Demodectic frost of the ears: Diagnostic dermoscopic features

Andrew P. Sauvageau, MD, Aislyn Oulee, BS, and Frank Wang, MD

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INTRODUCTION

Demodex is a cutaneous disease caused by Demodex mites, including Demodex folliculorum and Demodex brevis, obligate ectoparasites found on the skin of almost all people. Demodex folliculorum resides in the upper canal of pilosebaceous follicles and is commonly found on the face. Demodex brevis burrows deeper in the canal of pilosebaceous follicles and is commonly found on the neck and chest. At night, Demodex mites migrate to the skin surface and feed on sebum produced by sebaceous glands.

Demodex colonization is not present at birth and is thought to occur by contact with other colonized humans. While colonization is usually asymptomatic, the mites can cause or exacerbate dermatoses, if present in substantial numbers. Furthermore, primary and secondary forms of demodicosis have been proposed by Chen and Plewig. While secondary demodicosis occurs with systemic disease, particularly in immunocompromised individuals, primary forms include spinulat (pityriasis folliculorum), papulopustular (rosacea-like), perioral-periorbital-periauricular, nodulocystic-conglobate, ocular demodicosis, and auricular demodicosis (associated with myringitis and otitis externa). Demodectic frost of the ears (DFE) is distinct from auricular demodicosis and resembles spiculate demodicosis. It is characterized by fine follicular scaling of the helix and lobule, giving a “frosted” or sandpaper-like appearance. Here, we report a case of DFE diagnosed using dermoscopy.

CASE REPORT

A healthy 64-year-old male presented to our clinic with a chronic, pruritic, and occasionally tender rash of his bilateral ears. Six years prior to presentation, he was diagnosed with eczematous dermatitis and prescribed clobetasol 0.05% cream. Three years later, he was again diagnosed with eczematous dermatitis and prescribed triamcinolone 0.025% cream. He experienced mild relief of itching when using topical steroids; however, he experienced recurrent flaring after 2 weeks of not using them. There was no history of repeated contact with irritants or allergens, and the patient denied worsening of itching at night, immunosuppression, or any other symptoms. Personal and family histories were negative for connective tissue diseases, such as relapsing polychondritis.

Clinical examination revealed confluent erythema, fine white scaling, and scattered pustules on the bilateral pinnae, with relative sparing of the lobules (Fig 1). There was no involvement of the scalp or face. Clinically, our differential diagnosis included...
demodicosis, eczematous dermatitis, irritant or allergic contact dermatitis, seborrheic dermatitis, rosacea, and less likely relapsing polychondritis. Dermoscopic evaluation showed background telangiectasias and follicular, cone-shaped, translucent white scaling (Fig 2). Potassium hydroxide preparation from the skin of the right antihelix revealed numerous *Demodex* mites (Fig 3).

Given the findings, a diagnosis of DFE was rendered. The patient was prescribed sodium sulfacetamide wash nightly and topical permethrin cream nightly for 1 week, and then once weekly for maintenance. After 1 month of therapy, the patient reported dramatic improvement with complete resolution of his symptoms.

**DISCUSSION**

Demodicosis of the ear can be divided into auricular demodicosis and DFE. Auricular demodicosis was first described in an 84-year-old female presenting for impaired hearing and diagnosed with unilateral *Demodex*-induced chronic otitis externa, myringitis, and a chronic cholesteatoma. DFE was first reported in 2017 by Wallace et al, who described a male in his 50s with follicularly based scaling and erythema of the bilateral ears, including the helices and lobules. Our patient, who had relative sparing of the lobules, represents an additional report of DFE masquerading as a long-standing, pruritic dermatitis. While the patient described by Wallace et al was asymptomatic, the authors mentioned that patients can infrequently present with auricular pain, discomfort, and pruritus. Interestingly, another study reported that increased numbers of *Demodex* mites are strongly correlated with severity of ear pruritus. Consistent with this finding, our patient exhibited substantial pruritus necessitating frequent topical steroid use, indicating that pruritus can, indeed, be a significant symptom in DFE.

Often, the diagnosis of demodicosis is done clinically and supported by microscopic evaluation of mineral oil or potassium hydroxide preparation of skin scrapings revealing many mites. A standardized method of diagnosis using skin samples obtained by cyanoacrylate adhesive has been proposed, with the presence of >5 mites/cm² on first sampling or...
>10 mites/cm² on second sampling being highly sensitive and specific for diagnosis of demodicosis.\(^5\)

Notably, we were able to diagnose DFE using dermoscopy. In a study of 240 cases of folliculitis analyzed with dermoscopy, identification of *Demodex* “follicular openings” and/or *Demodex* tails provided 88.1% accuracy in diagnosing demodicosis.\(^6\) *Demodex* follicular openings appear as dilated follicular orifices containing round, amorphic, and grayish/light brown plugs surrounded by an erythematous halo. *Demodex* tails represent the mite itself and appear as threads or filaments protruding from follicular openings. They can be distinguished from white epidermal scales by their gelatinous or translucent appearance. Additional, but less specific, dermoscopic findings include background erythema and fine white scaling.\(^7\) In our patient, we observed numerous follicular, translucent spicules corresponding to *Demodex* tails, which supports the use of dermoscopy for real-time, non-invasive diagnosis of *Demodex* infestation.

In general, diagnosis of demodicosis can be challenging, as clinical features overlap with rosacea, acne, periorificial dermatitis, folliculitis, facial dermatitis, seborrheic dermatitis, and eczematous dermatitis. Historical clues that aid the diagnosis of demodicosis include persistence of pruritus and rash despite the use of anti-inflammatory medications. As discussed, dermoscopy can help distinguish DFE from other dermatoses, such as seborrheic dermatitis, which typically displays yellow scales and dotted vessels arranged in a patchy distribution, and rosacea, which shows linear vessels arranged in a polygonal network.\(^8\)

Treatment of demodicosis is mainly based on case reports and consists of antiparasitic topical medications, such as ivermectin, permethrin, sulfur, lindane, malathion, benzyl benzoate, and sodium sulfacetamide. Treatment for rosacea-like demodicosis includes anti-inflammatory medications, such as topical azelaic acid, oral tetracycline or macrolide antibiotics, and topical metronidazole.\(^2\) Conversely, local application of topical steroids should be avoided, as they can increase ectoparasite burden and ultimately exacerbate pruritus.\(^9\) In our case, we cannot rule out the possibility that the patient’s rash initially started as a dermatitis, which was then exacerbated by *Demodex* infestation. However, the lack of response to topical steroids and dramatic response to antiparasitic medications suggest that *Demodex* infestation played a significant role in causing his rash.

In summary, we wish to remind clinicians of the entity DFE, and that *Demodex* infestation should be considered for dermatitis of the ear recalcitrant to treatment with topical steroids. Furthermore, dermoscopic evaluation, including the observation of follicular, translucent spicules corresponding to *Demodex* tails, can help clinch the clinical diagnosis of DFE.

Conflicts of interest

None disclosed.

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