

Moraxella (Branhamella) catarrhalis bacteremia in an immunocompetent children

Bağıışıklık sistemi normal bir çocukta Moraxella (Branhamella) catarrhalis'e bağlı bakteriyemi

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SUMMARY

Moraxella catarrhalis has been emerged as a pathogen in the last decade. *M. catarrhalis* is an important pathogen in respiratory tract infections, both children and adults with underlying chronic obstructive pulmonary disease. The bacterium is a common cause of acute otitis media and sinusitis in children. Occasionally, the bacterium causes systemic disease. Bacteremia with *M. catarrhalis* has been documented rarely. We report a case of bacteremia *M. catarrhalis* in an immunocompetent children. Bacteremia due to *M. catarrhalis* has been reported in an immunocompromised patients, had underlying respiratory infections and immunocompetent hosts.

Key word: *Moraxella catarrhalis*, bacteremia, immunocompetent children.

ÖZET

Moraxella catarrhalis son yıllarda patojen olarak ortaya çıkmaktadır. *M. catarrhalis* çocuk ve kronik obstruktif hastalığı olan yetişkinlerde solunum yolu enfeksiyonlarının önemli bir etkenidir. Çocuklarda akut otitis media ve sinüzite sıklıkla sebep olmaktadır. Bazen sistemik hastalıklar oluşturmaktadır. *M. catarrhalis*'e bağlı bakteriyemi nadiren bildirilmektedir. Bu raporda bağışıklık sistemi normal bir çocukta *M. catarrhalis*'e bağlı gelişen bakteriyemi olgusu sunulmaktadır. *M. catarrhalis*'in immünyetmezlikli, altta yatan solunum yolu enfeksiyonu olan ve bağışıklık sistemi normal konaklarda bakteriyemi oluşturduğu bildirilmektedir.

Anahtar kelimeler: *Moraxella catarrhalis*, Bakteriyemi, Bağışıklık sistemi normal çocuk.

INTRODUCTION

Moraxella catarrhalis is an aerobic, Gram-negative diplococcus that commonly inhabits the upper respiratory tract (1). *M. catarrhalis* is now considered as an important cause of respiratory tract infections in children and adults with chronic obstructive pulmonary disease (COPD) (2, 3, 4). *M. catarrhalis* is now considered a common cause of otitis media in children and sinusitis in both children and young adults (3, 4, 5). *M. catarrhalis* bacteremia in children has rarely been documented (6). We report a case of bacteremia *M. catarrhalis* in an immunocompetent children.

CASE

A male child, 13 months old, has been applied to the emergency unit with complains of cough and fever. His physical examination and growth status were normal and he had not had a toxic appearance. The abnormal findings during the physical examination were the hyperemic oropharynx and fever. The etiology of the fever could not be found. The urine analysis was normal and the hemoglobin level was 10.7g/dl. The white blood count was 10554/mm³, and 7074/mm³ of which was the neutrophils. The CRP value was 29.9mg/L. Symptomatic treatment has been given after the taken blood and urine

cultures. Blood, inoculated into the BACTEC pedplus (Becton Dickinson), has been followed up in the BACTEC 9050 (Becton Dickinson Microbiology System, USA) blood culture system. After the initial 48 hours a growth in the blood culture has been detected. The passages into the blood and chocolate agars have been performed. Gram negative diplococci have been seen as a result of gram staining performed on the grown colonies. The catalase, oxidase, and DNase tests have been found as positive. It has been identified as *Branhamella catarrhalis* via 0010 profile number by using ApiNH (bioMerieux, Inc, USA) panel. The beta lactamase enzyme has been determined as positive by means of nitrocefin disc (cefinaise; BBL, Becton Dickinson Microbiology System, USA). *B. catarrhalis* has been isolated from the nasal but not from the oropharyngeal and tonsil surface samples taken during the control examination. Serum immunoglobulin (IgA, IgG, IgM, IgE) levels were measured within normal limits. Further immunologic workup included C₃, C₄ and IgG subclasses, all of which were within normal limits for age.

DISCUSSION

M. catarrhalis causes mucosal infections in children and adults. The pathogenesis of infections appears to involve contiguous spread of the bacterium from its colonizing position in the respiratory tract to cause clinical signs of infections. Relatively little is known about the precise virulence traits of *M. catarrhalis*. The outer membrane of *M. catarrhalis* contains lipo-oligosaccharide (LOS). LOS is probably a virulence factor of *M. catarrhalis*. Most strains of *M. catarrhalis* express pili. The pili probably play an important role in adherence of *M. catarrhalis* to human bind to epithelial cells (1).

The *M. catarrhalis* carriage rate in children is high while it is very low in healthy adults (1). Faden et al. were demonstrated *M. catarrhalis* colonization rates were as 26% by 6 months and as 72% by 1 year of age and most prevalent

pathogen throughout infancy and a direct relationship between frequency of colonization and episodes of otitis media (7). *M. catarrhalis* is an important cause of acute otitis media and sinusitis in children (3, 4). Kilpi et al. have isolated 26% *Streptococcus pneumoniae*, 23% *M. catarrhalis* and 23% *Haemophilus influenzae* from children in the first two years of their life with acute otitis media (3). Wald et al. have informed that the most common species recovered were *S. pneumoniae*, *H. influenzae*, and *B. catarrhalis* in children with acute maxillary sinusitis (4). Jousimies-Somer et al. have isolated 2% rate *B. catarrhalis* of young adult patients with acute maxillary sinusitis (5). *M. catarrhalis* is not a common cause of lower respiratory tract infection in healthy adults. The bacterium causes pulmonary infections in three separate clinical settings: in chronic obstructive pulmonary disease (COPD) patients, pneumonia in the elderly, and as a nosocomial respiratory tract pathogen (2). Occasionally, the bacterium causes systemic disease, e.g., pneumonia, bacterial tracheitis, meningitis, endocarditis, ophthalmia neonatorum, pre-septal cellulites and suppurative arthritis (8).

Bacteremia is an infrequent manifestation of *M. catarrhalis* infection. Thorsson et al. have been reported 3 cases of *M. catarrhalis* bacteremia in one child and two adults In 1998. They have been reviewed 61 cases of *M. catarrhalis* bacteremia in the British and Scandinavian literature. The first case was reported in 1925, followed by 3 cases in the 1940s, but most of them have been reported since late 1980s. Twenty-three patients were immunodeficient, and 18 patients impaired airway defences (COPD, bronchiectasia, viral pneumonia), and 22 patients either healthy individuals or individuals have not considered predisposing factor. Thirty-three of the 61 patients (54%) were bacteremia as a result of respiratory tract illness. Malignancy was seen in 19 cases, leukopenia in 2 cases. Twelve of the 61 patients died following *M. catarrhalis* bacteremia giving mortality rate of 20% (6). Abu-

hammour et al. have been reported eleven cases of *M. catarrhalis* bacteremia identified during the 10 year study period, accounting for 0.5% of 2141 total bacteremias identified during the same period (9). Meyer et al. have been reported two cases of *M. catarrhalis* bacteremia in apparently healthy children. One patient had bilateral otitis media and the other had pharyngitis and sinusitis (10). Mortlock have been reported a case of *M. catarrhalis* bacteremia that was not immunosuppressed and had no other predisposing factors and responded promptly to the antibiotic treatment (11).

In conclusion, bacteremia due to *M. catarrhalis* should be considered in febrile children with upper respiratory tract infection and nasopharyngeal colonization without any other underlying condition.

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