CASE REPORT

Cat-scratch disease presenting as a solitary splenic abscess in an elderly man

Momoko Nakamura, Mio Kurimoto, Takehiro Kato, Takeshige Kunieda

Matsunami General Hospital,
Hashima, Gifu, Japan**Correspondence to**
Dr Takeshige Kunieda,
kunieda_t@yahoo.co.jp

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SUMMARY

Patients with cat-scratch disease (CSD), which is caused by *Bartonella henselae*, typically present with local lymphadenopathy with a brief period of fever and general symptoms. Most cases are self-limiting and usually afflict children and young adults. Although rare, CSD can lead to serious complications, especially in immunocompromised patients. These rare complications often require intensive treatment. We describe the case of a 79-year-old man who presented with general malaise and a high fever. The physical examination findings were unremarkable. Of note, the lymph nodes were not enlarged. An abdominal CT scan with intravenous contrast revealed a solitary splenic abscess and no lymphadenopathy. The initial antibiotic treatment was ineffective and a splenectomy was indicated. A history of contact with cats raised the possibility of CSD, which was confirmed by a positive serology test result for *B. henselae*. Antibiotic treatment with azithromycin successfully treated the splenic abscess and splenectomy was avoided.

BACKGROUND

Cat-scratch disease (CSD) is a bacterial infection spread by cats. In 85–90% of patients, the disease caused by the bacterium *Bartonella henselae* usually presents as tender lymphadenopathy.¹ Although rare, CSD can result in serious complications, which are most likely to occur in children and people with weakened immune systems. CSD can affect the brain, eyes, heart or other internal organs. The hepatosplenic form of CSD is a particularly rare form: it occurs in only 0.3–0.7% of patients.¹ Treatment of solitary splenic abscesses due to CSD has been reported to be either antibiotic administration or splenectomy. However, the characteristics of CSD in elderly patients and the treatments for the rare complications remain unclear.

Here, we describe the case of a 79-year-old man who presented with a solitary splenic abscess due to CSD without lymphadenopathy. Antibiotic therapy with azithromycin successfully treated this rare form of CSD in our elderly patient.

CASE PRESENTATION

A healthy 79-year-old Japanese man was admitted to our hospital with fever and general malaise. Two months prior to this, fever accompanied by generalised weakness and night sweats had begun. The day before admission, the weakness resulted in difficulty in standing and moving. The patient had no underlying diseases and he was not taking any

medications. Additionally he did not drink alcohol or use illicit drugs. He owned two cats for 10 years, but denied having been bitten. He had never owned a dog.

INVESTIGATIONS

On physical examination, the patient appeared tired with a body temperature of 39.9°C, blood pressure of 114/58 mm Hg, heart rate of 98 beats/min and respiratory rate of 20 breaths/min. The other findings from the physical examination were unremarkable. Of note, no lymphadenopathy was found; there were no signs of scratches. The patient's white cell count was 8640 cells/ μ L with 82.4% neutrophils; his haemoglobin level was 12.3 g/dL, platelet count was 205 000 cells/ μ L and erythrocyte sedimentation rate was 88 mm/h. The level of C reactive protein was 6.14 mg/dL. Results of other tests such as liver function tests, thyroid function tests and protein electrophoresis tests were normal. Additionally, the results of an interferon- γ release assay for tuberculosis were negative and no bacterial growth was detected in a total of four sets of blood cultures. An abdominal CT scan with intravenous contrast revealed a round non-enhancing lesion in the spleen (figure 1A).

DIFFERENTIAL DIAGNOSIS

Differential diagnosis of the splenic lesion included sarcoidosis, malignant lymphoma and metastatic tumour. The solitary, multilocular lesion had an irregular border and, combined with the patient's condition, this strongly suggested a splenic abscess.

TREATMENT

We began treatment with the broad-spectrum antibiotic, ceftriaxone. However, the fever persisted and the patient's condition did not improve (figure 2). The initial antibiotic treatment failure was an indication for a splenectomy, but a history of contact with cats raised the possibility of CSD. The results of serological tests were negative for anti-*B. henselae* IgM, but positive for IgG with a titre greater than 1:1024. A parenteral dose of azithromycin (500 mg/day) was administered for 1 day; this was followed with oral azithromycin (250 mg/day).

OUTCOME AND FOLLOW-UP

Following this, clinical recovery was uneventful (figure 1B) and the patient was discharged.

DISCUSSION

We have reported two important clinical issues from our experience with this elderly patient:

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Figure 1 Abdominal CT scan on day 4 revealed a solitary splenic abscess (A). The splenic abscess was successfully treated with azithromycin on day 80 (B).

Figure 2 The patient's clinical course.

(1) CSD rarely presents with atypical manifestations, such as a solitary splenic abscess without lymphadenopathy, and (2) the splenic abscess due to CSD in this patient was successfully treated with azithromycin therapy, without a splenectomy.

First, CSD presents as tender lymphadenopathy in 85–90% of patients and it is an important differential diagnosis for fever of unknown origin with lymphadenopathy. In our case, no lymphadenopathy was detected on physical examination or on the CT scan. An isolated splenic lesion due to CSD is also extremely rare, and only a few cases have been reported. These atypical manifestations were the cause of the diagnostic delay in our case. One reason for these manifestations may have been the age of our patient; atypical presentations of CSD, including endocarditis, encephalitis and fever of unknown origin, are more frequently found in elderly patients² than in non-elderly patients¹. Lymphadenopathy has been reported to be less common (76.5% vs 94.4%) and general malaise has been reported to be more common (70.8% vs 51.4%) in elderly patients² than in non-elderly patients¹. In these reported cases, the time from onset of symptoms to diagnosis was significantly longer in elderly patients.

Second, the splenic abscess due to CSD in our elderly patient was successfully treated with azithromycin therapy. Only five cases of a solitary splenic abscess due to CSD, including our case, have been reported to date.^{3–6} Clinical improvement was achieved with antibiotic treatment and splenectomy in three and two cases, respectively. All patients except our patient were middle aged. To our knowledge, ours is the first case of CSD in an elderly patient who was successfully treated with antibiotic therapy, avoiding a splenectomy.

In conclusion, elderly patients with CSD often present with atypical manifestations, which can cause a delay in diagnosis. Additionally, a splenic abscess due to CSD in an elderly patient

can be conservatively treated with antibiotics. As previously reported, CSD affects elderly as well as non-elderly people, but clinical features differ between these patient groups.² As a result of these atypical manifestations, we might not immediately consider the possibility of *B. henselae* infection. Further studies of atypical CSD presentations will help in avoiding diagnostic delay and allow clinicians to treat CSD patients more promptly.

Learning points

- ▶ The possibility of cat-scratch disease (CSD) cannot be excluded in cases of fever of unknown origin (FUO) with no lymphadenopathy.
- ▶ CSD should always be included in the differential diagnosis of FUO in patients with a history of contact with cats.
- ▶ CSD often presents with atypical manifestations in elderly patients, resulting in a delay in diagnosis.
- ▶ A solitary splenic abscess is a rare presentation of CSD, which can be treated with appropriate antibiotics in elderly patients.

Competing interests None.

Patient consent Obtained.

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