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Case Report

Insect Bite Mimicking Malignant Eyelid Tumor

Mukaddes Damla Ciftci,[1] Melis Palamar,[1] Tahir Gurler,[2] Mine Hekimgil,[3] Taner Akalin[3]

[1]Department of Ophthalmology, Ege University, Izmir, Türkiye
[2]Department of Plastic and Reconstructive Surgery, Ege University, Izmir, Türkiye
[3]Department of Pathology, Ege University, Izmir, Türkiye

Abstract

Insects are a class of living creatures within the arthropods. Bite is a wound produced by the mouth parts of an insect. Although insect bite reactions are commonly seen in clinical practice, especially in dermatology clinics, injuries from insect bites are less commonly encountered in ophthalmology clinics. Herein, we report a 28-year-old male presenting with a rapidly growing mass on his right upper eyelid following a suspected insect bite.

Keywords: Eyelid, insect bite, tumor

Introduction

Insects are a class of living creatures within the arthropods with a chitinous skeleton (1). Although the real prevalence is unknown, insect bite reactions are common in clinical practice. As one can expect, incidence of insect bite reactions increases during summer seasons. Infectious and immunogenic substances contained in the saliva of the insects can have detrimental effects on the victims. The bite causes local reactions such as erythematous and edematous eruptions or papules, systemic allergic reactions, or secondary bacterial infections. Insects can also serve as vectors for numerous infectious diseases (2). The patients are diagnosed by examination of the lesions and history of exposure to insects.

Mosquitoes and fleas have piercing mouthparts which can penetrate the skin with little trauma. Their bites are relatively painless. Horseflies and blackflies do not have specialized mouthparts so that their bites are more painful (3). Individuals that are bitten for the first time by an insect are immunologically naive. They generally do not respond beyond the trauma of the bite. If the individual has been bitten before, immune reactions against saliva proteins can occur within weeks (2). Immediate burning and pain caused by stings usually followed by localized erythematous wheal and generally symptoms subside within hours (4).

Herein, we report a patient presenting with a rapidly growing mass on his right upper eyelid resembling a tumor with a presumable scene of insect bite. The study was conducted in agreement with the tenets of the Helsinki Declaration. The patient was informed about this publication and informed consent was obtained for publishing medical records.

Case Report

A 28-year-old male was referred to our clinic for an ulcerated, hyperemic, and nodular mass on his right upper eyelid that grew rapidly within 2 weeks (Fig. 1a). There was no pathological finding in systemic examination. Best-corrected visual acuity was 20/20 bilaterally. Both anterior and dilated posterior

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Address for correspondence: Melis Palamar, MD. Department of Ophthalmology, Ege University, Izmir, Türkiye
Phone: +90 530 408 50 51 **E-mail:** melispalamar@gmail.com

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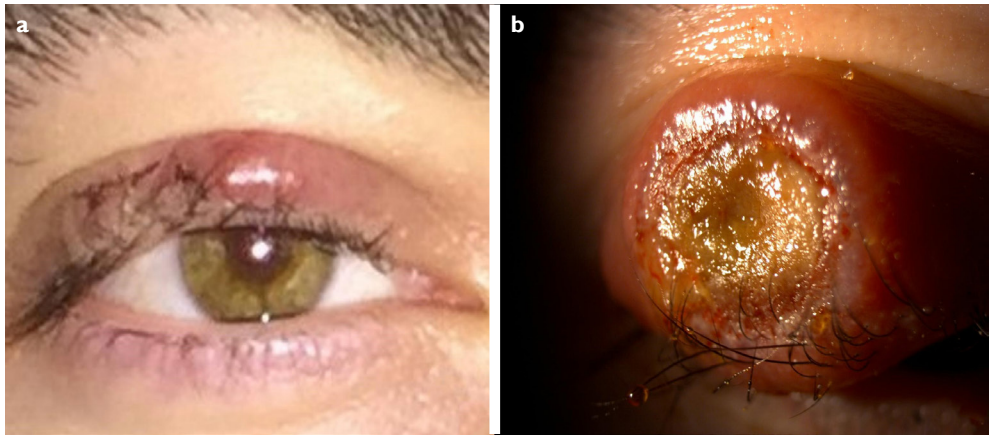

Figure 1. (a) Macroscopic photography of the eyelid showing ulcerated mass on the eyelid. **(b)** Anterior segment photography showing ulcerated mass before punch biopsy.

segment examinations were normal in both eyes. On detailed anamnesis, it was learned that he experienced a sudden pain that occurred during drying his face with a towel a few weeks ago. However, he did not notice a bite or detect an insect.

When he admitted to our clinic, empirical topical and systemic antibiotics and anti-inflammatory medications were initiated as the lesion resembled an eyelid granulomatous lesion related to meibomian glands. Hence, the symptoms of the patient progressed despite treatment, a punch biopsy from the lesion was performed which did not distinguish infective pathologies or malignancy (Fig. 1b). In histopathological examination, there was ulceration in epidermis. Abundant eosinophils, histiocytes, and lymphoid infiltrate were detected in dermis (Figures 2a-c). There were enlarged CD30-positive lymphocytes in immunohistochemical analysis (Fig. 2d). CD30-positive lymphoproliferative diseases and insect bite reactions were evaluated in the differential diagnosis.

As the punch biopsy histopathology did not discriminate the lesion, an incisional biopsy was scheduled. On immunohistochemical examination of the incisional biopsy specimen, no CD30-positive cells were detected. Histopathological examination revealed post-biopsy findings such as lymphocytes, histiocytes, increased vascularity, myofibroblasts, and fibrosis in the dermis.

Findings such as atypical location for lymphomatoid papulosis, absence of residual lesion on re-excision, and the distribution of CD30-positive cells were commented in favor of an insect bite reaction. Due to the lack of a prominent

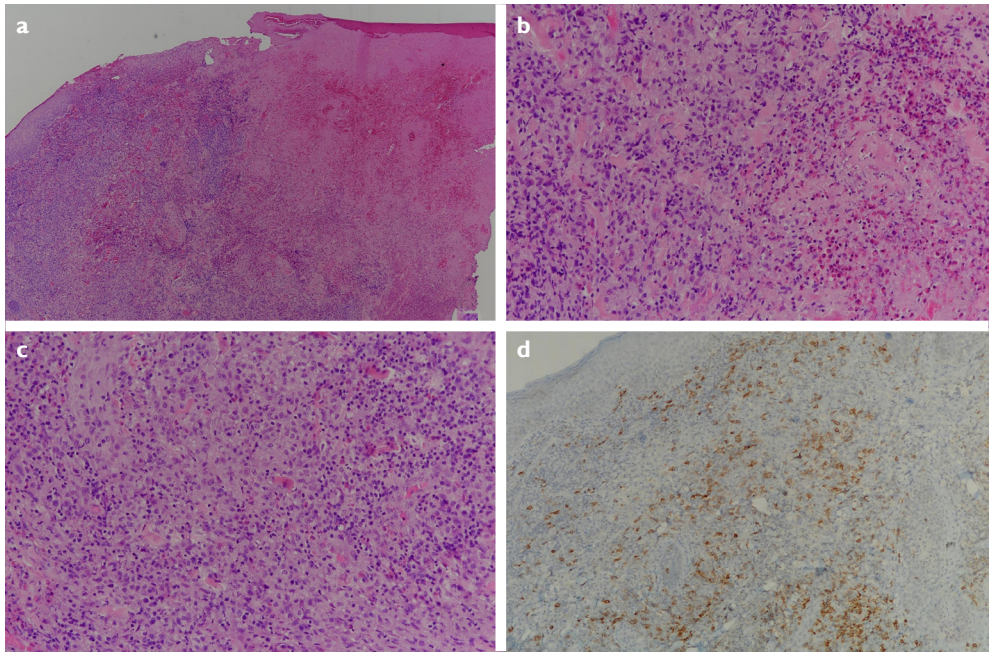

Figure 2. (a-c) Hematoxylin and eosin staining of dermis showing abundant eosinophils, histiocytes, and lymphoid infiltrate. **(d)** Immunohistochemical analysis revealing CD30-positive lymphocytes.

insect bite history in the anamnesis and the difficulty of differential diagnosis, the case is followed up clinically for new similar lesions.

After the incisional biopsy, the patient did not receive any treatment other than prophylactic topical antibiotic ointment. However, following incisional biopsy, the lesion rapidly regressed in 7 days (Figs. 3a-b). In the light of these findings, considering the patient's anamnesis, the lesion was diagnosed as an insect bite reaction.

Discussion

Contact with insects can induce cutaneous or systemic reactions, ranging from a little reaction to life threatening complications. The diagnosis depends on high index of suspicion and being familiar with insect fauna of the environment (4). Ophthalmological injuries from insects are less commonly encountered. A variety of insect-related ocular injuries have been reported in the literature, especially injuries of the ocular surface from the stings of them (5-7). Eyelid injuries from tick infestation and hymenopteran bite were reported previously (8). In the present case, there was no embedded parts of any insects neither macroscopically nor microscopically. The fact that the insect bite history was not clear in the anamnesis was also among the factors that made the diagnosis difficult in this case.

The lack of response to medical treatment and the gradual enlargement of the ulcerated nodular mass suggested a tumor in the differential diagnosis. Especially irregular rolled edges and central ulceration of the mass lead the suspicion of malignancy (9). Although it is uncommon before the age of 40, risk factors of eyelid tumors in young individuals consist of family history of skin cancer, history of chronic exposure to ultraviolet radiation, and genetic syndromes such as xeroderma pigmentosum (10). In addition, chalazion, a non-neoplastic lesion frequently encountered in ophthalmologic practice, is one of the pathologies that should be considered primarily in the differential diagnosis of eyelid lesions. Furthermore, other eyelid cysts such as cysts of Zeis, cysts of Moll, pilar cysts, and comedones should be kept in mind in the differential diagnosis.

Insect bite reactions can be similar in histological features of lymphomatoid papulosis. Dense, lymphoid, and wedge-shaped infiltrate which contains eosinophils and large or atypical CD30+ lymphoid cells can be detected in histological examination (11). The presence of CD30+ large lymphoid cells is a feature of many infectious diseases of the skin. It is a sign of lymphocyte activation (12). CD30 is a member of the tumor necrosis factor super-family and probably has a role in the immune response to infections (13). A screen for monoclonality, clinical-histological correlations, and sometimes, additional biopsies or response to empiric therapy may be required for a definitive diagnosis.

Although rare, pruritic skin nodules caused by hematological malignancies should be kept in mind in the differential diagnosis of insect bite reactions. Insect-bite like reaction (IBLR) is a rare entity. It is associated with hematological malignancies such as leukemia (14). Even though most of IBLR cases are derived from B-cells, hematological malignancies derived from T-cells can also be reported as an etiologic origin of IBLR (15,16). These lesions can appear on facial regions of patients (16). The presented case, laboratory tests including complete blood count and lactate dehydrogenase were within normal limits. No lymphadenopathy was detected on physical examination. For these reasons, the diagnosis of IBLR was not considered in the foreground.

Banerjee et al. (17) retrospectively analyzed 994 patients with eyelid lesions that were histopathologically examined. While benign lesions constituted 81.6% of all samples, the rate of malignant lesions was 18.6%. In their series, most common benign lesion was chalazion. Dermal nevus was the most common benign neoplasm, while Molluscum contagiosum was the most common infectious reason for eyelid lesions. It has been emphasized that benign lesions tend to be seen in earlier decades, as happened in our case.

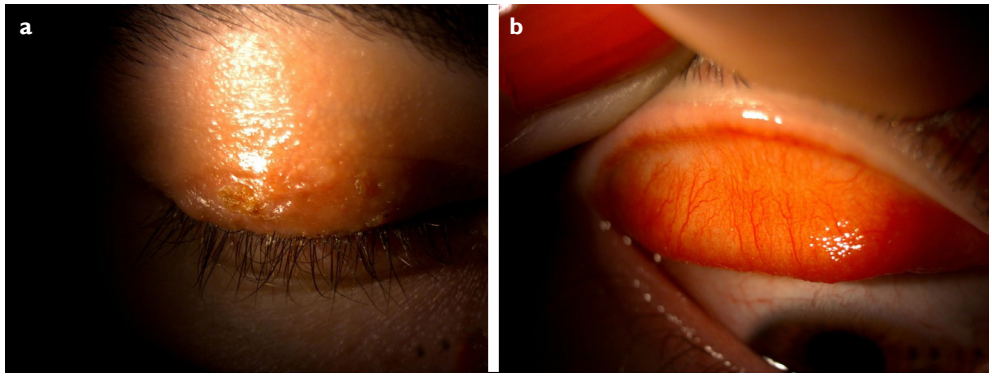

Figure 3. (a) Photograph of the eyelid after incisional biopsy. **(b)** Tarsal conjunctival photography after the incisional biopsy.

In the differential diagnosis of patients presenting with a rapidly growing tender and ulcerated mass on the eyelid, insect bite should always be kept in mind and a detailed anamnesis of the patient should be taken.

Conclusion

Insect bite reactions can be misdiagnosed as tumoral lesions. For this reason, in the differential diagnosis of patients presenting with a rapid growing mass on the eyelids, insect bite reactions should always be kept in mind and an appropriate anamnesis should be taken to detect any suspicious bite history.

Disclosures

Informed consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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