Atypical eschar: An unusual cutaneous manifestation of scrub typhus

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Scrub typhus, also known as Tsutsugamushi fever or chigger fever, is a mite-transmitted zoonosis caused by Orientia tsutsugamushi. The vector is the larval stage (chigger) of the trombiculid mite (Leptotrombidium deliense and several other Leptotrombidium spp). The mites and the rodents that carry them serve as the major reservoirs. Scrub typhus is widely prevalent in the ‘tsutsugamushi triangle’ region of the world spanning the Indian subcontinent to eastern Asia and the western Pacific rim (Japan, Korea, India, Pakistan, Taiwan, Southeast Asia and Australia).

The clinical features include fever, myalgia, headache, rash, and a pathognomonic eschar formed by the bite of chigger mite that inoculates the causative agent of scrub typhus Orientia tsutsugamushi. The local reaction at the site of chigger bite occurs as a painless papule which subsequently undergoes central necrosis with formation of an eschar. Regional lymphadenopathy, with development of large and tender lymph nodes, occurs at the site of the bite and may lead to generalized lymphadenopathy. The clinical diagnosis is difficult as the symptoms are similar to other febrile illnesses such as dengue, typhoid, leptospirosis etc. An eschar, if present, narrows down the provisional diagnosis towards scrub typhus. The nonspecific presentation and lack of the characteristic eschar in 40% of patients leads to many undiagnosed cases of scrub typhus.

Here, we report four cases of scrub typhus, hailing from the rural areas of south India, who presented with unusual skin manifestation of scrub typhus which helped in the diagnosis of the condition. Similar presentation has not been mentioned in the literature previously.

Case reports

Case 1: A 65-yr-old female was referred from the intensive care unit (ICU) with an ulcer over her right inframammary area for one week (Fig. 1). She was also having fever with acute respiratory distress syndrome for which she had been admitted in the ICU. On examination, she was found to have a well-defined punched out ulcer of 2 cm diam with slough at the floor over the right inframammary area. She also had lymphadenopathy involving the right axillary nodes. She was a housewife by occupation coming from a lower middle class family and had no history of recent travel.

Case 2: A 26-yr-old boy was admitted in the intensive care unit with complaints of fever and encephalitis for last one week. On examination, he was found to have a round, well-defined punched out ulcer of 1.5 cm diam with slough at the floor over the right axilla. However, there was no regional lymphadenopathy. No other skin lesions were seen on examination. He was an office worker from a lower middle class family.

Case 3: A 35-yr-old housewife presented with complaints of fever for one wk with mild cough and abdominal pain. On examination, she was found to have a similar well-defined punched out ulcer of 1.5 cm diam with slough at the floor over the left inframammary area (Fig. 2). There was enlargement on the left axillary lymph nodes.

Case 4: A 40-yr-old female presented with complaints of massive inguinal lymphadenopathy, fever and mild abdominal pain for last 10 days. She also complained of an ulcer over the left inguinal region. On examination, she was found to have a well-defined punched out ulcer of 2 cm diam with slough at the floor over the left inguinal area (Fig. 3).

None of the patients gave any history suggestive of the presence of a thick blackish eschar covering the ulcer initially. In all the patients there were no other skin
lesions except for the ulcer in the various flexural areas.

The patients were thoroughly examined to determine the cause of the symptoms. Routine blood investigations, liver function test and chest X-rays were taken. The serological tests for malaria, typhoid, dengue and leptospirosis were all negative. All the four cases, however, tested positive by a rapid immunochromatographic test (STRICT) (SD Bioline Tsutsugamushi kit; Standard Diagnostics, Seoul, Korea) used to detect immunoglobulin G/immunoglobulin M/immunoglobulin A (IgG/IgM/IgA) antibodies against *O. tsutsugamushi*. Sera positive in STRICT were preserved at –20°C for ST IgM ELISA (scrub typhus immunoglobulin M enzyme linked immunosorbent assay) with the scrub typhus IgM detect kit (InBios International, Seattle, Washington, USA). All the patients showed dramatic improvement in the systemic symptoms with a course of doxycycline (100 mg twice daily for 7 days). The atypical eschar also started resolving and had completely disappeared in subsequent follow-ups.

**DISCUSSION**

The disease scrub typhus is common in the Asia-Pacific region and is named after the vegetation where the mites reside. The mite bites are painless and the characteristic cutaneous finding is an eschar at the site of bite. There may be a wide array of systemic features like fever, headache, myalgia, and hearing loss, sometimes complicated by encephalitis, hepatitis, and pulmonary and cardiac involvement. The clinical features and the presence of the eschar in around 60% of cases help in the diagnosis of the disease. The eschar when present serves as an important diagnostic clue and all febrile patients should be examined for its presence, in the absence of any other specific diagnostic findings as the timely treatment of the disease can be life saving.

The four cases mentioned here had various manifestations of scrub typhus. But with respect to the other manifestations, the cutaneous manifestations were quite identical in all the patients. They did not have the classical eschar of scrub typhus rather had a well defined round punched out ulcer with slough present in the intertriginous areas. No other cutaneous manifestations were present in any of the patients. As the diagnosis and timely treatment of scrub typhus is very much dependent on the clinical picture, and as the laboratory confirmation may not always be possible, hence in such circumstances the cutaneous manifestations play a vital role and can give a clue to the diagnosis. The eschar may be absent in intertriginous areas. Cutaneous manifestations of scrub typhus have always been linked to the classical eschar which was characteristically missing in all four patients. Only a well defined ulcer at the site of the bite was seen. This may be a less documented cutaneous manifestation of scrub typhus.

As the cutaneous manifestations play a vital role in the diagnosis of scrub typhus, any patient presenting with fever, regional lymphadenopathy and without any localising signs, should be thoroughly examined for the cutaneous manifestations. We would like to conclude that the cutaneous manifestation of scrub typhus may not always be the classical eschar; and especially in the intertriginous areas, the patients may present with only a well defined ulcer as seen in our patients.

**REFERENCES**

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