Brill-Zinsser disease: report of a case in Canada

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Summary: This report documents the occurrence of Brill-Zinsser disease in a 48-year-old woman who experienced typhus fever in a German concentration camp. This is the first report of a case of recrudescent typhus in a European immigrating to Canada following World War II. The last reported case of Brill-Zinsser disease in Canada occurred in 1953.

Résumé: Ce rapport décrit un cas de maladie de Brill-Zinsser chez une femme de 48 ans, qui a eu le typhus dans un camp de concentration allemand. C'est le premier cas de rechute de typhus observé chez un Européen ayant immigré au Canada après la Seconde Guerre mondiale. Le dernier cas de maladie de Brill-Zinsser au Canada fût rapporté en 1953.

Epidemic typhus has been present in Europe and Asia for centuries. In New York in 1896 Brill[1] first observed the occurrence of a relatively mild sporadic disease resembling typhus. The illness occurred principally among Jewish immigrants from Eastern Europe and was characterized by fever, headache, maculopapular rash and malaise. Brill could not find evidence of the disease being communicable, unlike classical epidemic typhus. In 1934 Zinsser[2] postulated that the entity described by Brill was really a recrudescence of epidemic typhus experienced many years before. In 1955 Price[3] confirmed Zinsser's theory by isolating *Rickettsia prowazekii* from the lymph nodes obtained during elective operations in two healthy patients known to have had typhus many years before. However, why the recrudescence should occur remains an enigma.

The last reported case of Brill-Zinsser disease in Canada occurred in 1953.[4] In North America, Brill-Zinsser disease has been observed primarily in immigrants from Russia and Poland who had been infected during the great epidemics of typhus in 1918-21. Murray *et al* in 1950[5] predicted that the incidence of Brill's disease in North America might be expected to increase because of the influx of immigrants who had experienced typhus in the Nazi concentration camps during World War II. Although Canada has received many European immigrants since that event, not a single case of Brill-Zinsser disease has been described in this population.

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Case report

A 48-year-old Jewish woman born in Poland attended a convention of cytology technicians in New Orleans and returned to Montreal on November 5, 1972. On arrival home she noted the sudden onset of fever and chills. She was admitted to the Jewish General Hospital in Montreal on the evening of November 11 because of persistent high fever, chills, arthralgias, weakness, anorexia and headache. The patient had been in good health prior to the onset of this illness. She reported having had typhus fever in a concentration camp in 1941.

On admission her oral temperature was 39.9°C; she appeared ill but in no obvious distress, and was not toxic. Positive physical findings were confined to the skin: a fine, sparse, macular eruption was observed on the trunk. The suspected diagnosis was salmonellosis but Brill-Zinsser disease was considered a possibility. The hemoglobin was 10.8 g/dl; the leukocyte count was 8800/mm^3 with 81% neutrophils, 13% lymphocytes, 5% monocytes and 1% eosinophils. Results of urinalysis were normal. Repeated blood, sputum, urine and stool cultures were negative for pathogens. The VDRL, Weil-Felix and cold agglutinin tests were all negative. The results of the complement fixation tests with murine typhus antigen and typhus fever group antigen performed by the Laboratory Centre for Disease Control in Ottawa are shown in Table I. The chest radiograph and electrocardiogram were within normal limits.

During the first 72 hours of her hospitalization the patient had a continuous high fever with spikes to 40°C. She experienced visual hallucinations and reported that these were identical to the ones she remembered as occurring with typhus in the concentration camp. Tetracycline 500 mg orally *qid* was started on November 13. The patient's clinical response was dramatic and she became afebrile within 48 hours. Only the feeling of malaise persisted for weeks after her discharge from hospital.

Table I—Results of serologic tests

Date	11/11/72	4/12/72	19/03/73	2/11/73
Weil-Felix	Neg.	Neg.	Not done	Not done
Murine typhus antigen CF*	1:256	1:512	1:128	1:16
Typhus fever group antigen CF*	1:256	1:512	1:256	1:64

*Complement-fixation test

Discussion

In the present case the diagnosis of Brill-Zinsser disease was based on the clinical presentation, the history of a remote epidemic typhus infection, a negative Weil-Felix test, and the high complement-fixation antibody titre to the typhus-fever group antigen early in the illness. The typhus antigens employed in the complement-fixation tests are the "soluble" type and usually do not distinguish between epidemic and murine typhus fever. Following epidemic typhus fever patients may have demonstrable antibodies in their blood for many years. However, titres are generally low. Our patient had no history of exposure to murine typhus.

Brill-Zinsser disease has been noted in immigrants from countries where classical epidemic typhus is endemic, and intervals of 20 years or more may lapse after the original infection. The diagnosis may be missed in many instances because the disease may run a very mild course, the rash may be absent and the Weil-Felix reaction may be negative. However, not all patients with Brill-Zinsser disease have a benign course. Some are exceedingly ill and deaths have been reported as a result of this recurrent infection.[5]

Except for Brill-Zinsser disease, rickettsial diseases in Canada persist in nature in cycles between wild animals and arthropod vectors and reservoirs. The possibility of a patient with Brill-Zinsser disease causing an outbreak of epidemic typhus in a louse-infested community cannot be overlooked.

References

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