Common Demodex spp. identified on the arm and abdominal region of patient monitored for widespread pruritus

Yasemin Kaya¹, Sevda Onder², Ulku Karaman³, Gamze Kacmaz⁴

¹Ordu University Medicine Faculty Department of Internal Medicine, Ordu, Turkey
²Ordu University Medicine Faculty Department of Dermatology, Ordu, Turkey
³Ordu University Medicine Faculty Department of Medical Parasitology, Ordu, Turkey
⁴Giresun University Science Literature Faculty Department of Medical Microbiology Giresun, Turkey

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Abstract
Demodex mite is a compulsory human ecto-parasite situated in or near pilo-sebase units. Demodex folliculorum and Demodex brevis are two species found in humans. In this case; there were long-term complaints of severe pruritus (six months), and common erythematous papules on the body. Other physical examination findings, complete blood count, biochemistry, sedimentation and C-reactive protein levels were normal. However, Demodex spp. was detected in standard superficial skin biopsy taken from the patient’s skin. Demodex should be considered prediagnosis for unexplained and continued pruritus complaints and maculopapular lesions.

Keywords: Demodex, house dust mite, pruritus

Introduction
Demodex mites are compulsory human ecto-parasites that have to exist within or near pilosebaceous units [1]. The demodex species of Demodex folliculorum and Demodex brevis are commonly encountered in humans. It has been reported that they feed with epithelial cells and cause skin diseases in humans [2-4]. All skin diseases caused by demodex mites are called demodicosis. In the literatures it has been reported that some species of demodex play a role in the pathogenesis of rosacea, acne vulgaris, perioral dermatitis, seborrheic dermatitis, pustular folliculitis and blepharitis. It also spreads from human to human close contact [4,5-10].

Demodex infestations in humans are usually asymptomatic. Increased pathogenicity in mites may occur due to skin care is not taken care of, intensive use of cosmetic products and not direct washing of these products, increase in sebum production with sweating as in summer, the immune system is congenital inadequate or afterwards immune deficiency development (use of steroids ect.) [4,11]. It has been reported that under normal conditions there are mechanisms to control the increase in the mite population in follicles, but some local and systemic factors can increase the proliferation of parasites [4,9,11].

This case report presents a patient applying with pruritus complaint for more than 6 months and and Demodex spp.caused by pruritus. This case was presented in order to draw attention to the fact that Demodex species may cause these complaints even though physical findings and blood tests are normal in common pruritus cases.

Case Report
A seventy-year old male patient had applied to several clinics with complaints of severe pruritus continuing for 6 months on the abdomen, groin, hips, shoulder and chest regions. He received a variety of diagnoses and used a variety of medications but the complaints had not resolved. The patient had previously used Tavegyl (clemastine), fexofen (fexofenadine), lorders (desloratadine), fucidin cream (fusidic acid), excipial lotion (urea (carbamide)), terminus (Terbinafine), clovate (Clobetasol Propionate), hipokort
(hydrocortisone acetate), and for scabies diagnosis Kwellada lotion (5% permethrin) medications. The anamnesis of the patient was taken and physical examination performed. The patient had hypertension, and benign prostate hyperplasia and Dermatologic examination observed widespread erythematous, occasionally excoriated macules and papules on the body but it was not found clear pathology in the other physical examination (Figure 1). Whole blood count, biochemical parameters, sedimentation, and C-reactive protein levels were normal. Ig E levels were measured as 293.5 IU/ml (normal range; 1-100 IU/ml). The patient was sent to Ordu University parasitology laboratory for stool examination and to take samples for house dust mites. The patient provided a stool sample and had skin sample taken using standard surficial skin biopsy methods. The stool sample and skin sample were examined with a light microscope. Considering a parasite living on the skin may cause pruritus, samples from the calf and abdomen were examined and Demodex spp. were identified (Figure 2). As mites were found in dust from the patient’s house, treatment was begun and he was called for check-up one month later. The patient’s complaints had resolved, lesions were regressing and there was a reduction in the number of mites. At check-up two months after treatment, lesions had healed (Figure 3). There was a clear reduction in the density of Demodex spp.

Discussion

The most common demodex species found on humans of D. folliculorum and D. brevis spend all stages of their lives in hair follicles and sebaceous glands [1]. Demodicosis is a parasitic skin disease caused by follicular parasites including D. folliculorum and D. brevis. These parasites may be localized on the face, hairy skin, hair follicles, oil-secreting glands of the skin, eyelashes, forehead, nose, ear and genital areas. Demodex species feed on oil and protein-rich fluid found in inflamed follicles. Though the pathologic mechanism is still not fully known, the medical significance of this parasite that may spread through close contact is still debated. They may be found in a variety of areas of the body. They may be seen on healthy skin, hair follicles and oil glands without any pathologic situation. When the immune system is suppressed the incidence of the parasites increases and an abnormal immune reaction and skin lesions may be provoked. In the literature it is reported that demodex parasites are more commonly observed in patients with suppressed immune system and those who use immunsuppressive medications [12]. Our patient did not have any immunsuppressive disease identified in anamnesis. Additionally there was no history of using immunsuppressive medications.

A study of Demodex spp. identified in this case has been completed in our city. A total of 799 individuals, 438 males and 361 females aged above 18 years, had samples taken with standard surficial skin biopsy methods from the facial region and parasites were encountered in 669 (83.7%) samples [4]. Our patient had dense amounts of Demodex spp. identified in the abdominal, groin, hip, shoulder and chest regions.

Electron microscope studies have shown that Demodex spp. has a piercing oral structure and the mouth destroys adipose tissue and carries a variety of bacteria into the skin. Within the skin epithelium cells and sebum are used as sources of nutrition. Though the correlation of demodex with a variety of skin diseases has been shown in publications, the pathologic effects in the occurrence of skin diseases is still a topic of debate[1]. Recent studies have reported Demodex spp. may be a factor in diseases like rosacea, acne vulgaris, blepharitis, perioral dermatitis, pustular folliculitis, papulopustular lesions of hairy skin, pityriasis...
foliculorum, pustular lesions in basal cell carcinoma and acquired immunodeficiency syndrome along with blepharitis, keratoconjunctivits and recurring salivary [13,14]. In our case, erythematous excoriated macules and papules had developed on the body due to widespread pruritus.

Pruritus is defined as an unwanted situation of itchy skin resulting in irritation. Pruritus may be classified as acute or chronic. According to the guidelines of the International Forum for the Study of pruritus, pruritus may be classified as lasting 6 weeks or more [15]. Our patient’s pruritus had continued for nearly 6 months and possible diseases were assessed as a cause of chronic pruritus.

The cause of pruritus is not known in 8-15% of patients. The International Forum for the Study of pruritus divided the causes of pruritus into 5 groups according to etiology; skin diseases, systemic diseases, neurologic diseases, psychological problems, mixed diseases and other undefined causes. Skin diseases causing pruritus include psoriasis, atopic dermatitis, contact dermatitis, dry skin, invisible dermatoses, inflammatory dermatoses like medication reactions, infectious dermatoses, autoimmune dermatoses, genodermatoses, pregnancy dermatoses and neoplasms. Common causes include mycotic, bacterial, and viral skin infections, folliculitis, scabies, pediculosis, arthropod reactions and insect bites [15].

Demodex spp. infestation is a significant public health problem. As a result it is necessary for clinicians to be aware of this topic.

Conclusion

We present our case to draw attention to the fact that in addition to infesting the human body, Demodex spp. may cause widespread pruritus common in every region where follicles are found, contrary to the general literature. In conclusion, in patients applying with resistant pruritus of the face and body, identification of infestation by house dust mites and Demodex spp. may play a role in diagnosis. In this way it is recommended that in addition to diagnosis, broad series comprehensive controlled studies be completed.

Competing interests

The authors declare that they have no competing interest.

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References