



International Journal of Veterinary Sciences and Animal Husbandry



ISSN: 2456-2912

NAAS Rating (2026): 4.61

VET 2026; SP-11(3): 11-13

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www.veterinarypaper.com

Received: 17-02-2026

Accepted: 11-03-2026

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Cat scratch disease: A zoonotic case emphasizing the veterinary-human health interface

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DOI: <https://www.doi.org/10.22271/veterinary.2026.v11.i3Sa.3112>

Abstract

Cat Scratch Disease (CSD) is an emerging zoonotic infection caused primarily by *Bartonella henselae*, transmitted through scratches, bites, or licking of broken skin by infected cats. Although CSD is generally self-limiting, it may mimic other causes of lymphadenitis and can lead to systemic complications if not identified early. This report describes the clinical features, diagnostic process, and treatment outcome of a kitten that was examined after its owner developed symptoms of Cat Scratch Disease (CSD), highlighting the veterinary-public health interface. The case highlights the importance of awareness among clinicians and veterinarians regarding early recognition and preventive strategies.

Keywords: Cat scratch disease, *Bartonella henselae*, flea infestation, one health

Introduction

Cat Scratch Disease is a bacterial zoonosis associated predominantly with *Bartonella henselae*, a Gram-negative bacillus commonly carried by young cats and kittens showing the highest rates of bacteraemia (Chomel *et al.*, 1996) [4]. Transmission between cats occurs primarily via the cat flea, *Ctenocephalides felis*, which acts as a biological vector (Chomel & Kasten, 2010) [3]. Most infected cats remain asymptomatic, making them silent reservoirs for human infection (Florin *et al.*, 2008) [5]. Transmission occurs through scratches, bites, or contaminated saliva introduced into broken skin, often during playful interactions with household pets (Regnery *et al.*, 1992) [7]. The disease typically affects children and young adults and is characterized by a papule at the inoculation site followed by regional lymphadenopathy (Florin *et al.*, 2008) [5]. Though most cases are self-limiting, severe manifestations such as neuroretinitis, encephalopathy, hepatosplenic lesions, and endocarditis have been reported, particularly in immunocompromised patients (Carithers, 1985; Bass *et al.*, 1997) [2, 1]. In India, under diagnosis is common due to limited awareness and overlapping symptoms with tuberculosis and other chronic lymphadenopathies. Veterinary practitioners play an essential role in public health by identifying flea infestations in pets and reducing zoonotic transmission risks (Chomel and Kasten, 2010) [3].

Case History

A 5-month-old domestic short-haired kitten from Chennai was presented for routine examination after the owner developed painful axillary swelling following a scratch incident. The kitten was mostly indoors but had moderate flea infestation. There was no history of systemic illness, vaccination lapses or prior antimicrobial therapy.

Clinical Examination

On physical examination, the kitten appeared bright and active. Mild papules and crusting were present on the skin, consistent with flea allergic dermatitis. Fleas and flea dirt were noted throughout the coat. No lymphadenopathy, fever, or other systemic abnormalities were detected. The findings suggested a healthy carrier state typical of *Bartonella*-infected cats.

Diagnostic Evaluation

- Complete physical examination: Normal physiological parameters.
- Ectoparasite examination under Microscope: Presence of *Ctenocephalides felis*.
- Hematology: Within normal limits.
- *Bartonella henselae* testing: Serology was not performed due to cost constraints and limited availability; however, the epidemiological link (kitten age, flea infestation, human case) strongly supported carrier status.

As most cats remain asymptomatic carriers, lack of clinical signs did not rule out infection.



Fig 1: Physical examination



Fig 2: Microscopic examination

Treatment and Management

The kitten was treated with spot-on Fipronil and (S)-methoprene effective against adult fleas and ticks. Environmental decontamination was advised to break the flea life cycle with Nomoticks homespray. The cat did not require antibiotic therapy, as routine treatment is not recommended in asymptomatic carriers unless part of outbreak management.



Fig 3: 'SPOT ON'-FIPROFORT Plus placed on dorsal surface of cat after physical examination



Fig 4: NOMOTICKS homespray suggested for pet environment decontamination

Outcome

The flea infestation resolved completely after treatment. No further scratches occurred, and the household was counselled on preventive measures. The owner recovered from Cat Scratch Disease within three weeks after appropriate medical therapy.

Discussion

Cats-especially young, flea-infested kittens are well-recognized reservoirs of *Bartonella henselae* and play a central role in transmitting infection to humans (Chomel *et al.*, 1996; Kasten *et al.*, 2014) [4, 6]. Although most cats remain clinically normal, bacteremia can persist for months, allowing intermittent shedding of the organism (Florin *et al.*, 2008) [5]. Fleas are essential for maintaining *Bartonella* infection within the cat population, as flea bites and flea dirt facilitate bacterial transmission (Chomel & Kasten, 2010) [3].

From a One Health perspective, this case demonstrates how zoonotic infections arise at the human-animal interface. Preventive strategies such as routine ectoparasite management, scratch avoidance, and proper wound hygiene significantly reduce transmission risk. High-risk groups, including children and immunocompromised individuals require special counselling due to their increased susceptibility to complications (Florin *et al.*, 2008) [5]. Enhanced veterinary involvement and owner education are essential to prevent zoonotic spillover. Collaboration between veterinarians and physicians supports early identification of risk factors and strengthens public health responses (Kasten *et al.*, 2014) [6].

Public Health Importance

Veterinarians and physicians should educate pet owners on scratch prevention, wound hygiene, routine flea control, and heightened precautions for vulnerable individuals. Companion animals can act as reservoirs of zoonotic pathogens, reinforcing the need for integrated human-animal health strategies.

Conclusion

This case demonstrates a classic presentation of Cat Scratch Disease and reinforces the value of early diagnosis and

appropriate antimicrobial therapy. Effective pet management practices and clinician awareness can significantly reduce the burden of zoonotic infections such as CSD.

Acknowledgments

The authors extend their heartfelt appreciation to the PetBliss Animal Multispeciality Clinic for generously providing the clinical data and support that made this case report possible.

Conflict of interest

Authors declare no conflict of interests

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How to Cite This Article

Dharani M, Surendar AP. Cat scratch disease: A zoonotic case emphasizing the veterinary-human health interface. *International Journal of Veterinary Sciences and Animal Husbandry.* 2026;SP-11(3):11-13.

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