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Caso clinico

Case report

Cat-scratch disease presenting as a solitary splenic abscess in an immunocompetent adult: case report and literature review

Malattia da graffio di gatto manifestatasi come ascesso splenico solitario in un adulto immunocompetente: caso clinico e rassegna della letteratura

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INTRODUCTION

Cat scratch disease (CSD) is the most common human infectious disease caused from *Bartonella henselae*, a Gram-negative bacillus [1]. The disease presents a worldwide distribution and it is associated with a previous history of scratch or bite from a cat [2]. CSD may affect various organs producing a broad range of clinical syndromes [3]. Isolated splenic involvement as initial manifestation of CSD is an extremely rare clinical occurrence especially in patients with intact immune status [4, 5]. We report a case of CSD presenting with a splenic abscess in an immunocompetent adult.

CASE REPORT

A 28-year-old male was admitted to our department via his general practitioner with a 3 days history of low grade fever (38.3°C), generalized fatigue and a vague persistent abdominal pain located in the left upper quadrant. His past medical history was negative for any underlying disease and free of recent infection, surgery or trauma. His vital signs on admission were as follows: blood pressure, 125/75 mmHg; body temperature, 39.2°C; heart rate 105 beats/min; oxygen saturation 98% while he was breathing ambient air. Physical examination was unremarkable except of a marked sensitivity during abdominal palpation on the left hypocondrium along with a moderate enlarged spleen.

Laboratory work up disclosed leucocytosis (18,2 k/μl white cell counts) with neutrophilia (92% polymorphonuclears) along with elevated C-reactive protein levels (27mg/dl) and erythrocyte sedimentation rate (62 mm/h). Electrocardiogram revealed sinus rhythm with no pathological findings. Renal and liver function tests, amylase and lipase levels were all within normal limits. Blood and urine cultures did not reveal any pathogenic microorganism. Testing for human immunodeficiency virus was also negative. Initial imaging investigations (chest radiography postero-anterior view and plain abdominal radiography) were normal. Abdominal Computed Tomography (CT) scan detected a bilocular abscess collection located in the convex diaphragmatic surface of the spleen (Figure 1). No other pathological findings were recorded from the abdominal imaging.

Social history demonstrated a cat scratch one week before. An erythematous crusted papule was evident on the dorsal surface of the left

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foot. Serological analyses by indirect fluorescence assay (IFA) detected the presence of immunoglobulin (Ig) G and IgM antibodies to *B. henselae* with a titre greater than 1:256 and 1:16 respectively. Parenteral administration of ciprofloxacin was initiated at 1200 mg in two daily doses (30 mg/kg) for two weeks. Initial management of the splenic abscess consisted of percutaneous CT-guided drainage of the splenic abscess cavity with aspiration of 600ml purulent material (Figure 2). Culture of the drained fluid sample confirmed the presence of *B. henselae*. However, the patient's clinical condition deteriorated presenting fever of 39.6°C on the third hospital day. In a second CT abdominal scan multiple residual abscess collections were noted, making total splenectomy the most appropriate management (Figure 3). Clinical recovery was uneventful and the patient was discharged on the 9th postoperative day.

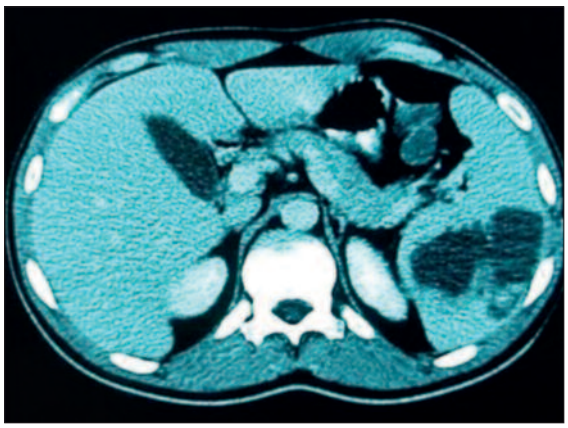

Figure 1 - Abdominal Computed Tomography(CT)-splenic abscess collection.

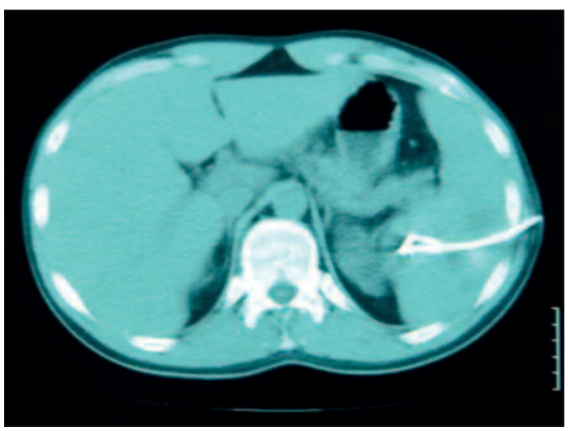

Figure 2 - Percutaneous CT-guided drainage of the splenic abscess.

Figure 3 - Spleen specimen.

DISCUSSION

In this case patient fulfilled 3 of the 4 diagnostic criteria for CSD adapted by Margileth [6]. To the best of our knowledge this is the second case of isolated splenic CSD in an immunocompetent adult. Non-specific clinical expression along with the absence of regional lymph nodes did not raise diagnostic suspicion and infection from *B. henselae* was not initially recognised. Previous history of contact with cat, imaging findings and the presence of anti-*Bartonella henselae* IgG and IgM established the diagnosis. Since the abscess was not successfully drained, surgical splenectomy was performed leading to rapid clinical recovery.

Abscess of the spleen represents a rare, life-threatening clinical condition, with only 600 reports in the international literature [7]. Previous surgery, abdominal trauma and immunosuppression are the most common predisposing risk factors for the development of a spleen abscess [8]. *Staphylococcus* and *Streptococcus* sp are the most common detected causative pathogens while mycobacteria, fungi and protozoa are more often encountered in immunocompromised individuals [7, 8]. Due to its non-specific clinical presentation at onset, a splenic abscess can easily be misdiagnosed [9]. However, timely diagnosis is crucial since it can limit mortality rates to 10% [9]. Although splenectomy represents the treatment of choice, percutaneous CT guided drainage of the abscess has been reported to be an effective alternative therapeutic modality with higher rates of successful drainage recorded among unilocular and bilocular abscess collections [9].

The clinical entity of CSD was first reported in France by Debré et al. in 1950 [10]. However, the causative agent of the disease was detected only 30 years ago [11]. CSD affects people of all age groups with more than 8 out of 10 patients being less than 21-year-old [2]. It is usually manifested with regional lymphadenopathy and it is associated with the development of a papule that appears 3 to 10 days after inoculation from a cat scratch or bite [3]. Typically, lymphadenopathy involves a single lymph node in the majority of patients with axillary and epitrochlear nodes to be more often affected [3]. Inguinal localization has been also described [12]. Lymphadenopathy usually resolves within 2 to 4 months [2].

Atypical clinical presentations of infection with *B. henselae* include a broad spectrum of clinical syndromes ranging from prolonged fever of unknown origin to hepatosplenic, ocular and neurological manifestations [3, 13]. Remarkably, immune thrombocytopenic purpura presented as a complication of *B. henselae* infection has been also reported [14].

Hepatosplenic form of CSD is a rare entity occurring in only 0.3%-0.7% of patients [2]. More than 6 out of 10 patients with hepatosplenic CSD experience and intense abdominal pain located periumbilical and/or the upper abdominal quadrants [15]. Physical examination reveals hepato-splenomegaly in more than 50% of the patients [3]. Current diagnostic techniques offer the possibility of accurate recognition of *B. henselae* infection. Serological testing for *B. henselae* antibodies is the most cost-effective diagnostic modality with IFA to be most frequently used [3].

In alignment with the reported case, atypical forms of CSD render a diagnostic difficulty especially in the absence of palpable lymph nodes [16]. It is also noteworthy, that splenic abscess represents a potentially fatal pathology if not diagnosed early [7]. For this reason a high level of vigilance is required from the physicians involved when they encounter patients with atypical symptoms of unexplained fever and abdominal pain. Furthermore, having knowledge of the wide spectrum of systemic manifestations of CSD combined with a detailed social history can raise clinical suspicion of *B. henselae* infection leading to accurate diagnosis and appropriate therapy.

Keywords: cat-scratch disease, splenic abscess, diagnosis, management.

Informed Consent

Written informed consent was obtained from the patient for publication of this manuscript and accompanying images. A copy of the written consent form is available for review by the Editor-in-Chief of this journal.

Conflict of interest declaration

The authors declare that they have no competing interests.

SUMMARY

Cat-scratch disease is a common zoonotic infectious disease caused by *Bartonella henselae*. It is generally characterized by regional lymphadenopathy following exposure to an infected cat. Organ systemic manifestations occur rarely in atypical forms of the disease. Abscess of the spleen represents a rare, life-threatening clinical entity.

Here we report an unusual case of cat scratch disease presenting as an isolated splenic abscess in an immunocompetent adult. Comprehensive social history revealed retrospectively close contact with cats. Diagnosis of *B. henselae* infection was confirmed on the basis of positive serology, skin lesion and imaging findings. Initial efforts at spleen preserving management failed to improve clinical symptoms and classical splenectomy was finally performed. Splenic bartonellosis may become potentially fatal if not recognized. Since diagnosis is challenging, a high index of clinical suspicion is required.

RIASSUNTO

La malattia da graffio di gatto è una zoonosi infettiva comune che riconosce quale agente eziologico Bartonella henselae. *Generalmente, la malattia è caratterizzata da una linfoadenopatia regionale successiva all'esposizione a un gatto infetto. Le manifestazioni sistemiche d'organo si verificano raramente nelle forme atipiche della malattia. L'ascesso splenico rappresenta un'entità clinica rara, talvolta letale. In questo articolo gli autori riferiscono un caso inusuale di malattia da graffio di gatto manifestatasi come ascesso splenico isolato in un adulto immunocompetente. L'anamnesi metteva in evidenza un pregresso contatto stretto con gatti. La diagnosi di infezione da* B. henselae *è stata confermata sulla base della positività sierologica, della presenza di lesione cutanea e degli esami diagnostici per immagine. I tentativi iniziali di preservare l'organo non sono stati sufficienti a migliorare la sintomatologia clinica, e quindi si è reso necessario ricorrere alla splenectomia tradizionale. La bartonellosi splenica può rivelarsi potenzialmente fatale quando non riconosciuta. La complessità della diagnosi impone un alto grado di sospetto clinico.*

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