

## Subclinical Infection of the Genital Tract With *Neisseria meningitidis*

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**We report the isolation of *Neisseria meningitidis*, characterized as B:NT:P1.7, from a female patient's genital tract in an outpatient clinic for HIV care. The gynecology clinic, as part of the follow up, collects specimens from all patients with HIV infection for routine exams and for early laboratory detection of sexually transmitted diseases. A Gram-negative diplococcus was isolated from the cervix of a heterosexual patient with AIDS. Based on this and other reported cases, urogenital infection with *N. meningitidis* can no longer be considered uncommon. The rising incidence of *N. meningitidis* isolated from this and similar sites has significant medical and diagnostic implications.**

**Key Words:** *Neisseria meningitidis*, genital infection, AIDS.

*Neisseria meningitidis* is a normal commensal of human mucous membranes that is no longer considered to be restricted to the nasopharynx, although this is the most frequent site identified as its reservoir [1,2-4]. Colonization of mucous membranes normally results in subclinical infection, since progression to host invasion or focal disease is a relatively rare event. A carrier ratio of 5% to 10% is estimated in the general population, which can reach 30%-90% in close contact of cases. Transmission occurs through direct contact with large droplet respiratory secretions from asymptomatic carriers or, infrequently, from patients [4]. Sometimes the organism can be found in unusual sites, such as the mucous membranes of the endocervix, urethra or anus [2]. Due to the practice of oral sex, these membranes have become an important potential infection site for respiratory bacteria. We report here the isolation of *N. meningitidis* from the endocervix of a heterosexual female, first diagnosed presumptively as *Neisseria gonorrhoeae*, but later identified as *N. meningitidis*.

### Case Report

A 65-year-old woman with Chagas disease and AIDS presented at the gynecology clinic for routine follow up. Her genital exam was normal. The mucous from the cervix was collected and spread onto chocolate (heated blood) agar and Thayer-Martin medium plates, as a regular procedure of the clinic. After 48h of incubation, growth of non-pigmented transparent colonies was observed on the culture plates. The colonies were oxidase-positive, with the appearance of Gram-negative diplococci. A culture was sent to the FIOCRUZ Bacteriology Department for confirmatory identification.

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The chocolate agar plate that was received had a pure culture and was subcultured on both chocolate agar and Müller-Hinton agar, without supplements; it was incubated 24h in 5% CO<sub>2</sub> atmosphere. The isolate was characterized as Gram-negative diplococcus, non-beta-lactamase-producing, and positive for oxidase and catalase reactions. The bacterium was identified, with the api NH system (bioMérieux), as *N. meningitidis*. The phenotype B:NT:P1.7 was determined by means of slide agglutination with specific antiserum (Difco) and with a dot-blotting assay with monoclonal antibody (National Meningitis Reference Center, Instituto Adolfo Lutz). The E-test (AB BIODISK) for testing susceptibility of the organism did not show resistance to penicillin, chloramphenicol, ceftriaxone, rifampicin, ciprofloxacin, or sulfadiazine. There was evidence of cervicitis in the histopathological analysis. The patient was treated with a single dose of ceftriaxone (250mg intramuscularly); a follow up culture was negative. No throat swab specimen was available from this patient, nor were urethral or throat specimens obtained from her sexual partner. Appropriate chemoprophylaxis was not prescribed to close contacts.

### Discussion

*Neisseria meningitidis* infections of the urogenital tract were considered rare until recently; but during the past few decades an increasing number of cases of genital tract infections or colonization have been reported, usually due to serogroups B, C or Y [3-6]. Correct identification of *N. meningitidis* in the genital tract can be difficult because of the existence of maltose-negative strains, which can be erroneously diagnosed as *N. gonorrhoeae* [7]. Indeed, the identification of *Neisseria* species can be no longer presumed on the basis of the site of infection. Thus a definite identification, with the use of biochemical tests, immunological methods, and molecular assays, is necessary [1,2,8].

The increase in the frequency of *N. meningitidis* infection has not been influenced by the advent of AIDS [5,9]. The most likely route of transmission of urogenital infection caused by *N. meningitidis* seems to be orogenital contact with a sexual

partner carrying the microorganism in the nasopharynx [6,10]. Sexual activities play a role in the spread and infection of other body sites with respiratory bacteria from close contact between partners in a domestic context [10,11]. Anogenital infection with this bacterium can be either asymptomatic or with clinical evidence of disease [5]. This disruption in the ecological isolation with *N. gonorrhoeae* could provoke modifications in the gene structure of both species [12].

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