IFN-α (3 million units) was administered three times a week. The vasculitis abated, but the thrombocytopenia worsened despite treatment with low-dose IFN-α (1 million units) three times a week; the platelet count decreased to 8×10^9/L. Prednisone therapy was instituted (1 mg/[kg · d]) together with IFN-α. The platelet count increased; however, the dose of prednisone could not be tapered below 0.5 mg/[kg · d]. Therapy with ribavirin (800 mg/d) was instituted and treatment with IFN was discontinued. Vasculitis and thrombocytopenia resolved completely after 1 month. Prednisone could be discontinued without recurrence for 3 months. Therapy with ribavirin was maintained at the same dosage.

At 9 months, circulating HCV-RNA could still be detected at low levels, the C4 fraction of complement level had increased from <0.04 g/L to 0.16 g/L, and MC had decreased from 4 g/L to 0.06 g/L.

The efficacy of IFN-α for treatment of HCV-associated MC is related closely to its antiviral activity, thus supporting the idea that HCV infection may be the cause of MC [1]. Our experience in this case suggests that ribavirin may be used to treat both MC and thrombocytopenia associated with HCV infection. We believe that HCV infection was the cause of thrombocytopenia in our patient, even if viremia remained positive, because ribavirin, unlike IFN-α, has only antiviral activity.

Philippe Blanche and Didier Bouscary

Service of Internal Medicine, Hôpital Saint-Joseph; and Service of Haematology, Hôpital Cochin, Paris, France

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A Case of Scrub Typhus Probably Acquired in Africa

Scrub typhus (also known as tsutsugamushi disease or chigger-borne typhus) is an acute febrile illness caused by *Orientia tsutsugamushi,* a gram-negative obligate intracellular organism that had, until recently, been classified within the genus *Rickettsia* [1]. Scrub typhus is known to occur in Asia, northern Australia, and the Pacific region, with the region of endemicity outlined by Japan and southeastern Siberia to the north, Australia to the south, and Afghanistan and Pakistan to the west [2, 3]. We describe a case of scrub typhus and provide evidence to support its origin in Africa.

A 46-year-old male from the United States who was on a missionary trip visited Cameroon, West Africa, where he lived in a rural village for 1 month. Approximately 2 weeks into his trip, he developed a blister on an erythematous base on his left lower leg, which underwent focal necrosis to form a black eschar and then an ulcer. Within 3 days, he developed a fever and a red maculopapular rash that was initially on his legs and abdomen but later spread to the upper extremities and trunk. He was admitted to the hospital when he returned to the United States 2 weeks after development of the initial blister; at admission he had a fever (temperature to 39.5°C), headaches, myalgias, malaise, and an ecchymotic 5-cm plaque with a 1-cm black eschar on his left lower leg (figure 1). Multiple red-violaceous nonblanching maculae were present on his legs, and there were multiple red blanching maculae on his trunk and face. He did not recall being bitten by an insect or tick in Africa.

The results of a laboratory evaluation included a hemoglobin concentration of 13 g/dL, a platelet count of 136,000/μL, and a WBC count of 3,700/μL. The Weil-Felix reaction was negative. On admission, indirect immunofluorescent antibody testing revealed an *O. tsutsugamushi* IgG titer of 1:256 and a *Rickettsia conorii* IgG titer of 1:64 (Specialty Laboratories, Santa Monica, CA). *R. conorii* is the agent of boutonneuse fever. Titers obtained 2 weeks after admission revealed an *O. tsutsugamushi* IgG titer of >1:1,024 and an *R. conorii* IgG titer of 1:128.

Biopsies of the central ecchymotic lesion and one of the macular nonblanching lesions demonstrated vascular injury with a perivas-

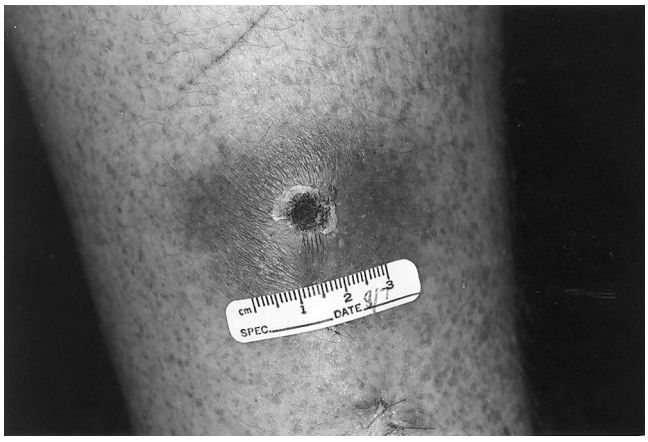

Figure 1. Ecchymotic plaque with black eschar on medial left lower leg of a 46-year-old male who probably acquired scrub typhus in Africa.

Reprints or correspondence: Dr. Manoj K. Jain, 6025 Walnut Grove Road, Suite 304, Memphis, Tennessee 38120.

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cular mononuclear cell infiltrate. Immunohistologic examination with a monoclonal antibody system that was reactive with *R. conorii* revealed no rickettsial organisms. PCR of DNA extracted from the skin biopsy specimens (paraffin-embedded tissue) was negative for *O. tsutsugamushi* and did not detect rickettsial DNA (University of Texas Medical Branch at Galveston). The patient was treated with doxycycline (100 mg twice a day), and his fever and other symptoms resolved within 24 hours.

Although this case exhibits many features consistent with a diagnosis of scrub typhus, several aspects of it are atypical. The rash usually appears on the trunk at the end of the first week and spreads to the extremities later. The rash in this case occurred earlier and involved the legs at onset. In addition, both the rash and the erythema surrounding the eschar were more intense than expected for scrub typhus and leukopenia was present (in contrast, most patients with scrub typhus have mild leukocytosis); thus, the possibility of this being another entity, with features similar to those of scrub typhus and which express cross-reactive antibodies, should also be considered. Serology is the standard method of diagnosing scrub typhus, and, as such, we believe that this diagnosis can be made with confidence in our patient's case. A PCR assay was negative for *O. tsutsugamushi;* however, the sensitivity of this method is unknown for formalin-fixed, paraffin-embedded skin samples.

We believe that our case provides what may be the most convincing evidence to date of scrub typhus transmission in Africa. Our patient's primary lesion was noted in Cameroon 2 weeks after his arrival, and he denied traveling to other countries; therefore, transmission must have occurred in Africa or en route. A case of scrub typhus occurred in a Japanese man 6 days after he returned to Japan following a visit to the People's Republic of Congo, which borders upon Cameroon in Africa [4]. Although transmission in Africa was likely, infection in Japan could not be completely ruled out since scrub typhus is endemic to Japan and the 6-day interval falls within its incubation period. Scrub typhus antibodies have been documented in East Africans [5]; however, *O. tsutsugamushi* organisms have yet to be identified in trombiculid mite chiggers, rats, or humans in Africa. The results of such studies performed by specific serology and PCR would be interesting.

Rhonda P. Ghorbani, Ashkan J. Ghorbani, Manoj K. Jain, and David H. Walker

Departments of Pathology and Medicine, Divisions of Dermatology and Infectious Disease, University of Tennessee, Memphis, Tennessee; and Department of Pathology, University of Texas Medical Branch, Galveston, Texas

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Aspergillus fumigatus Fungus Ball in a Patient with Healed Paracoccidioidomycosis

Cavitations, which are sequelae of healed tuberculosis, are the most common conditions for the development of colonization by fungi, and the most frequent colonizer is *Aspergillus fumigatus* [1]. However, fungal colonization may occur in patients with other infectious and noninfectious diseases in which structural pulmonary defects can occur. We report, to our knowledge, the first case of fungus ball in a patient who had been treated for paracoccidioidomycosis.

In January 1993, a 63-year-old male farmer presented to the hospital with a 6-month history of productive cough with mucopurulent, blood-tinged sputum, dyspnea, weight loss (10 kg), anorexia, and prostration. Physical examination revealed a thin man (57 kg) with a blood pressure of 90/60 mm Hg, a heart rate of 88, and a respiratory rate of 32. A chest roentgenogram (obtained on 28 April 1993) showed a cystic (necrotic) lesion in the left upper lobe, diffuse reticulonodular infiltration, ill-defined lesions in the upper lobes, subpleural blebs, and signs of chronic obstructive pulmonary disease. An abdominal CT scan revealed enlargement of the adrenal glands (greater at the left). Microscopic examination of three sputum samples revealed *Paracoccidioides brasiliensis* but no neoplastic cells or acid-fast bacilli.

An immunodiffusion test revealed specific precipitin bands for paracoccidioidin antigen. On 7 May 1993 the patient received itraconazole therapy (100 mg/d) for the mycosis and mineralocorticoid and glucocorticoid for the adrenal insufficiency. The patient's condition improved after he received this therapy. Intraconazole therapy was discontinued on 15 August 1994.

One year after the treatment for the mycosis was discontinued, the patient was readmitted to the hospital with complaints of expectoration and an episode of hemoptysis. Examination of a sputum sample did not reveal fungi, acid-fast bacilli, or neoplastic cells. A chest CT (obtained on 8 August 1995) showed a diffuse reticulonodular infiltrate, nodules, micronodules, fibroatelectatic scarring and blebs in both the lungs, and a thick walled-cavity with a free solid mass in the left upper lobe (figure 1). A transthoracic needle aspiration biopsy was performed. Examination of a biopsy specimen revealed atypical macro-

Reprints or correspondence: Dr. L. C. Severo, Instituto de Pesquisa e Diagnóstico, Santa Casa, Annes Dias, 285, Porto Alegre 90020-090, Rio Grande do Sul, Brazil.

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