years. The lesion was associated with eye itchiness and the lid margin was also swollen. There was no eye pain, redness of the conjunctiva, or any eye discharge. No history of eye trauma or previous eye surgery. No history of contact with cats. His diabetes

mellitus was well controlled by oral hypoglycaemic agents, with the latest fasting blood glucose 5.6 mmol/L and HbA1c 6%.

On examination, the vision was 6/9 and 6/12 for right and left eye, respectively. Multiple nodular lesions were seen at upper and lower eyelids of both eyes measuring about 0.5 cm. Some nodules were matted together to 1 cm in length (Figure 1A). The lesions were erythematous, irregular in margin but indurated and distorted. The lesions were firm in consistency but non-tender on palpation. There was no loss of eye lashes and no contact bleeding noted. No pus discharge from the eyelid nodules. Examination of anterior segment and posterior segment of bilateral eye were unremarkable. There were no diabetic retinopathy changes noted.

The working diagnosis at this juncture was ocular surface disease but the possibility of eyelid malignancy was considered. Subsequently, an incision biopsy was performed. Histopathological examination reviewed perifollicular chronic inflammation associated with area of ulceration composed of chronic inflammatory cells with fibrosis. A few hair follicles showed presence of Demodex mites (Figure 2). There was no epitheloid granuloma, dysplasia, or malignancy. Histochemical staining for fungi revealed negative result.

He was immediately started with oral Augmentin 625 mg 8hourly and oral Metronidazole 400 mg 8hourly. Topical ointment fusidic acid 8hourly and tea tree oil was also prescribed for the lesion. However, the lesions did not improve after 2 weeks of treatment and the patient also complained of severe pain after tea tree oil application. He was then started on oral doxycycline 100 mg 12 hourly for 2 weeks with topical ointment Maxitrol (neomycin, polymyxin B, and dexamethasone).

Following these, he responded to the treatment effectively. The nodular lesions of upper and lower lid of both eye showed remarkable improvement after 2 weeks of the above treatment. The lesions had subsided with a remaining nodule at the lateral 1/3 of right lower eyelid. The above treatment was continued for further 1 month and all lesions had subsided (Figure 1B).

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Corresponding Author: Zhen Hua Chin

Email: chinzhpaper@gmail.com



Fig. 1: (A) Bilateral nodular eyelid swelling before treatment. (B) Post treatment showing the nodular lesion resolved after 1 month.

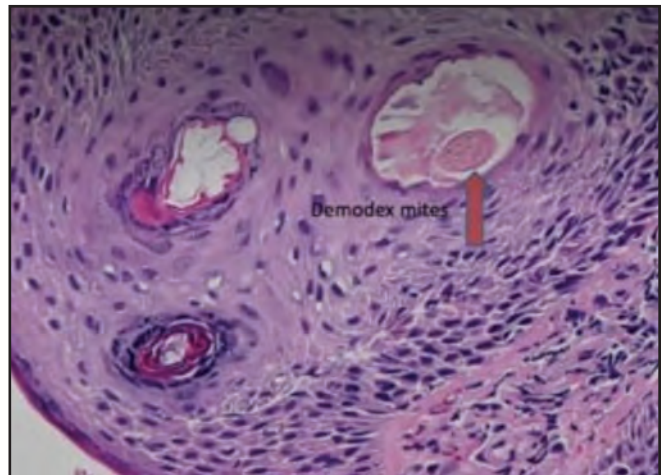


Fig. 2: Tissue biopsy, arrow showing Demodex mites (100x).

DISCUSSION

Common nodular eyelid lesions are due to chalazion, stye, meibomian gland disease and eyelid malignancy such as basal cell carcinoma, squamous cell carcinoma, sebaceous gland carcinoma, and lymphoma. Demodex as a cause of nodular eyelid lesion is rare. Reported incidence of Demodex involving eyelashes among healthy children age between 3 and 14 was 12%.¹

Demodex infestation of the skin in human being is caused by mites which are ectoparasites that comprise Demodex folliculorum and Demodex brevis. These organisms are commonly associated with acne of the face but it may also affect ocular surface causing disease such as blephritis, meibomian gland disease, chalazion, and even keratoconjunctivitis.² Infestation of demodex on the ocular region is known as ocular demodicosis. This disease is usually characterized by non-specific symptoms such as eyelid itching, increase lacrimation, erythematous eyelid, and cylindrical dandruff seen at the base of eyelashes are usually pathognomonic of ocular demodicosis.²

Demodex infestation involving the eyelid can be difficult to diagnosed. This organism can proliferate in places of the eyelid that are difficult to reach such as around the nose, brow, and cheek. There was published report stated that almost 100% of general population above the age of 70 had been infected by these mites.³ Majority of the cases are diagnosed by clinical symptoms such as itching, burning, foreign body sensation, crusting or matted lashes, tearing, blurry vision, ocular discomfort, or irritation. Common signs include cylindrical dandruff, trichiasis, distichiasis, madarosis, and erythema of the eyelid margin. Our patient presented with nodular eyelid lesion which the signs and symptoms corresponded to ocular demodicosis, which was confirmed by histopathological examination of eyelid biopsy. Other common eyelid diagnosis such as malignancy and fungal infection of the eyelid were also excluded. This patient has underlying diabetes mellitus which may be a

predisposing factor for this infestation, and it appeared to be extensive and bilateral. It is well known poor glucose control in diabetes mellitus increases the susceptibility to Demodex mite infestation.

When a patient presented with nodular eyelid swelling and inflammation after excluding common bacterial and fungal infection or malignancy, Demodex infestation of eyelid should be suspected by careful clinical examination to look for the above sign and symptoms. Definitive confirmation is obtained by histopathological examination of the biopsy specimen from the eyelid.

Effective treatment for Demodex infestation includes topical treatment by tea tree oil.⁴ This is also convenient for patient home treatment. The active ingredients in tea tree oil are Terpinen-4-ol. This ingredient has antimicrobial, antifungal, antiviral, antiseptic, and acaricidal properties.⁴ Common side effects associated with this treatment are dermatitis, allergy, and ocular irritation, especially if used in higher concentrations. Similar symptoms are noted in our patient. Published report showed meibomian gland disease associated with Demodex mites has been effectively treated by topical antibiotics, such as azithromycin, or systemic antibiotics, such as doxycycline or azithromycin besides tea tree oil.⁵ In common skin disease such as acne vulgaris associated with Demodex, oral doxycycline has been used widely as antibiotic of choice with good response.⁵ In our patient, oral antibiotic augmentin was initially given however there was no clinical response which subsequently oral doxycycline was commenced and the patient showed marked improvement after 2 weeks of treatment. Besides tea tree oil and antibiotic treatment, supportive management with cleanser for lid hygiene will assist in the management of this problem.

CONCLUSION

Demodex infestation of the eyelid is a rare clinical presentation, caused by *Demodex folliculorum* and *Demodex*

brevis mites. It can present with a nodular eyelid swelling which needs high index of suspicion in diagnosis. This infection can be treated successfully with oral doxycycline.

CONFLICT OF INTEREST

Authors declare no conflict of interest.

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