

A 56-year-old female with fever and a painful, red, swollen leg

V.A.S.H. Dalm^{1*}, R. Gerth van Wijk²

Department of Internal Medicine, sections ¹Clinical Immunology and ²Allergology, Erasmus MC, Rotterdam, the Netherlands, *corresponding author: tel. +31 (0)633330457, e-mail: v.dalm@erasmusmc.nl

CASE

A 56-year-old woman, with a medical history of breast cancer, for which a lumpectomy was performed in 2003 with additional radiotherapy, presented with a blister-like lesion on her lower left leg. The leg was swollen from the ankle towards the knee and red with a tender and shiny aspect (*figure 1*). This was accompanied by general discomfort and fever (38.3 °C). The skin lesion had developed in a few hours. There were no risk factors for deep venous thrombosis. Approximately two hours before development of the skin lesion our patient was stung by a mosquito. At physical examination we could not detect any abnormalities apart from the demonstrated skin lesion. There were no wounds on her feet or legs.

Figure 1.



WHAT IS YOUR DIAGNOSIS?

See page 369 for the answer to this quiz.

ANSWER TO PHOTO QUIZ (PAGE 366)

A 56-YEAR-OLD FEMALE WITH FEVER AND A PAINFUL, RED, SWOLLEN LEG

SKEETER SYNDROME

Mosquito bites typically give rise to local cutaneous reactions consisting of immediate wheals and flares with delayed pruritic indurated papules peaking at 24 to 36 hours and diminishing over days or weeks.¹ Allergic reactions to mosquito bites are characterised by development of large or atypical local reactions, such as red, itchy, warm swellings appearing within minutes of the bites and itchy papules, ecchymotic, vesiculated, blistering bullous reactions appearing two to six hours after the bites and persisting for days or weeks.² Mosquito bites can also result in anaphylaxis.

Skeeter syndrome is defined as a mosquito saliva-induced large local inflammatory reaction that may be accompanied by low-grade fever.¹ Due to its comparable clinical picture it is often misdiagnosed as cellulitis.

Allergic mosquito bite reactions are due to specific sensitisation to mosquito salivary proteins, as exposure to mosquito species to which an individual has not previously been exposed causes no reaction. Mosquito saliva contains many proteins, most of which are allergenic in humans.³ Mosquito bite reactions involve mosquito saliva-specific immunoglobulin (Ig)E and IgG antibodies as well as lymphocyte proliferation.¹ In local allergic reactions IgE and IgG levels and lymphocyte proliferation index are elevated, whereas in systemic reactions only IgE seems to be involved. Non-IgE-mediated mast cell degranulation is also involved in allergic responses leading to fluid extravasation and neutrophil recruitment.¹

Diagnosing mosquito allergy is mainly based on the medical history of an allergic reaction following a witnessed bite. Immunoassays, detecting mosquito salivary specific IgE antibodies, have been developed recently, but they showed low sensitivity and specificity.²

People with mosquito allergy should avoid mosquito-infested areas, wear protective clothes and apply mosquito repellents (N,N-diethyl-m-toluamide (DEET)) to exposed skin. Administration of H₁-antihistamines reduces itching in early-phase responses. Mild late-phase reactions can be treated with local application of glucocorticoid cream and severe large local reactions should be treated with systemic administration of prednisone (1 mg/kg for five to

seven days). There is no place for antibiotic treatment in these reactions.¹ Immunotherapy is neither well studied nor widely used because currently commercially available mosquito whole body extracts contain little mosquito saliva proteins and many nonsalivary proteins, which are ineffective in downregulating the specific immune responses to mosquito salivary allergens.⁴ In our patient treatment with 50 mg prednisone for seven days led to complete remission of the skin lesion (*figure 2*) three days after start prednisone).

Figure 2. Three days after start prednisone



REFERENCES

1. Peng Z, Simons FER. Mosquito allergy: immune mechanisms and recombinant salivary allergens. *Int Arch Allergy Immunol.* 2004;133:198-209.
2. Peng Z, Simons FER. Advances in mosquito allergy. *Curr Opin Allergy Clin Immunol.* 2007;350-4.
3. Valenzuela JG, Pham VM, Garfield MK, Francischetti IM, Ribeiro JM. Toward a description of the salivary gland of the adult female mosquito *Aedes aegypti*. *Insect Biochem Mol Biol.* 2002;32:1101-22.
4. Ariano R, Panzani RC. Efficacy and safety of specific immunotherapy to mosquito bites. *Allerg Immunol. (Paris)* 2004;36:131-8.