

Bartholin's Gland Abscess Caused by *Brucella melitensis*

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We report herein a case of Bartholin's gland abscess caused by *Brucella melitensis*. Clinical microbiology laboratory workers in areas where this disease is endemic should be familiar with the bacteriological features of this organism and consider the possibility of a brucellar etiology in a broad range of clinical settings.

CASE REPORT

A 43-year-old previously healthy Bedouin woman was admitted to the hospital because of pain and swelling in the right vulvar area which failed to improve after a 2-week therapeutic regimen with orally administered amoxicillin-clavulanic acid. Her prior obstetric history was remarkable, consisting of seven normal pregnancies and deliveries and no spontaneous abortions. The patient and other family members occasionally consumed raw milk from their own sheep. In the course of the previous months, several abortions occurred among the flock animals.

Gynecologic examination disclosed an erythematous painful swelling on her right labium majus consistent with a Bartholin's gland abscess. She was afebrile, and the rest of her physical examination was normal. With the patient under general anesthesia, the gland was marsupialized (a surgical procedure consisting of excision of the lesion followed by emptying of its contents and stretching of the legion's edges to the edges of the external incision to allow drainage).

The exudate specimen was plated on Trypticase soy agar with 5% added sheep blood, chocolate, and modified Thayer-Martin and MacConkey media; the specimen was then inoculated into thioglycolate broth. Seeded media were incubated at 35°C in a 5% CO₂-enriched atmosphere. After 3 days, a few small white colonies were observed on the modified Thayer-Martin medium only, whereas the upper part of the enrichment broth showed slight cloudiness. Subculture of the thioglycolate broth on Trypticase soy agar and chocolate agar yielded similar growth results. Gram stain of the colonies revealed small gram-negative coccobacilli. The isolate was non-hemolytic; exhibited positive oxidase, catalase, and urease reactions and negative fermentation of sugars; and was nonmotile. Presumptive identification of the organism as belonging to the genus *Brucella* was confirmed by a positive agglutination with specific antiserum (Welcome Diagnostics, Dartford, United Kingdom) (6). The isolate was sent to the Kimron Veterinary Institute at Bet Dagan, Israel, for speciation with phages Tb and Iz, and the isolate was identified as *Brucella melitensis*.

Blood cultures were obtained from the patient by using the

BACTEC 9240 blood culture system, but no organisms were detected by the automated instrument during a 42-day incubation period or by terminal blind subcultures. The screening Rose-Bengal test performed with the patient's serum was positive, and a standard agglutination test was diagnostic at a dilution of 1:640. Antibody testing of other family members detected two additional cases among the patient's children, but her asymptomatic husband was serologically negative. The index patient and her 17-year-old child were treated with a regimen of oral doxycycline for 6 weeks and parenteral gentamicin for 2 weeks, whereas her 5-year-old child received combined trimethoprim-sulfamethoxazole plus gentamicin therapy. All three patients made an uneventful recovery.

Brucellosis is a zoonotic bacterial disease, usually transmitted to humans via consumption of unpasteurized dairy products derived from infected animals (12). Brucellosis caused by *B. melitensis* is highly endemic in the Negev desert of southern Israel, especially among the seminomadic Bedouin population, which maintains herds of unvaccinated sheep and goats (1). During the early stages of the infection, brucellosis manifests as a febrile bacteremic disease (12). This phase is promptly followed by blood-borne dissemination of the organism and invasion of remote sites, such as the skeletal and hematopoietic systems, the liver, and the spleen (3, 12).

Whereas the male genitourinary tract is involved in up to 5% of cases resulting in orchitis and more rarely in prostatitis or epididymitis (3, 5, 12), localized infection of the human female genital tract is unusual (3, 7, 12). In contrast, invasion of the female reproductive system by brucellae is frequent in ruminants—among which the disease is readily transmitted by the venereal route by infected semen and vaginal secretions—and causes septic abortions (3). This tendency of the organism to invade the genital tract of animals seems to be related to high local concentrations of erythritol in the tissues, which promote brucellar growth (3, 7). Occurrence of salpingitis, ovarian abscesses, and abortions attributable to the organism are exceptional in humans (6, 8). Lack of tropism of the organism to the female reproductive organs may be related to the low concentration of the erythritol in human genital secretions (3, 8).

To the best of our knowledge, *Brucella* species have not been implicated in the causation of abscesses of the Bartholin's gland. These genital infections are usually caused by *Enterobacteriaceae*, anaerobic bacteria, lactobacilli, and *Neisseria*

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gonorrhoeae, indicating ascending infection by normal and pathological perineal and genital flora (2). More rarely, *Chlamydia trachomatis*, pneumococci, *Haemophilus* species, other members of the respiratory flora, and staphylococci are isolated (2, 4, 10, 11).

For our patient, *B. melitensis* was unexpectedly recovered from the Thayer-Martin medium incubated in a CO₂-enriched atmosphere. Although this medium is traditionally used to improve detection of neisseriae and especially of *N. gonorrhoeae*, it is able to support growth of brucellae, and it is comparable to Skirrow agar in terms of detecting *Brucella ovis* from genital cultures of infected animals (7).

The route of infection of the glandular tissue by *B. melitensis* organisms in the present case remains unclear. Although two of the patient's children also showed serum antibody titers that were diagnostic of the disease, thus indicating the family's exposure to infected animals and their products, the patient's husband remained serologically negative. Venereal transmission of the disease, which has rarely been convincingly documented as occurring in humans (9), can thus be ruled out for the present case. On the other hand, isolation of brucellae from the vaginas of Maltese prostitutes was reported as early as 1907 by the Commission for the Investigation of Mediterranean Fever (9); therefore, the possibility of ascending infection of the Bartholin's gland by contaminated vaginal secretions cannot be excluded with certainty. Alternatively, acquisition of *B. melitensis* by the oral route resulting in transient bacteremia followed by hematogenic invasion of the lower the genital tract might also be suggested.

The occurrence of Bartholin's gland abscesses in our patient exemplifies the wide spectrum of *B. melitensis* infections in

humans. Workers in clinical microbiology laboratories in areas where the disease is endemic should be familiar with the bacteriological features of the organism and consider the possibility of a brucellar etiology in a broad range of clinical settings.

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