Volume : 2 | Issue : 5 | May 2013 • ISSN No 2277 - 8160

Research Paper | Medical Science

Unusual infection: Pasteurella canis bacteremia in a Child

Dr. Nale Swati S — Assitant Professor (M.D.Microbiology), Smt. Kashibai Navale Medical College & General Hospital, Pune.

Dr. Ghadage Dnyaneshwari P — Professor & HOD(M.D.Microbiology), Smt. Kashibai Navale Medical College & General Hospital, Pune

Bhore Arvind V — Dean(M.D.Microbiology), Smt. Kashibai Navale Medical College & General Hospital, Pune

ABSTRACT

Pasteurella spp is a natural habitat of oral flora and digestive tract of various animals including domestic cats and dogs. Severe human infections by Pasteurella spp are typically seen after animal bites. Pasteurella canis is a species which rarely affects humans and systemic infections are very infrequent. Here we report the rare case of Pastueurella canis bacteremia in a child.

KEYWORDS: Pasteurella canis; bacteremia; animal exposure

Introduction:

The genus *Pasteurella* is small gram negative coccobacilli that are primarily natural habitat of oral flora and digestive tract of various animals including domestic cats and dogs. These organisms can cause a variety of human infections. Most common species is *P.multocida*, generally associated with an animal bite. There are several species of *Pasteurella* which can cause disease in humans such as *Pasteurella multocida subsp. multocida, P.multocida subsp. Septic, and P.canis.* [1,2]. *P.canis* is a species that rarely affect humans and has been rarely found in systemic infections with underlying diseases. Here we report the first documented case from India of *Pastueurella canis* bacteremia in a 13- month-old child and only third case report in the literature.

Case History:

A thirteen months-old child presented with convulsion and fever. He had history of cough, cold and fever since four days. Mother of the child told about history of dog scratch while playing with the native dog before the illness. On physical examination, child was in altered sensorium responding to painful stimuli. He had tachycardia, fever (39^0 C), pulse- 200/min; respiratory rate- 60/min. Bilateral ronchi and crepts were found in respiratory examination. Liver was 4 cm and spleen 2 cm palpable.

Initial laboratory investigations revealed white blood cells count of 21.3 x 10^3 /µL, Hb- 5.9 g%. Peripheral blood smear showed hypochromic microcytic red blood cells. Platelet count was 75 x10^3 /µL. CSF and blood cultures were sent to the laboratory. Both conventional & automated blood culture- BacT/Alert were taken. CSF examination findings were normal.

Intravenous (i.v.) anticonvulsant and antibiotic ceftriaxone were started. Within 24 hours both blood cultures (automated and conventional) were positive and showed gram negative coccobacilli in their gram stain.CSF culture was negative for the growth. Subcultures of blood were done on blood and MacConkey's agar. After 24 hrs, tiny, gray, nonhemolytic colonies were seen on blood agar. There was no growth on MacConkey's agar. Organism was identified as *Pasteurella canis* (*P.canis*) by various biochemical reactions as follows- catalase and oxidase test positive, negative for X and V factor requirement, Acid from glucose positive, Acid from mannitol, sorbitol and maltose negative, Ornithine decarboxylase test positive, indole and urease test negative. Identification was also confirmed by the VITEK 2 Instrument (Biomérieux). Sensitivity on Muller Hinton Blood Agar (MHBA) showed sensitivity against all antibiotics tested-ampicillin, ceftriaxone, ciprofloxacin, gentamicin and amikacin.

2 days after i.v. antibiotics, child was conscious and afebrile. Eye opening was present and child was vocalizing and accepting feeds well. For the anaemia, two pints of packed cell volumes (PCV) were given. Repeat blood cultures were negative for the growth. Antibiotic treatment was continued for 7 days and child was discharged.

Discussion:

Human infection with *Pasteurella* can be divided into three types: infection occurring after animal bites, usually from dogs or cats; infection occurring after other animal exposures; infection with no known animal contact. [3] Manifestations of these infections range from skin or soft tissue infections to meningitis or septicemia. [4, 5]*Pasteurella canis* infections are rare and often seen after animal bite and in the persons with underlying diseases. There are only two case reports in the literature with *P.canis* bacteremia. [6, 7]Albert T.J. [6] et al described a cirrhotic adult patient with *P.canis* bacteremia with the history of licking of dog to an open leg wound. In Yefet et al case report *P. canis* bacteremia was present in a healthy child who was exposed to rabbit secretions. There was no underlying disease present in our case .Infections without a clear source have been documented and are thought to be the result of licking by animals or inhalation of microorganisms [8,9,10] In the present case, there was history of exposure to the dog with scratch wound.

P.canis is susceptible to ampicillin, amoxicillin- clavulanate, cephalothin cefotaxime, linezolid, aminoglycosides, tetracycline, pipracillin and fluoroquinolones. In this case, isolate was also susceptible to the all antibiotics which were tested.

In conclusion, though *Pasteurella canis* is rare human pathogen; it can cause serious life-threatening infections in susceptible population like children and persons with underlying diseases. Avoidance of animal contact is a simple measure to prevent this infection.

REFERENCES

1. F. Escande and C. Lion, "Epidemiology of human infections by Pasteurella and related groups in France," Zentralblatt fur Bakteriologie, vol. 279, no. 1, pp. 131–195, 1993. | 2. A.L. Gautier, D. Dubois, F. Escande, J. L. Avril, P. Trieu-Cuot, and O. Gaillot, "Rapid and accurate identification of human isolates of Pasteurella and related species by sequencing the sod A gene," Journal of Clinical Microbiology, vol. 43, no. 5, pp. 2307–2314, 2005. | 3. G. L. Mandell, R. G. Douglas, and J. E. Bennet, "Pasteurella species," in Principles and Practice of Infectious Diseases, pp. 2687–2691, Churchill Livingstone, New York, NY, USA, 6th edition, 2005. | 4. Weber DJ, Wolfson JS, Swartz MN, Hooper DC. Pasteurella multocida infections. Report of 34 cases and review of the literature. Medicine (Baltimore). 1984; 63(3):133–54. | 5. Talan DA, Citron DM, Abrahamian FM, Moran GJ, Goldstein EJ. Bacteriologic analysis of infected dog and cat bites. Emergency medicine animal bite infection study group. N Engl J Med.1999; 340(2):85–92. | 6. T. J. Albert • D. L. StevensThe first case of Pasteurella canis bacteremia: a cirrhotic patient with an open leg wound Infection (2010) 38:483–485. | 7. Yefet E ,Abozaid S, Nasser W, Peretz A, Zarfin Y. Unusual infection--Pasteurella canis bacteremia in a child after exposure to rabbit secretions. Harefuah. 2011 Jan; 150(1):13-5, 70. | 8. Hubbert WT, Rosen MN. Pasteurella multocida infections. II. Pasteurella multocida infection in man unrelated to animal bite. Am J Public Health Nations Health. 1970; 60(6):1109–17. | 9. Raffi F, Barrier J, Baron D, Drugeon HB, Nicolas F, Courtieu AL. Pasteurella multocida bacteremia: report of thirteen cases over12 years and review of the literature. Scand J Infect Dis.1987; 19(4):385–93. | 10. Kumar A, Devlin HR, Vellend H. Pasteurella multocida meningitis in an adult: case report and review. Rev Infect Dis.1990; 12(3):440–8.