

1 **TITLE PAGE**

2 **Article Type:** Clinical Images

3 **Title of the manuscript:** Common bite - bizarre rash.

4 **Key words:** mosquito bite, inflammation, skeeter syndrome

5 **Running head:** Skeeter syndrome

6 **Authors:**

7 1. **Corresponding author:** Simant Singh Thapa, MD, DiMM

8 <sup>1</sup>Department of Internal Medicine, Saint Vincent Hospital, University Of  
9 Massachusetts Medical School, Worcester, MA.

10

11 2. **Co- author:** Buddha Basnyat, MD, Msc, FACP, FRCP

12 <sup>1</sup>Nepal International Clinic, Travel and Mountain Medicine Center,  
13 Kathmandu, Nepal.

14 <sup>2</sup>Oxford University clinical Research Unit-Nepal; The Centre for Tropical  
15 Medicine and Global Health, University of Oxford, UK.

16

17 **Requests for reprints should be addressed to corresponding author:**

18 Simant Singh Thapa, MD, DiMM

19 Department of Internal Medicine,

20 <sup>1</sup>Saint Vincent Hospital, University of Massachusetts Medical School, Worcester, MA,  
21 01608.

22 E-mail address: [thapasimant@gmail.com](mailto:thapasimant@gmail.com) ; [simant.thapa@stvincenthospital.com](mailto:simant.thapa@stvincenthospital.com)

23

24 **MANUSCRIPT**

25

26 **Clinical Images**

27 A 21-year-old man with no significant past medical history presented to a travel  
28 medicine clinic with an itchy rash. Both anterior thighs were itchy, red, warm and  
29 swollen. There was a large bulla on the anterior aspect of the left thigh. He had  
30 been bitten by mosquitoes on both thighs less than 24 hours previously. What is  
31 your diagnosis?

32

33 Answer:

34 **Skeeter syndrome**

35

36 The patient had arrived in Nepal from the United States one day previously. On the  
37 day prior to presentation, he visited Chitwan National Park in the tropical region of  
38 Nepal. He was bitten by mosquitoes soon after reaching the National Park camp in  
39 the evening. He had been wearing shorts and had not used insect repellent. Most of  
40 the mosquito bites were on his lower extremities. About 1-2 hours after being  
41 bitten, he noticed itching, redness, warmth and swelling of his anterior thighs. The  
42 rash rapidly progressed over the next 8-10 hours, becoming a severe local reaction  
43 with formation of a large bulla on the left anterior thigh. We treated him with oral  
44 antihistamines and topical steroid cream. He had complete resolution of the rash in  
45 about 2 weeks.

46

47 Skeeter syndrome is an allergic reaction to the polypeptides in the saliva of the  
48 mosquito. It presents as a large local inflammatory reaction that clinically  
49 resembles cellulitis.<sup>1</sup> The rash is red, itchy and warm. Swelling begins within hours  
50 of being bitten. Itchy papules, vesicles and bullae appear 8-12 hours later and may  
51 persist for days.<sup>2</sup> Both IgE and IgG appear to play an important role in the  
52 pathogenesis of allergy to mosquito bites.<sup>3</sup> An early rise in IgE and IgG has been  
53 seen in prospective monitoring of natural sensitization and desensitization to  
54 mosquito bites.<sup>4</sup>

55

56 The saliva of different species of mosquito may contain slightly different polypeptide  
57 enzymes.<sup>3</sup> An individual may be allergic to a specific species of mosquito while  
58 showing little or no reaction to the bites of other species. This might explain why an  
59 individual who has no history of mosquito allergies might develop a severe reaction  
60 to mosquito bites when traveling to another country.

61

62 It can be difficult to distinguish allergic inflammation caused by mosquito bites from  
63 cellulitis due to a secondary bacterial infection. It is important to obtain a careful  
64 history of the time of onset of the local inflammatory reaction following a witnessed  
65 or presumed mosquito bite.<sup>1,2</sup> Identification of Skeeter syndrome may avoid  
66 unnecessary diagnostic procedure and antibiotic treatment.

67

68 Treatment consists of oral antihistamines and topical steroid cream. In severe  
69 allergic reaction, oral steroid may be necessary. Useful preventive measures include  
70 avoiding mosquito bites, wearing long sleeves and long pants in mosquito-prone  
71 areas and using insect repellent.<sup>2,5</sup>

72

73 **Financial/Material Support:** None.

74 **Disclosures:** None.

75 **Authorship:** All authors had access to the information and played a role in writing  
76 this manuscript.

77 **Consent obtained from patient for publication:** Yes.

78

79 **References:**

80

81 1. Simons FE, Peng Z. Skeeter syndrome. J Allergy Clin Immunol 1999;  
82 104:705.

83

- 84 2. Peng Z, Simons FE. Advances in mosquito allergy. *Curr Opin Allergy Clin*  
85 *Immunol* 2007; 7:350-4.
- 86
- 87 3. Peng Z, Simons FE. Mosquito allergy: Immune mechanisms and recombinant  
88 salivary allergens. *Int Arch Allergy Immunol* 2004; 133:198-209.
- 89
- 90 4. Peng Z and Simons FE. A prospective study of naturally acquired  
91 sensitization and subsequent desensitization to mosquito bites and  
92 concurrent antibody responses. *J Allergy Clin Immunol*. 1998; 101:284-286
- 93
- 94 5. Juckett G. Arthropod bites. *Am Fam Physician*. 2013 Dec 15; 88(12):841-7.
- 95

96 **Figure Legend:**

97 Figure: Erythema with clear margins and swelling over both thighs. Large bulla on the  
98 anterior left thigh. Photograph by Simant Thapa, MD, DiMM.