Necrotizing Fasciitis Caused by Unencapsulated
*Haemophilus influenzae*

Noninvasive strains of *Haemophilus influenzae* usually cause mucosal infections, whereas invasive strains cause meningitis, septic arthritis, and cellulitis. Neither strains are commonly implicated as a cause of necrotizing fasciitis [1]. We report a case of necrotizing fasciitis due to unencapsulated *H. influenzae*. A 45-year-old previously healthy insulin-dependent diabetic with a recent history of untreated and asymptomatic monoclonal gammopathy of unknown significance bruised his right buttock in a skiing accident in February 1993. The patient had also experienced symptoms of chronic bronchitis all winter and early spring. The gluteal tenderness had almost subsided when he felt a sudden sharp pain in his right trochanteric region while playing tennis in May 1993. An orthopedic surgeon diagnosed acute bursitis of the greater trochanter and prescribed an oral nonsteroidal antiinflammatory drug that temporarily relieved his pain.

The day after he began receiving the antiinflammatory drug, fever developed and the patient was admitted to the hospital; the right gluteal region and lateral thigh were found to be extremely tender. Laboratory studies revealed that muscle enzymes were not elevated, and an MRI scan revealed no abnormality except minimal subcutaneous edema. Although antibiotic therapy with amoxicillin/clavulanate, gentamicin, and metronidazole was immediately initiated, generalized swelling of the entire thigh developed (the skin appeared normal, and crepitus was not noted). Blood cultures were repeatedly negative, and histological examination of specimens obtained from the thigh muscle by a needle biopsy did not reveal any organisms.

The patient became increasingly septicemic despite receiving cephalosporin therapy, and on day 17 after admission a repeated MRI scan showed extensive swelling and liquefaction of the tissues surrounding the musculus glutaeus medius, musculus vastus lateralis, and the abductor muscles. The adjacent joints and the muscle itself appeared normal.

Aggressive surgical incision and debridement of all involved regions revealed a yellowish material that contained numerous WBCs. Gram staining and culture of the purulent material revealed an unencapsulated strain of *H. influenzae* that was susceptible to ciprofloxacin and imipenem but no other organism; a large number of organisms were noted. Culture of subsequently obtained tracheal secretions revealed the same strain of *H. influenzae*, but culture of blood did not. The wound was packed open, the fascial planes were debrided daily, and the dressings were changed frequently until healthy granulation appeared. Therapy with ciprofloxacin was given intravenously for 2 weeks, and the patient recovered fully except for a residual limp.

It is of particular interest that in our case the necrotizing fasciitis was caused exclusively by a noninvasive strain of *H. influenzae*. The only reported case in which *H. influenzae* type b was associated with necrotizing fasciitis occurred in a 13-month-old infant [2]. Necrotizing fasciitis commonly occurs as a consequence of major or minor trauma in debilitated patients and is typically caused by polymicrobial synergistic infections (e.g., those due to staphylococci, hemolytic non-group A streptococci, anaerobic bacteria, enterobacteria, and clostridia). The clinical presentation of necrotizing fasciitis can be acute or subacute, the muscle and skin are usually not affected, and a minority of cases proceed to toxic shock [3].

Our patient was debilitated by his long-standing (31 years) diabetes mellitus, which was poorly controlled metabolically (glycosylated hemoglobin A1c, 10%) and caused local microcirculatory and defense impediments, and by the monoclonal gammopathy of unknown significance that compromised humoral defense mechanisms in general. Soft-tissue invasion by *H. influenzae* in this immunocompromised host may have occurred via hematogenous spread from the upper respiratory tract to the local tissues, which were rendered susceptible by the skiing and tennis injuries and the diabetic tissue alterations. The clinical course of soft-tissue infections caused by unencapsulated *H. influenzae* is subacute, which is probably due to the fact that the bacterium is primarily noninvasive.

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References