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Editorial

Cat Scratch Disease: An Emerging Bacterial Zoonosis of Public Health Significance

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Editorial

People of developed and developing countries keep many types of animals as pet in their houses. However, cats and dogs are the most commonly kept as pets. It is believed that some African wild cats were domesticated in Middle East around 10,000 years ago. In USA, the number of pet cats is estimated 57 million. The domestic cat (*Felis catus*) is a small carnivorous mammal, which shares the same environment where humans live. The close contact of cat with humans may pose a risk of transmission of many zoonotic infections to human beings. The most important cat zoonoses communicable to humans are toxoplasmosis, pasteurellosis, dermatophytosis, cat scratch fever, and rabies. Among several zoonoses, cat scratch disease (bacillary angiomatosis, bartonellosis, cat scratch fever, lymphoreticulosis benigna, regional granulomatous lymphadenitis) is an emerging bacterial zoonosis, which has been recognized as an important global public health problem. Additional information on zoonotic diseases transmitted from cats to humans can be obtained from the book entitled "Zoonoses", which is authored by [1]. Cat scratch disease is caused by *Bartonella* (*Rochalimaea*) *henselae*, which is a Gram negative, curved, pleomorphic, fastidious, rod shaped, non-motile, facultative intracellular bacterium, and is resistance to amoxicillin, nefcilin, and penicillin. The first isolation of *Bartonella henselae* came from a domestic cat in early 1990 [1]. The bacterium appears to occur commensally in buccal (oral) cavity of cat less than 1 year of age [1]. Nelson (2016), et al. [2] that *B. henselae* is maintained and spread among cats by cat flea (*Ctenocephalides felis*). The organisms are excreted in the feces of the cat flea, which serves as vector for the transmission of *Bartonella henselae* among cats. It is pertinent to mention that approximately 40% of all cats carry the bacterium at some point in their life time. Cat below one year of age infested with fleas acts as the chief source of infection [3]. The disease is reported from many countries of the world including USA, Canada, Europe, Japan, Australia, and Africa [1-6]. Currently, cat scratch disease affects 22,000 people every year in USA accounting for more than 2000 hospitalizations with an annual loss of US Dollar 12 million [1]. Cat scratch disease is an occupational health hazards to cat owners, and veterinarians. Cat is documented as the principal natural host and transmitter of infection. In addition to humans and cats, the infection has also been reported in dog, monkey, porcupine and rodents. Transmission of infection in humans occurs through abrasion, scratch, lick or bite of the infected cat. Cat flea also plays a role in the transmission of infection. Playing or handling with a cat, particularly a kitten, which results in scratches from infective flea feces contaminated claws, is recognized a significant risk factor to human infection. Trauma to the skin by contaminated thorn or splinter can also result in infection [1]. The first initial signs are development of small papules and pustules at the site of injury following bites or scratch by cat. Later, the patients exhibit systemic symptoms, such as low-grade fever, headache, chills, anorexia, night sweat, abdominal pain, fatigue, malaise, weight loss, lymphadenopathy, arthritis, conjunctivitis, pneumonia, hepatitis, endocarditis, meningoencephalitis and osteomyelitis [1,2,6]. Lymphadenopathy, which occurs 1-3 weeks after inoculation, is the most commonly observed clinical manifestation in cat scratch disease, and is frequently seen in the groin, axillary, neck and head [4,3]. *Bartonella henselae* infection is particularly severe in immunocompromised patients in whom bacillary peliosis and bacillary angiomatosis may develop [7]. In USA, maximum cases are recorded in males and children. It is reported that 80% of affected patients are less than 21 years of age. The peck incidence of cat scratch disease in temperate zones is recorded during autumn and winter [3]. Clinical diagnosis of disease can be confirmed by

laboratory help, which include isolation of the bacterium from clinical specimens on microbiological media, such as Columbia agar, demonstration of antibodies in patient sera by me Enzyme Linked Immunosorbent Assay (ELISA) and Immunofluorescence Assay (IFA), histopathological detection of organisms in affected lymph node biopsy with Warthin-Starry stain, application of Hanger- Rose intra-dermal test, and identification of *B. henselae* by PCR [1,3].The disease is self-limiting and does require special therapy. However, treatment of disease in immunocompromised patients and in children can be attempted with antibiotics such as azithromycin, chlortetracycline, ciprofloxacin, doxycycline, erythromycin, rifampin [1,3,6]. It is advised that doxycycline should not be administered in pregnancy to avoid teratogenic side effects. Surgical intervention includes puncture of suppurative lymph node to drain the pus and removal of the infected lymph node [1]. Presently, no vaccine is available to immunize humans or cats. Certain measures, which include thorough washing of cat bite or scratch with soap and water, preventing the cat to lick the open wound, avoiding scratches or bites when playing with cat, using protective clothing while handling cat, and imparting health education to cat owners and children (about the mode of infection, severity of disease, proper hand washing after touching cat and avoiding rough handling of cat), will certainly reduce the incidence of cat scratch disease [1]. It is crucial that children and immunocompromised subjects must avoid contact with suspected carrier cat, which acts as source of infection [1]. Further, flea control for cats is helpful to reduce the risk for human infections [2]. Early diagnosis and therapy is essential in immunocompromised patients to prevent any complication. It is emphasized that patient with a history of scratch or bite with cat and regional lymphadenopathy should be investigated for *B. henselae* infection by employing standard laboratory techniques. Further studies on molecular epidemiology and simple diagnostics of cat scratch disease should be undertaken. The role of ticks in transmission dynamics of *B. henselaes* infection should be elucidated.

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