Diagnosis: Scrub typhus.

Scrub typhus is an acute infection caused by an obligate intracellular gram-negative cocobacillus, Orientia tsutsugamushi. The natural reservoir is rodents. The organism is also maintained in nature by transovarial transmission in mites of Trombicula species. The mites inhabit transitional “scrub” vegetation. The larval stage of the mite, called the “chigger,” requires a vertebrate blood meal for further development. Human beings who trespass into the chigger zones get bitten, resulting in the disease. Human-to-human transmission does not occur.

Scrub typhus is one of the most commonly underrecognized etiologies for hepatorenal dysfunction with hemorrhagic diathesis in the tropics. The essential feature that distinguishes scrub typhus from other clinically similar endemic diseases (eg, malaria and leptospirosis) is an eschar that occurs at the site of the chigger bite [1]. The eschar represents tissue reaction occurring at the site of the chigger bite and local proliferation of O. tsutsugamushi. Histologically, an eschar shows epidermal necrosis and mononuclear infiltration around the dilated dermal blood vessels [2]. The eschar is usually 5–20 mm in size and progresses from a papule to vesicular lesion and finally evolves into a brownish-black crusted necrotic ulcer with erythematous halo, giving it a typical “cigarette burn–like” appearance [3, 4] (Figure 1). The eschar is classically single, but occasionally multiple eschars have been reported [5].

Clusters of chiggers harboring on dead leaves and drying branches get attached to human hosts on coming into direct cutaneous contact. These larvae migrate centripetally and bite when their migration gets arrested by skin folds at flexures or by pressure from tight clothing [4, 5]. In females, eschars commonly occur above the umbilicus, whereas in males, the region below the umbilicus and lower limbs are more affected, which could be attributed to their respective distinct clothing patterns [5]. Atypical sites of eschar formation such as the scalp, eyelid, and penis have also been described [4, 6]. When an eschar occurs in moist areas, they may form shallow necrotic ulcers without a scab and can easily be overlooked, as the cutaneous lesions may be painless and nonpruritic and thus may go unnoticed. A valuable adjunctive sign that helps to identify a hidden eschar is painful enlargement of the draining lymph node [5]. In a patient suspected to have scrub typhus, a meticulous search should be made in the catchment area of a tender lymph node for the presence of an eschar.

The eschar is an important specimen for laboratory diagnosis for scrub typhus as well. Immunohistochemistry (IHC) upon the eschar can demonstrate intracytoplasmic O. tsutsugamushi antigens in vascular endothelial cells and infiltrating macrophages. The sensitivity and specificity of IHC on the eschar for diagnosis of scrub typhus is 100% [2]. A nested DNA polymerase chain reaction (PCR) assay for the O. tsutsugamushi gene sequence can also be done on the eschar with reported sensitivity of 86.5% and specificity of 100% [6]. IHC and DNA PCR are unaffected by antibiotic treatment and give diagnostic confirmation even several days after initiation of antibiotics.
These tests can also help in differentiating eschar-like scabs resulting from trauma, pyoderma, chickenpox, rickettsialpox, or insect bite [6].

Treatment of scrub typhus consists of early initiation of oral doxycycline or oral/intravenous azithromycin. The management of organ failure is supportive and usually improves with conservative measures unless very severe [7]. Our patient’s diagnosis was confirmed by immunoglobulin M enzyme-linked immunosorbent assay and PCR (nested PCR of the 483-bp fragment of O. tsutsugamushi DNA) on blood samples. The patient improved with doxycycline therapy (100 mg twice daily) and was discharged after 1 week following resolution of symptoms.

**Note**

Potential conflicts of interest. All authors: No reported conflicts.

All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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**References**