Inguinal Lymphadenitis Associated with *Capnocytophaga* Bacilli

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*Capnocytophaga* organisms are capnophilic, gram-negative bacilli that have been associated with infections deriving from the flora of the oropharynx. We report a case of inguinal adenitis caused by *Capnocytophaga* species that probably represents sexual transmission of the pathogen.

*Capnocytophaga* is the genus designation for a group of facultatively anaerobic, capnophilic, gram-negative bacilli that have formerly been known as *Bacteroides ochraceus* and Centers for Diseases Control group DF-1 (14, 18). The genus also includes recently described oxidase-positive, catalase-positive species that have been found to be normal oral flora of dogs (2). *Capnocytophaga* bacilli are part of the normal human flora and frequently isolated from periodontal lesions in patients with juvenile periodontitis (13). Members of this genus have been increasingly recognized as the cause of a variety of infections in both immunocompetent and immunocompromised patients (15, 17). Most of these infections are presumed to derive either directly or hematogenously from the flora of the oropharynx, including septicemia, endocarditis, mediastinal abscess, cervical adenitis, ophthalmic infections, thyroiditis, spontaneous bacterial peritonitis, and respiratory tract infections (3, 5, 7, 9, 10, 12).

This report presents the isolation of a *Capnocytophaga* bacillus from a patient with inguinal lymphadenitis and genital ulcers. *Capnocytophaga* bacilli as pathogens in this setting have not been previously described. The presentation of infection in our patient strongly mimicked that of a sexually transmitted disease. Although *Capnocytophaga* infections are usually presumed to be acquired endogenously, this case may represent sexual transmission of the organism.

**Case report.** A 26-year-old previously healthy man presented for consultation about a purulent draining inguinal mass. The patient’s illness had begun approximately 2 weeks earlier, when he noted multiple shallow painful ulcers on the shaft of his penis. This was in association with fever to 39.5°C and fatigue. Over the course of the next weeks, the patient noted progressive enlargement and tenderness of nodes in the groin. Two days prior to evaluation, one of the right groin masses suppurated and drained abundant pus without improvement in his symptoms.

On examination, the patient had difficulty walking because of extreme pain in the inguinal regions. His temperature was 36.9°C; other vital signs were also normal. The patient’s physical examination was remarkable only for findings in the inguinal and genital regions. There were multiple, 1-cm, tender, healing ulcers on the shaft and corona of the penis. There was bilateral tender inguinal adenopathy. In the right groin, an 8-cm ulceration of a node was apparent with a moderate amount of purulent drainage. There was no surrounding cellulitis, crepitus, or odor to the lesion.

The peripheral leukocyte count was 4,900/mm³; the hemocrit was 38.8%. The rapid plasma reagin test was negative, as was a Tzanck preparation on a scraping of a penile ulcer. Gram stain of pus from the suppurating node revealed many polymorphonuclear leukocytes and numerous slender gram-negative bacilli. A presumptive diagnosis of chancroid was made, and the patient was treated with trimethoprim-sulfamethoxazole for 14 days. Subsequently, the culture from the node yielded only coagulase-negative staphylococci and yeast. The herpes culture was negative; a low level of chlamydia antibody (lymphogranuloma venereum) was detected by enzyme-linked immunosorbent assay.

Despite some initial improvement on therapy, the patient’s condition recurred after the antibiotic was stopped. He presented again with multiple, healing penile ulcers and bilateral tender adenopathy. The right groin mass had again ulcerated and drained pus. A repeat rapid plasma reagin test was negative. To augment recovery of *Haemophilus ducreyi*, expressed pus was collected on a swab and immediately inoculated onto the surface of blood agar (5% sheep blood) and chocolate agar plates. Agar plates were incubated at 30 and 36°C in an atmosphere of 5% CO₂. On the fourth day of incubation, faint growth was observed on both the chocolate and blood agar plates that were incubated at 30°C but not on the plates incubated at 36°C. The growth spread from the streak lines and did not form distinct colonies. Growth was observed on three quadrants of the streaked plate. A Gram stain revealed filamentous gram-negative bacilli with tapered ends. Aerobic and anaerobic subculture at 30 and 36°C demonstrated similar growth in 48 h on blood and chocolate agar that required 5% CO₂. On subculture the organism grew at 36°C; however, there was less spreading from the streak line at this temperature. The organism was catalase and oxidase negative, and it fermented glucose, lactose, sucrose, and maltose. The isolate was referred to the Pennsylvania Department of Health for further characterization. The methods employed in the identification of this organism have been described in a 1984 Centers for Disease Control publication (4). For carbohydrate fermentation, a nonsupplemented peptone base broth was used and tubes were incubated for 7 days at 36°C before the test was considered negative. A rapid sugar test described in the same Centers for Disease Control source was also employed for confirmation of results (4). On the basis of the results summarized in Table 1, the organism was identified as *Capnocytophaga* spp. Susceptibility testing using disk diffusion methodology with chocolate Mueller-Hinton agar demonstrated large zones of inhibition around penicillin G, tetracycline, and erythromycin (1). The patient was treated

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with erythromycin (500 mg) four times a day for 14 days and subsequently had a full recovery.

Epidemiologic investigation found that the patient had several heterosexual partners prior to onset of this illness, none with a known sexually transmitted disease. The patient also had no history of having a sexually transmitted disease. On subsequent questioning, he acknowledged passive participation in oral-genital sex.

This is the first report of Capnocytophaga in association with inguinal lymphadenitis and genital ulcers. Its recovery in large numbers and in essentially pure culture suggests a true pathogenic role for the organism. Our patient had no evidence of periodontal disease; it is unlikely that the inguinal nodes were infected hematogenously. We suspect that the genital ulcers were the primary site of infection with subsequent spread to the lymph nodes. This patient’s infection responded adequately to treatment with erythromycin, an antimicrobial agent with good in vitro activity against Capnocytophaga bacilli. Studies have shown that greater than 90% of isolates are inhibited by ≤4.0 µg of this drug per ml (6, 16). Prior case reports of Capnocytophaga infection have emphasized that the organism is part of the normal oral flora and that its isolation should suggest an oral source of infection (15). The recovery of Capnocytophaga bacilli from an inguinal lesion in our patient was unexpected. There are two possible explanations as to the source of this infection: (i) transmission from a sexual partner by oral-genital contact and (ii) vaginal transmission from a sexual partner. Since several case reports of peripartum infections and amnionitis appear in the literature, Capnocytophaga bacilli may be indigenous to the female genital tract (8, 11).

This case also emphasizes the importance of performing careful microbiologic evaluation on patients with a suspected sexually transmitted disease. The laboratory evaluation should include incubation temperature of 30 to 33°C for primary isolation. Although the organism in the present case grew at 36°C upon subculture, the culture would have been reported as “no growth” if processed in the routine manner. This demonstrates the need for communication between the clinician and microbiologist. This communication can, on occasion, result in the isolation of an unusual or unsuspected pathogen. Such findings might affect treatment and public health issues.

REFERENCES