

Cat scratch fever

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ABSTRACT

CSD is a common infectious disease of zoonotic importance, associated mainly with lymphadenopathy in children, adolescents, and young adults. The first case was reported in 1931, and it is caused by *Bartonella henselae*, with the reservoirs being domestic animals such as cats, guinea pigs, rabbits, and occasionally dogs. Most cases can recover on their own without any treatment; however, if treatment is required, rifampicin is the drug of choice for CSD.

Introduction

Cat scratch fever is a zoonotic disease associated with regional lymphadenopathy in humans [1] and [2]. The organism involved in CSD is *Bartonella henselae* of *Bartonella* species, which is a fastidious, hemotropic, gram-negative bacterium formerly known as *Rochalimaea henselae* [1], [4], and [5]. Firstly, Debré et al. reported it as clinical identity in 1950 [2]. Its presence is reported worldwide and in all areas of North America, with an estimated 25000 cases per year, mostly in the younger age group of 21 years [1], [3]. It is transmitted from cat to cat by the cat flea (*Ctenocephalides felis*) and to humans by cats biting or scratching [4]. There is no data that supports the transmission of disease by cat fleas from cats to humans at present, and there is also no human-to-human transmission [5]. CSD is more common in warm and humid climates in the autumn and winter seasons. In areas of high disease prevalence, cats younger than 1 year have a high rate of both *B. henselae* bacteremia and antibody to *B. henselae*, and pet cats have a lower rate than stray cats [5]. The development of skin lesions and lymphadenopathy occurs after 1 or a few weeks of cat scratching, and the incubation period is 7 to 12 days [5].

Clinical presentation

In humans, after 7 to 12 days of scratching, a non-tender brownish-red papule 0.5–1 cm in diameter forms at the site of the bite, which heals normally within 2–3 weeks without scarring [6], [8]. There is more common lymphadenopathy in the area draining the area of the papule, which in 90% of cases resolves usually within 2 to 3 months [6], [8]. 25% of patients show atypical symptoms, and 50% of patients don't show any signs [6], [8]. The inoculation lesions (skin, eye, and mucous membrane) were shown in 61%, unusual manifestations were present in 14%, and Parinaud's oculoglandular syndrome was present in 6.1% of patients with CSD [6]. A high temperature of 104°F (40°C) is seen in 30% to 50% of patients [5]. These may also include osteomyelitis, encephalitis, hemolytic anaemia, hepatosplenomegaly, relapsing bacteremia, glomerulonephritis, pneumonia, and endocarditis, including the above signs [7].

Diagnosis;

Clinical diagnosis

The diagnosis can be made by clinical signs, but confirmation is mainly based on the serological test results. The IFA testing shows a high antibody titer for the *B. henselae* antibody. There are four criteria for clinical diagnosis; at least three are required for confirmation in patients showing typical illness, but if it shows no illness, four criteria must be required for diagnosis confirmation [2], [6], and [8]. Many cats may be infected, but not showing the signs makes the diagnosis difficult [2]. These criteria are direct contact with a scratch or showing eye lesions, lymphadenopathy, changes that occur in lymph node biopsy, and a positive skin test, but the skin test is not recommended by some authors because it is less sensitive and shows less differential diagnosis [8].

Laboratory diagnosis

The confirmation of the diagnosis is done by serologic testing, which includes PCR hybridization, enzyme immunoassay (EIA), biopsy, and immunofluorescent antibody (IFA) testing. IFA testing is mainly for the confirmation of the diagnosis. When the biopsy is performed in atypical cases in which no diagnosis is made by observing clinical signs, it shows the highest diagnostic sensitivity. EIA shows 80% sensitivity for *B. henselae* IgM or IgG, while IFA shows sensitivity of 88% to 100% for *B. henselae* IgG. PCR shows very sensitive results, but it is not practical because it has an incubation period of up to 6 weeks and is also less common than these two tests. Biopsy can only be performed with special

care, and it is less commonly reserved for special cases like atypical cases, which don't show clinical signs [2], [5], [6], and [8].

Treatment

There is no need for treatment in most cases because it recovers spontaneously. Zangwill recommended that therapy be given only in those cases in which the condition becomes very severe, like unresolved lymphadenopathy or in immunocompromised patients. The effective drugs proven for those patients are rifampicin, ciprofloxacin, gentamicin, and trimethoprim-sulfamethoxazole. Rifampicin is the most effective drug [8]. These are some other least effective medicines, such as ceftriaxone, azithromycin, amoxicillin, gentamicin, cefotaxime, clarithromycin, and doxycycline. In immunocompromised patients, treatment should be given for up to 4–6 months and also at regular intervals [6] and [8].

Prognosis

There is an excellent prognosis for this disease. 90% to 95% of patients will recover in 2 to 3 months after infection because lymphadenopathy regresses spontaneously, but it takes time to recover in immunocompromised patients, and when it recovers, the patient becomes protected for the rest of his life. Its second attack will have little or no effect on the patient, and the chances of the disease recurring will be very low [6].

Conclusion

CSD is a common zoonotic disease related to cats. Its occurrence is worldwide and is associated with lymphadenopathy in humans. The transmission is done from cats to cats by cat fleas and from cats to humans by scratches or contact with cats, but from human to human is not possible. Almost 90% of cases resolve spontaneously without any treatment, and the choice of treatment is rifampicin. For prevention, it is important to wash your hands after dealing with cats.

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