Pyomyositis Caused by *Yersinia enterocolitica*

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Received 26 April 1984/Accepted 1 May 1984

***Yersinia enterocolitica* is known to be associated with gastroenteritis in children and Reiter's syndrome in adults, but it has only rarely been the cause of primary soft tissue infections. A patient with diabetes mellitus developed a calf abscess, from which *Y. enterocolitica* was isolated in pure culture. Incision, drainage, and intravenous gentamicin therapy resulted in cure.**

Now that its role as a human pathogen is firmly established, reports documenting *Yersinia enterocolitica* infections are increasing worldwide. The organism has been encountered both sporadically and epidemically (3). *Y. enterocolitica* causes a diarrheal illness in children (10), and its association with Reiter's syndrome in adults is well known (6, 13), but only a handful of cases of primary soft tissue infection have been described. We present a patient with pyomyositis caused by *Y. enterocolitica*.

Case report. A 62-year-old postal worker was admitted to the hospital with a 1-month history of pain and swelling of the left calf. The patient denied fever, chills, leg trauma, animal contact, rashes, joint swelling, abdominal pain, diarrhea, and recent travel. The patient had a 9-year history of type II diabetes mellitus controlled by chlorpropamide.

On admission, physical examination disclosed a well-developed, well-nourished male with the following vital signs: temperature, 39.4°C; pulse, 96; and blood pressure, 106/84. Abnormal findings were limited to the left calf, which was warm, swollen, and tender. The overlying skin was mildly erythematous, but there was no drainage or palpable cords. The left knee and ankle appeared normal, and peripheral pulses were full. Laboratory data revealed the following: hemoglobin, 11.6 g/dl; hematocrit, 35.4%; leukocyte count, 12,800/mm³ with a normal differential; and serum glucose, 297 mg/dl. Roentgenogram of the left leg showed soft tissue swelling, without free air or bony changes. Blood cultures were negative. Empiric therapy was begun with warm soaks and nafcillin (1 g every 6 h) for presumed staphylococcal cellulitis.

The patient failed to respond clinically, and an ultrasound of the calf was performed on day 13. A 15.5- by 6-cm fusiform semisolid mass was detected; this was confirmed by computed tomography. Percutaneous needle aspiration of the mass yielded 5 ml of purulent material. Gram stain disclosed polymorphonuclear leukocytes but no organisms. The following day the left calf was surgically explored; an abscess was found extending down to and involving the gastrocnemius muscle, with necrosis of its posterior aspect. Incision and drainage with wide debridement was performed. Microscopic examination of the pus obtained at surgery revealed pleomorphic gram-negative coccobacilli. *Y. enterocolitica* grew in pure culture from both the operative and preoperative specimens. The organism was susceptible to

gentamicin, tobramycin, amikacin, chloramphenicol, tetracycline, and trimethoprim-sulfamethoxazole and resistant to ampicillin, carbenicillin, cephalothin, and cefoxitin by the disk diffusion susceptibility test. The isolate could not be serotyped. The patient was treated with gentamicin (70 mg every 8 h) for 10 days and recovered uneventfully.

Discussion. *Y. enterocolitica* is a non-lactose-fermenting, urease-positive, pleomorphic, and gram-negative coccobacillus (occasionally showing bipolar staining) that is motile at 22°C but not 37°C (3). It is a member of the family *Enterobacteriaceae*. The most common serotypes in the United States are O:8, O:5,27 and O:1,2,3 (2, 4). Strains of *Y. enterocolitica* associated with human disease demonstrate tissue invasiveness, which may be plasmid mediated, in experimental models (15).

The manifestations of yersinosis are protean, depending on the age and immunocompetence of the host. Disease may be acute or chronic, localized or generalized, self limited or progressive, and infectious or immunologic. The portal of entry of the organism is generally the gastrointestinal tract, in which it may produce enteritis or mesenteric lymphadenitis. Typhoid-like septicemia is sometimes seen in compromised patients, with a mortality rate approaching 50%, despite appropriate antibiotic therapy (11, 14). Extraintestinal sites of infection include liver, spleen, kidney, heart, lung, eye, meninges, bone, joint, and skin (3, 14). Among the immunologic phenomena associated with yersinial disease are erythema nodosum, glomerulonephritis (8), and Reiter's syndrome in patients with histocompatibility antigen HLA-B27 (6, 13).

Y. enterocolitica is usually resistant in vitro to penicillins and cephalosporins (mediated by beta-lactamases), but sensitive to aminoglycosides, tetracyclines, chloramphenicol, and trimethoprim-sulfamethoxazole (3). Our patient responded to incision and drainage of the calf abscess and intravenous gentamicin therapy.

Yersinial wound contamination has been described previously (2), as have skin and subcutaneous infections resulting from bacteremia (14) and underlying osteomyelitis (12), but soft tissue involvement without evidence of infection elsewhere is distinctly unusual (1, 5, 7, 9). It is tempting to ascribe a role to diabetes mellitus in the pathogenesis of pyomyositis in this patient. Because of peripheral neuropathy and microvascular disease, diabetics are at risk for developing serious lower limb infections. The portal of entry of the organism is unclear in the present case. Direct inoculation is postulated in the absence of diarrhea and bacteremia. Once introduced, *Y. enterocolitica*, an invasive

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facultative anaerobe, initiated a suppurative process that extended deeply into the tissues of the leg.

This work was supported in part by Public Health Service Institutional Research Training award 5 T32 AI07183 05 from the National Institute of Allergy and Infectious Diseases.

The organism was originally identified in the Montefiore Medical Center Diagnostic Bacteriology Laboratory under the direction of John C. McKittrick. We thank Edward J. Bottone of the Mt. Sinai Hospital, New York, N.Y., for confirming the identification of the *Y. enterocolitica* isolates and for performing the serotyping.

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