Capnocytophaga Canimorsus Infection in Cats: ABCD guidelines on prevention and management
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DOI: 10.1177/1098612X13489220
The online version of this article can be found at:
http://jfm.sagepub.com/content/15/7/588

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>> Version of Record - Jun 27, 2013

What is This?
Bacterial properties

Capnocytophaga canimorsus is a fastidious, slow-growing, capnophilic, facultative anaerobic, Gram-negative, rod-shaped bacterium displaying gliding mobility that belongs to the normal flora of the oral cavity of dogs and cats.1,2 Another species, Capnocytophaga cynodegmi, is also present in the normal flora.3 Both can cause wound infections in humans after a bite, C canimorsus being associated with more severe infections.3

Epidemiology and pathogenesis

C canimorsus was first cultured in 1976 from the blood and spinal fluid of a dog-bite patient, hence its name (canis = dog, morsus = bite). Infections occur worldwide. Many dogs and cats carry C canimorsus in their oral cavity. In one study, C canimorsus was cultured from 26% of dogs and 15% of cats sampled. Using a species-specific polymerase chain reaction (PCR) that distinguishes between C canimorsus and C cynodegmi, much higher prevalences were found in Japan; the former species was detected in 74% of the dog and 57% of the cat samples.4 In the Netherlands, a recent survey documented C canimorsus in 21% of the cats.5

Human infections with C canimorsus are associated with dog and cat bites (54%), scratches (8.5%) or close animal contact (27%).6 One case of keratitis reportedly followed a corneal injury caused by a fractured cat’s tooth during extraction.7 Cat bites and scratches or contact with cats
have been reported in fewer than 10% of cases.\textsuperscript{6} In general, cat bites cause less tissue damage than dog bites, which might create less favourable conditions for bacterial growth.\textsuperscript{8}

Capnocytophaga species infection is quite uncommon after dog and cat bites. In surveys from Denmark and the Netherlands, a yearly incidence of sepsis due to \textit{C canimorsus} was calculated to be 0.5 and 0.63 per million population, respectively.\textsuperscript{9,10}

Clinical presentation

\textit{Capnocytophaga} species infections after bite traumas have not been reported in cats, and only two cases of a possible pathogenic role of the bacterium have been documented. In one instance, \textit{Capnocytophaga} species was isolated from a case of chronic sinusitis and rhinitis, and – based on DNA sequencing – a strain closely related to \textit{C canimorsus} and \textit{C cynodegmi} was identified from nasal discharge. Since no other causes for chronic nasal discharge were found, the role of \textit{Capnocytophaga} species was considered likely.\textsuperscript{17} Another case report describes the isolation of \textit{C cynodegmi} from bronchoalveolar lavage samples from a cat with lower respiratory tract infection and pulmonary carcinoma. Clinical signs and bacterial colonisation resolved after treatment with enrofloxacin.\textsuperscript{18}

Diagnosis

In humans, diagnosis of a \textit{C canimorsus} infection is usually based on bacterial culture of blood or other body fluids; isolation from bite wounds is rare. The bacterium grows slowly on special media (chocolate agar or heart infusion agar with 5% rabbit blood, incubated in a 5% CO\textsubscript{2} atmosphere).\textsuperscript{6} PCR methods can distinguish between \textit{C canimorsus} and \textit{C cynodegmi}.\textsuperscript{4}

Treatment and prevention

In humans, the first choice antibiotic is penicillin G or potentiated penicillins as amoxicillin–clavulanate acid. Immediate cleaning and disinfection of bite wounds and scratches is important, as is antibiotic prophylaxis [EBM grade III].\textsuperscript{8,11}

Funding

The authors received no specific grant from any funding agency in the public, commercial or not-for-profit sectors for the preparation of this article. The ABCD is supported by Merial, but is a scientifically independent body.

Conflict of interest

The authors do not have any potential conflicts of interest to declare.
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