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Letter to Editor.

Demodex Folliculorum in Cutaneous Biopsy: A Histological Surprise

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Editor

The Demodex mites belong to the family Demodicidae (Acari: Cheyletoidea) and Class Arachnida. Hair follicle mites, *Demodex folliculorum (DF)* and *Demodex brevis* (DB) are obligatory commensals of the pilosebaceous unit and the most common ectoparasites in human (Lacey et al., 2009).[1] They usually have a predilection for the perioral and periorbital areas of the face but they have been known to be retrieved from almost every area of human skin. DF being more common than DB, they reside at different levels within the dermis, DF occupies the hair follicles above the level of the sebaceous glands mostly at follicular infundibulum, while DB exists principally in depth of sebaceous and meibomian glands. They pose a diagnostic challenge for dermatologist as it can mimic many other inflammatory dermatoses such as folliculitis, rosacea, pityriasis folliculorum, perioral dermatitis, seborrhoeic dermatitis, pustular eruption, blepharitis, seborrhoeic alopecia and other skin lesions (Zhao et al., 2011).[2] Despite these evidences, the connection between mites and skin diseases is still debatable and a sheer coincidence of their association is yet to be ruled out. We discuss a rare case of facial Demodicosis which presented with a gradually progressing swelling and redness on right side of face and was initially diagnosed as a case of Rosacea.

A 42-year diabetic female presented with gradual onset swelling and redness on right side of face which started as red raised flat lesion that gradually increased to involve 2/3rd portion of right cheek. It was associated with minimal itching since past six months. There was slight increase in redness and pruritus of the lesions on sunexposure. There was no history of cough, chest pain, fever, weight loss or any constitutional or systemic symptoms. Patient denied any local application of any cosmetics in that area or any recent drug history. Patient consulted a dermatologist for the above complaints and was diagnosed to have Rosacea. She was put on topical treatments and was advised for a follow up after a month. The patient's symptoms didn't subside in a month time. Laboratory investigations revealed complete blood count, erythrocyte sedimentation rate (ESR), liver and renal function tests, serum ACE levels, were normal. Screening for hepatitis B, hepatitis C and human immunodeficiency virus, as well as serology for antinuclear antibodies (ANA) were negative. Chest X-ray showed no abnormality and KOH mount of scrapings did not reveal any pathology. Her diabetic status was under control as she is on oral medications since 5 yrs of her diagnosis. She was then advised for a skin biopsy which showed mild epidermal orthohyperkeratosis. The dermis showed intense follicular and perifollicular lymphocytic inflammatory infiltrate along with dense lichenoid lymphomononuclear infiltrate. There was follicular dilatation with presence of Demodex sp.mite with surrounding homogenous eosinophilic material. Patient was managed with oral ivermectin 12 mg stat and topical metronidazole gel locally twice a day. The erythema and swelling started regressing within few days and after 3 weeks had near complete resolution of symptoms.

Demodex mites are present in healthy individuals as commensals and is considered to be pathogenic only when present in high densities, or in immunosuppressed states.[3] Demodex is typically found on the face including cheeks, nose, chin, forehead, temples, eye lashes, brows, and also on the balding scalp, ear, neck.[4,5] Incidence of DF infestation increases with age; its prevalence is 100% in adults at middle age and above.[6] Density of DF is less than <5 DF/cm^2 in the general population.[7]

Only the presence of Demodex mites doesn't qualify for demodicosis. The term demodicosis has been aptly used to denote patients with facial dermatosis who have a Demodex density of five mites/ cm^2 from one surface biopsy or ten mites /cm^2 from two successive surface biopsies at the same site (Hay, 2010).[8] Incidence of severe demodicosis has been reported in a number of patients with AIDS, haematological malignancies and allogenic bone marrow transplants, and those undergoing long-term corticosteroid, pimerolimus and erlotinib therapy.

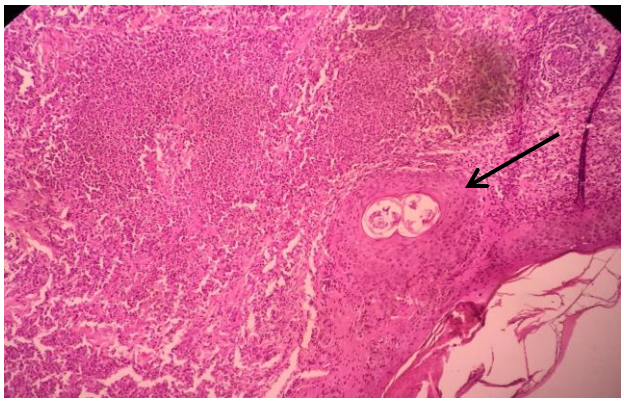

Fig 1: Scanner view 40X-Showing intense inflammation and dialated hair follicle.

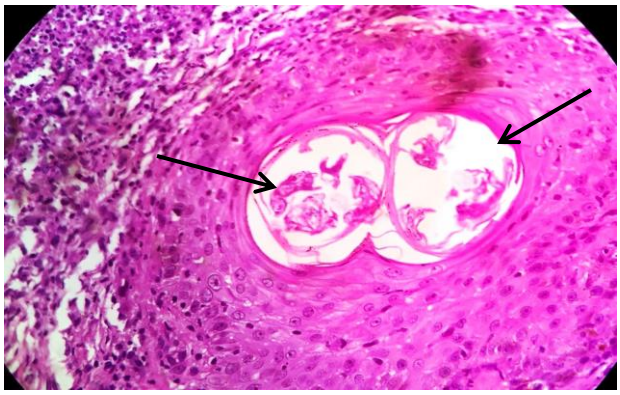

Fig 2: LP 100X- Showing dialated hair follicle containing the Demodex mite.

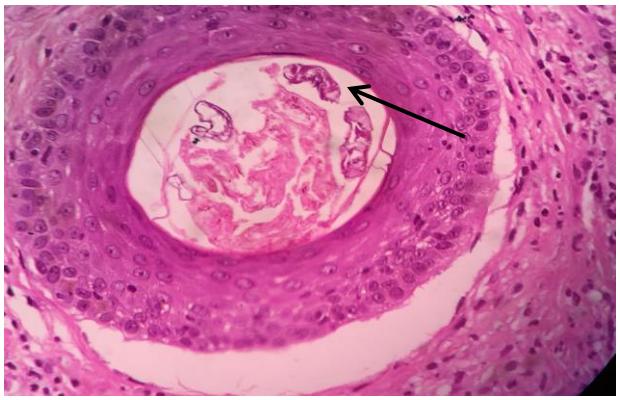

Fig 3: HP 400x- Showing the adult demodex folliculorum mite

The etiopathogenesis of severe infestation has been attributed to suppression of cell-mediated immunity and secondary lymphocyte depletion, leading to an increased number of parasites in the skin (Seyhan et al., 2004).[9] The role of *Demodex* in the pathogeny of rosacea has been proposed by many authors. Few mechanisms that have been proposed in this regard such as the obstruction of the hair follicle or sebaceous duct by increased mite density, direct damage to the follicular epithelia, induction of foreign body/hypersensitivity reactions.[10,11]

This article throws light on the need for greater awareness about demodicosis amongst clinicians and laboratory physicians. Secondary increase in number of demodex mites can be associated with both neoplastic and non-neoplastic diseases.

Though implicated in many diseases the role of Demodex in the causation of disease is still controversial. Future studies are needed to examine the possible role of diabetes mellitus in the predisposition of demodicosis.

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