Bordetella Bronchiseptica Septicemia in a Hemodialysis Patient

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Dear Sir,

Bordetella bronchiseptica is a common veterinary pathogen [1] but has rarely been implicated in human infections, and then almost always concerning immuno-compromised hosts with a poor outcome. We report a case of otitis media and septicemia caused by *B. bronchiseptica* in a patient on hemodialysis.

A 20-year-old man who had been in a chronic hemodialysis programme for 7 months due to end renal failure of unknown etiology was admitted because of fever, chills, left otic pain and hearing loss. Physical examination revealed a prostrated patient, temperature of 39.5 °C, and purulent otorrhea from the left ear. Routine laboratory tests showed leukocytosis with shift to the left. His chest roentgenogram demonstrated no infiltrates. Intravenous antimicrobial therapy with tobramycin was started. Blood cultures and otorrhea specimen grew *B. bronchiseptica*, the organism was susceptible to amikacin, tobramycin, gentamicin, imipenem, tetracyclines and ciprofloxacin. The patient became afebrile within 5 days, and the otic pain and otorrhea was markedly diminished. He completed a 15-day course with oral ciprofloxacin with total resolution of his otitis. One month after a left conductive deafness remained with an undamaged eardrum. He denied close exposure to animals.

Infections in humans due to *B. bronchiseptica* include episodes of bacteremia and bronchopneumonia with fatal evolution in immunocompromised hosts: one as-plenic, with cholestatic liver disease and a malnourished alcoholic [2]. Infections without bacteremia include one episode of peritonitis in a patient receiving continuous ambulatory peritoneal dialysis [3] and an interstitial pneumonia in a heart transplant patient resolved with ciprofloxacin [4]. We were unable to identify any cases of infection with *B. bronchiseptica* in hemodialysis patients. It seems that a history of exposure to animals may be significant but is not essential.

Although the cases of *B. bronchiseptica* bacteremia reported were fatal, we report this case of *B. bronchiseptica* bacteremia of otic origin that was successfully treated with tobramycin and ciprofloxacin. *B. bronchiseptica* is able to produce adenylate cyclase which may greatly diminish the bactericidal activity of neutrophils and macrophages [5], but ciprofloxacin is able to penetrate human phagocytes and phagolysosomes to kill sequestered bacteria [6]. The

administration of effective antibiotics and the absence of serious underlying disease may explain the favorable evolution of this case in which hearing loss was a sequela.

References

Goodnow RA: Biology of *Bordetella bronchiseptica*. Microbiol Rev 1980; 44:722.

Ghosh HK, Tranter J: *Bordetella bronchiseptica* infection in man: review and a case report. J Clin Pathol 1979; 32:546–548.

Byrd LH, Anama L, Gutkin M, Chen H: *Bordetella bronchiseptica* peritonitis associated with continuous ambulatory peritoneal dialysis. J Clin Microbiol 1981; 14:232–233.

Chauncey JB, Schaberg DR: Interstitial pneumonia caused by *Bordetella bronchiseptica* in a heart transplant patient. Transplantation 1990;49:817–819.

Endoh M, Takezawa T, Nakase Y: Adenylate cyclase activity of *Bordetella* organisms. Microbiol Immunol 1980;24:95.

Easmon CSF, Crane JP: Uptake of ciprofloxacin into human neutrophils. J Antimicrobiol Agents Chemother 1985; 16:67.