Ocular Infection in a Newborn Caused by Neisseria mucosa

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Neisseria mucosa was isolated in pure culture from a purulent ocular infection of a newborn. The initial Gram-stained smear revealed intracellular gram-negative diplococci. The organism showed sensitivity to vancomycin, colistin, and trimethoprim in susceptibility testing and grew well on Thayer-Martin medium.

Infections caused by Neisseria mucosa have rarely been reported (2-4, 8-10). This bacterium has been considered as part of the normal saprophytic microbiota in the respiratory tract and other sites of the human body. It has been associated with certain pathologic processes such as endocarditis, cellulitis, meningitis, and botryomycosis (3, 4, 8, 10). Isolations of N. mucosa from genitourinary infections and from ophthalmia neonatorum are rare (4, 6). The role of this organism as a pathogen remains unclear, although some investigators have called this type of organism opportunistic. The misdiagnosis of this microorganism as Neisseria gonorrhoeae in infections occurring in the genitourinary tract or in newborns may have serious implications in marital relationships.

The purpose of this note is to report the probability of N. mucosa as an opportunistic pathogen in an infection that may be identified as gonorrhea, and to emphasize the importance of accurate bacteriologic diagnosis of nonsexually transmitted infections. It also recommends that microbiologists guard against dismissing too readily as normal microbiota any Neisseria species isolated from clinical material.

Case report. A female infant, weighing 3,560 g, was born at 40 weeks of gestation by cesarean section. Her length was 51 cm, and her head circumference was 34 cm. Apgar score was normal. Three days after birth, the infant was referred to the nursery ward because the mother developed postcesarean infection. At that time the baby presented an eye draining purulent exudate. Gram-stain smear and culture were requested.

The Gram stain revealed the presence of gram-negative, intracellular diplococci and a moderate amount of polymorphonuclear leukocytes. The exudate was cultured on Thayer-Martin medium supplemented with NCVT antimicrobial agents (Difco), 5% sheep blood agar, MacConkey agar, and chocolate agar without antibiotics. After 24 h on 5% sheep blood agar, the gram-negative diplococcus grew as mucoid, whitish, brilliant, smooth colonies with defined edges, 0.5 to 1 mm in diameter. On Thayer-Martin medium, very mucoid, grayish, brilliant, abundant colonies were obtained. No growth occurred on MacConkey agar plates. The microorganism produced acid from glucose, lactose, sucrose, and maltose in cystine-Trypticase agar and was negative for orthonitrophenol galactosidase. Reduction of nitrates and growth on nutrient agar at 22°C were observed. The scheme used for the identification of the isolate was that mentioned in the 8th edition of Bergey's Manual of Determinative Bacteriology (7); for confirmation, the organism was forwarded to the Reference Bacteriology Laboratories of the Ministry of Health, Province of Ontario, Toronto, Ontario, Canada.

Antibiotic susceptibility testing was performed on plates of Mueller-Hinton agar containing chocalitized blood, according to the Kirby-Bauer procedure (1). This test was used since interpretative standards are not established for this type of microorganism.

Interpretations for antibiotics followed the rules and regulations recommended in reference 5.

The bacterium was susceptible to penicillin (28 mm), tetracycline (24 mm), cephalothin (27 mm), and erythromycin (27 mm) and was resistant to oxacillin (0 mm), clindamycin (14 mm), methicillin (0 mm), trimethoprim (0 mm), vancomycin (0 mm), and colistin (0 mm). The resistance to vancomycin, colistin, and trimethoprim explains why this organism grew on Thayer-Martin medium. It is known that nonpathogenic Neisseria spp. usually do not grow on Thayer-Martin medium; nevertheless, it is necessary to be on guard for those which may grow like the Neisseria species reported here, which, if not carefully studied, may be misidentified as N. gonorrhoeae.

The source of infection was not well established. Genital culture of the mother was negative for growth of N. mucosa. No other sites were tested because antimicrobial treatment was initiated promptly.

The Gram stain evidence and the recovery of a pure culture of N. mucosa suggest that this organism was the most probable agent responsible for the newborn's infection. However, in a case I reported earlier (2), N. mucosa was isolated from a buccal herpetiform lesion as a secondary organism causing infection.

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LITERATURE CITED


