**Case report**

**Recurrent typhoid in an HTLV-III antibody positive man**

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**SUMMARY** A case of recurrent typhoid fever in a homosexual man with antibodies to human T-cell lymphotropic virus-III (HTLV-III) and impaired cell mediated immunity is reported: we believe the first report of Salmonella typhi infection in association with HTLV-III disease.

Typhoid fever is an acute systemic disease caused by infection with *Salmonella typhi*. It usually results from ingestion of food or water contaminated with the organism. Outbreaks in the United Kingdom are rare; the infection is usually acquired during foreign travel. The organism is nearly always sensitive to chloramphenicol but in spite of treatment typhoid may recur, often a few weeks after symptoms have resolved, in up to 10% of cases. Non-typhoidal salmonella infections are more common and have recently been reported as early infections in the acquired immunodeficiency syndrome (AIDS).

**Case report**

A 44 year old male designer presented in November 1984 with a nine day history of fever, nocturnal sweating, rigors, a dry cough and colicky abdominal pains. For the three days before admission he had had profuse diarrhoea initially preceded by constipation. There was no history of foreign travel nor contact with any cases of diarrhoea. He was a disciple of the 'macrobiotic' diet but otherwise had had no dietary indiscretion. He had had syphilis, gonorrhoea, and hepatitis B in the past, and in 1983 herpes zoster involving the left L1 dermatome. There was no history of gall bladder disease. He was homosexual and last had intercourse with an Iraqi man in a local Turkish baths four weeks before admission.

On examination he was pyrexial (39-5°C) and drowsy. There were no skin lesions. The only physical finding was generalised abdominal tenderness. He was not anaemic (Hb 13-5 g/dl) and the white cell count was 6.3 x 10^9/l with 9% lymphocytes and 89% neutrophils showing toxic granulation. Blood and stool cultures grew *Salmonella typhi* sensitive to chloramphenicol and he was started on 500 mg of chloramphenicol orally five times a day. His fever, diarrhoea, cough, and abdominal pains gradually settled. Repeated stool cultures at this stage failed to grow *Salmonella typhi*. After two weeks his antibiotics were stopped and he was discharged symptom free. Ten days later he was readmitted with a seven day history of fever, diarrhoea, and abdominal pains. *Salmonella typhi* was again isolated from blood cultures and bone marrow but not from the faeces. He had an absolute lymphopaenia of 0.6 x 10^9/l. Bone marrow showed normal granulopoiesis but decreased erythropoiesis consistent with acute infection. He was given oral chloramphenicol in the same dose as before for 10 days followed by oral amoxycillin 1500 mg thrice daily for three weeks. His symptoms again resolved after a few days and he was discharged three weeks later and has since remained well.

We were unable to trace his recent sexual partners. We failed to isolate *Salmonella typhi* from food in his home or from his specialist health food shops. Samples of water from the Turkish bath grew no Salmonella. He showed anergy to intradermal tuberculin, candida, trychophyton, mumps and tetanus antigens. He had a persistent absolute lymphopaenia, decreased T-helper cells and abnormal T-helper/T-suppressor ratio (Table).

<table>
<thead>
<tr>
<th>Lymphocyte subsets</th>
<th>November 84</th>
<th>February 85</th>
<th>Normal range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lymphocyte count</td>
<td>0.9</td>
<td>1.4</td>
<td>(1.5-4) x 10^9/l</td>
</tr>
<tr>
<td>Total T-lymphocytes</td>
<td>0.41</td>
<td>0.79</td>
<td>—</td>
</tr>
<tr>
<td>T-helper cells</td>
<td>0.20</td>
<td>0.21</td>
<td>&gt;0.53 x 10^9/l</td>
</tr>
<tr>
<td>T-suppressor cells</td>
<td>0.19</td>
<td>0.62</td>
<td>—</td>
</tr>
<tr>
<td>Helper/suppressor ratio</td>
<td>1.05</td>
<td>0.33</td>
<td>&gt;1.2</td>
</tr>
</tbody>
</table>

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Immunoglobulin levels were normal. He was HTLV-III antibody positive.

Discussion

Typhoid fever is usually acquired by ingesting food or water contaminated by Salmonella typhi. Two cases of sexual transmission of Salmonella typhi have been described in male homosexuals.1 Amongst the male homosexual population enteric infections such as shigellosis, salmonellosis, campylobacter enteritis, amoebiasis, giardiasis, and enterobiasis are common and result from increased promiscuity and from the nature of homosexual intercourse itself.2-4 We were unable to confirm a food source of infection in our patient nor trace his recent sexual contacts.

Cell mediated immunity is thought to be important in the protection against salmonella infections. Salmonella septicaemia has been reported in patients with leukaemia,5 Hodgkin's disease,6 malignancy,7 and corticosteroid therapy.8 It is becoming increasingly recognised that persistent Salmonella typhimurium bacteraemia is an early infection in the acquired immunodeficiency syndrome (AIDS) and may present many months before the classical opportunistic infections and/or Kaposi's sarcoma are manifest.9-12 Recently the human T-cell lymphotropic virus-III (HTLV-III) has been identified as the probable causative organism of AIDS.13 14 Antibodies reactive against antigens of HTLV-III are found in 88% of patients with AIDS and 79% of homosexual men with symptoms and signs which often preceed AIDS yet are present in less than 1% of people with no risk factors for AIDS.15 HTLV-III has an affinity for the helper T-cell and destruction of these contributes to the impaired immunity in AIDS. Infection with HTLV-III gives a spectrum of disease ranging from no symptoms through persistent generalised lymphadenopathy and ‘pre-AIDS’ to AIDS itself. Our patient did not fit the criteria for AIDS set down by the Centre for Disease Control in the USA. He did have persistent lymphopaenia, low T-helper count, low T-helper/T-suppressor ratio and cutaneous anergy, all of which are found in AIDS.16 Although non-typhoid salmonella bacteraemia (especially Salmonella typhimurium) is well recognised as an early infection in AIDS this is the first report of recurrent Salmonella typhi infection associated with HTLV-III disease.

References

14 Popovic M, Sarnagadharan MG, Read E, Gallo RC. Detection, isolation and continuous production of cytopathic retroviruses (HTLV-III) from patients with AIDS and pre-AIDS. Science 1984; 224: 497-500.
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