Case report

Do not snog the dog: infective endocarditis due to Capnocytophaga canimorsus

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Abstract

We present a case of prosthetic valve endocarditis and paravalvular abscess caused by the canine bacteria Capnocytophaga canimorsus in a 63-year-old man, who made a habit of snogging his pet dog. Capnocytophaga canimorsus can cause culture-negative endocarditis, therefore a high level of clinical awareness and the appropriate isolation techniques are important for making the diagnosis. Antibiotic therapy and properly timed excision of the infected focus are recommended. © 1999 Elsevier Science B.V. All rights reserved.

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1. Introduction

Infective endocarditis caused by zoonotic microorganisms is a rare clinical condition. Most of the reported cases are due to Brucella and Coxiella species, particularly in cattle raising communities [1]. The canine bacteria Capnocytophaga canimorsus has been associated with a variety of conditions including septicaemia, meningitis, septic arthritis, and endocarditis [2–6]. Infection can occur in previously healthy adults but the immune-compromised, asplenic and alcoholics are particularly at risk [5]. Endocarditis due to Capnocytophaga canimorsus is extremely rare [5,6]. We believe, this is the first case report of prosthetic aortic valve endocarditis and paravalvular abscess caused by this bacteria.

2. Case report

A 63-year-old man was transferred from a district General hospital to our centre with rigors, NYHA grade IV dyspnea, transient ischaemic attacks and intermittent episodes of blindness. He had an aortic valve replacement with a mechanical valve in 1995. He had been well until 7 months earlier, when he was admitted with rigors, weight loss and increasing fatigue. Laboratory investigations showed elevation of ESR and C reactive proteins. His blood cultures were negative. Transthoracic echocardiography confirmed aortic regurgitation with diastolic dysfunction of the left ventricle but no vegetations were seen on the valves. His clinical condition improved with antibiotic therapy and he was discharged home although his ESR and C reactive proteins were still elevated. He was re-admitted 4 months later with rigors, severe anaemia, embolic phenomena and congestive cardiac failure. Transoesophageal echocardiography on admission showed a large abscess cavity around the aortic valve, severe paraprosthetic aortic regurgitation and impaired diastolic function. Again no vegetations were seen on the valves. His initial blood cultures grew diphtheroids and Enterococcus faecalis in two different bottles which were considered contaminants.

Although this was treated with appropriate antibiotics his clinical condition did not improve. On subsequent cultures, two of five blood culture sets grew Capnocytophaga canimorsus, identified by the Gram-negative reference unit, Public Health Laboratory Service, London. He received a 4-week course of intravenous ceftriaxone and gentamicin, without much clinical improvement in spite of reported in vitro sensitivity. Notably, his social history revealed that he had made a habit of snogging his pet dog!

On admission to our centre, he was in severe cardiac failure with signs of free aortic regurgitation. Fundoscopy and CT scan of the brain were normal. He underwent redo aortic valve surgery. At the time of median sternotomy, he developed ventricular fibrillatory arrest and had to be

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massaged on to femoro-femoral cardiopulmonary bypass. The prosthetic aortic valve was found to be detached from two thirds of its circumference and was surrounded by an abscess cavity. The infected mechanical prosthetic valve was excised, the abscess cavity irrigated with antiseptics, and a tissue valve implanted. Although the valve was culture-negative, he was given 4 weeks of intravenous benzyl penicillin. He made a good recovery but remained pacemaker-dependent, requiring permanent pacemaker insertion. He was returned to the referring hospital 2 weeks after surgery for completing the antibiotic therapy. He remains well three months after surgery.

3. Discussion

*Capnocytophaga canimorsus* (*C. canimorsus*), formerly designated ‘Dysgonic fermenter 2’ (DF-2), is a commensal in the oral flora of dogs and cats. As the name implies (Latin for ‘dog bite’), there is a history of dog bite in 43–56% of human infections [5]. It can also be acquired by scratch or mere exposure to the animals [4], as in our patient. The diagnosis of *C. canimorsus* endocarditis depends on a high level of clinical awareness since symptoms are non-specific and routine blood cultures tend to be negative.

Advice from specialised microbiology units should be sought when Gram-negative rods of unusual characteristics are grown on culture media. The characteristic isolation of enteric micro-organisms from the initial blood cultures of patients with zoonotic endocarditis has been reported [7]. Cabezas et al. [7] observed that *Streptococcus faecalis*, *Streptococcus sanguis*, and *Klebsiella pneumoniae* were grown from the blood cultures of a patient with recurrent endocarditis on different occasions before *Listeria monocytogenes* was isolated. The clinical significance of this finding remains unclear. In our patient, diphtheroids and enterococci were contaminants. Penicillin is considered to be the antibiotic of choice for *C. canimorsus* infections. Failure of medical treatment required excision of the infected aortic mechanical prosthesis in spite of the patient’s poor clinical condition. The extensive aortic root abscess caused a disruption of the electrical activity of his heart and imposed the need for a permanent pacemaker.

This case highlights the capacity of *C. canimorsus* to produce endocarditis and paravalvular abscess. It can be the cause of apparently ‘culture negative’ endocarditis and therefore diagnosis and appropriate treatment may be delayed. In patients with culture negative endocarditis, the possibility of this fastidious organism should be considered since many homes keep pets. This case also illustrates the importance of a timely replacement of the infected valve.

References