

# Comparison of Incidence of *Demodex folliculorum* on the Eyelash Follicule in Normal People and Blepharitis Patients

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**SUMMARY:** *Demodex folliculorum* has been incriminated in the development of blepharitis although much controversy persist. Some authors suggest that *Demodex* is a direct pathogen in chronic palpebral conditions while others consider the saprophyte to be innocuous to skin. We conducted a prospective study of eyelashes in 48 patients with blepharitis (totally 96 eyes) and 48 healthy persons (totally 96 eyes), searching for *Demodex folliculorum* and chronic blepharitis. Microscopy in immersion oil after storage in a moist chamber was performed. It is determined *Demodex folliculorum* in 11 of 37 (29.72%) patients with blepharitis, in one of 11 (9.09%) patient with blepharokonjunktivitisi and in 2 of 48 (4.16%) persons in healthy control group. *Staphylococcus aureus* was cultivated in five patients and *D. folliculorum* was found two of them. The incidence of *Demodex folliculorum* was high in patients with blepharitis compared with normal controls. Incidence was high in males. Anti-*Demodex* treatment is indicated when the parasite is found.

**Key words:** *Demodex folliculorum*, blepharitis

## Blefaritli Hastalar ve Sağlıklı Bireylerin Kirpik Folikülünde *Demodex folliculorum* Sıklığının Karşılaştırılması

**ÖZET:** *Demodex folliculorum* karşıt görüşler olsa da blefarit gelişiminden sorumlu tutulmaktadır. Bazı araştırmacılar kronik palpebral hastalıklarda etken olduğunu vurgularken bazıları deride saprofit olarak bulunduğunu bildirmektedirler. Bu çalışmada *Demodex folliculorum* ve kronik blefarit ilişkisini araştırmak amacıyla 48 sağlıklı, 48 blefaritli olmak üzere toplam 96 kişiden alınan kirpik örnekleri incelendi. İmmersiyon yağı ile yapılan mikroskopik inceleme sonrası blefaritli 37 hastanın 11'inde (%29,72), blefarokonjunktivitisi 11 hastanın 1'inde (%9,09) ve 48 sağlıklı bireyin 2'sinde (%4,16) *Demodex folliculorum* saptandı. Beş hastada *Staphylococcus aureus* üretti, bu olguların ikisinde *Demodex folliculorum* saptandı. Kontrol grubuyla karşılaştırıldığında, blefaritli hastalarda *Demodex folliculorum* insidensinin yüksek olduğu ve erkeklerde sık olduğu görüldü. Parazit saptandığında antideMODEx sağaltım uygulandı.

**Anahtar Sözcükler:** *Demodex folliculorum*, blepharitis

## INTRODUCTION

The follicule mite, *Demodex folliculorum* lives in the hair follicles and sebaceous glands especially of the face, nose, and eyelids (3). Rarely do the mites elicit a reaction in humans; nonetheless, they may be associated with acne, comedons (blackheads), or localized keratitis. Although usually considered a non-pathogenic parasite in parasitological textbooks *D. folliculorum* has been implicated as a causative agent for some dermatological conditions, such as rosacea-like eruptions and some types of blepharitis (8).

Our purpose in this study was to investigate prevalence of *D. folliculorum* in microbiological examination of eyelashes of patients with blepharitis.

## MATERIALS AND METHODS

We conducted a prospective study of eyelashes in 48 patients with blepharitis (totally 96 eyes) and 48 healthy persons (totally 96 eyes), searching for *D. folliculorum* and chronic blepharitis and cultivated for bacteriological culture. Microscopy in immersion oil after storage in a moist chamber was performed. There was 22 female and 26 male (age range: 56.39±19.22) in patients group and 22 female and 26 male (age range: 55.23±20.21) in control group. The age range was 16 to 81 years (mean: 56.39±19.22).

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## RESULTS

It is determined *Demodex folliculorum* in 11 of 37 (29.72%) patients with blepharitis, in one of 11 (9.09%) patient with blepharoconjunctivitis and in 2 of 48(4.16%) persons in healthy control group. *Staphylococcus aureus* was cultivated in five patients and *D. folliculorum* was found two of them. The incidence of *Demodex folliculorum* was high in patients with blepharitis compared with normal controls. Incidence was high in males.

Anti-*Demodex* treatment (2% permethrine topically) is indicated when the parasite is found.

## DISCUSSION

*Demodex folliculorum* has been incriminated in the development of blepharitis although much controversy persists. Certain authors suggest that Demodex is a direct pathogen in chronic palpebral conditions while others consider the saprophyte to be innocuous to skin (5).

The incidence of *Demodex folliculorum* was high in patients with blepharitis compared with normal controls in our study. Incidence was high in males. It was detected on high ratio Demodex in patients with blepharitis than control group, in some investigation as our study (5). In the other article, 568 patients with chronic marginal blepharitis was investigated for the presence of *Demodex folliculorum* and *D. brevis* on palpebral margins. The parasites were found in 387 cases (68% examined population). *D. folliculorum* was 258 (67%) and *D. brevis* was 129 (33%) (4). Clifford and Fulk (1) has informed that six eyelashes, three from the upper lid and three from the lower lid, has been epilated from 256 subjects and examined for Demodex. *D. folliculorum* has been found in 16% of the subjects. In the other article, Rodriguez et al. (9) has investigated 105 subjects without blepharitis were selected as control group and 20 subjects as patients. They have informed that the incidence of *Demodex* infestation in the control group is 0.08 mites per eyelash, whereas in the patients with chronic blepharitis the incidence is 0.69 mites per eyelash. This difference is statistically significant ( $p=0.006$ ) according to authors. It has been detected the incidence of Demodex in patients with blepharitis is very high, when compared with normal subjects. *D. folliculorum* has been also demonstrated with an elevated frequency in patients with blepharitis in the article of Demmler *et al.* (2). It has been examined 139 patients with blepharitis and 108 persons with quiet eyes. Demodex has been found in 52% (62/139) of patients with chronic blepharitis.

It was found similar results in our country. In investigation of Ozcelik *et al.* *D. folliculorum* has been found in the eyelid-eyelash follicles of 6 (12.76 %) and 12 (25.53 %) of the dermal face specimens of the 47 chronic kidney deficiency patients. It has been concluded that *Demodex folliculorum* may be a cause of eye disorders such as blepharitis (7). In the

other study (6) 6000 cilia from 170 patients with seborrheic blepharitis and 330 patients with normal eyes were examined for Demodex folliculorum. *Demodex folliculorum* was found in 28.8% (49/170) of patients with blepharitis and in 26.7% (88/330) of controls. The difference between the two groups was not statistically significant. The overall prevalence was 27.4% (137/500) in all patients.

Finally, *Demodex* should be considered as the cause of chronic blepharitis. Anti-Demodex treatment is indicated when the parasite is found. When parasite identify it is suggested acaricides as 2% permethrin cream, 4% pilokarpin gel, 2% mercury pamoat, 2% metranidasole, 1% lindane.

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