Haemophilus influenzae vertebral osteomyelitis in an adult

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We describe an adult—the sixth reported case in the English literature—with vertebral osteomyelitis due to *Haemophilus influenzae*.

Case report

Two months before admission, a 66-year-old man was treated with doxycycline because of a respiratory tract infection. Shortly afterwards, the patient had low back pain, gradually increasing in intensity. Radiographs of the lumbosacral spine 2 weeks after the onset of symptoms were normal. Dull pain was confined to the lower lumbar area, radiating in a bandlike fashion to the abdomen. The patient denied any symptoms of bladder or bowel dysfunction, and he had no complaints of weakness in the lower extremities or paresthesiae. He reported no history of previous trauma or tuberculosis. On admission the patient was afebrile. A physical examination was unremarkable except for lumbar paraspinal muscle spasm and hyperesthesia over the lower lumbar spine. The erythrocyte sedimentation rate (ESR [Wintrobe]) was 60 mm/h, whereas the white blood cell count (WBC) was 11.1×10^9/L, with a normal differential count. Serum protein was 73 g/L, with protein electrophoresis showing a monoclonal spike, i.e., IgG kappa 5.7 g/L. Quantitative immunoglobulins and the serum complement profile were within normal limits. Urinalysis was normal.

Radiographs and tomography of the spine, performed 8 weeks after the onset of symptoms, indicated destruction of the L3 vertebral endplate with lytic lesions on the vertebral body, soft-tissue swelling adjacent to the vertebrae, and narrowing of the intervertebral disc space between L2 and L3. A technetium scan showed increased uptake in the same area.

A histologic examination of a percutaneous needle biopsy of the L3 vertebral body and the L2–L3 disc space revealed chronic inflammation. Staining for acid-fast bacilli was negative, and gram staining revealed gram-negative rods. *Haemophilus influenzae*, sensitive to amoxicillin, grew on a culture of a bone biopsy specimen, and treatment was initiated with amoxicillin 12 g/day intravenously and immobilization.

Within 1 week of the onset of therapy, the patient's pain had decreased considerably, and the patient could be discharged 2 weeks after beginning treatment. Oral amoxicillin was continued for 6 more weeks. External support with a body cast was used for 2 months. Three months after discharge, the ESR had dropped to 10 mm/h, protein electrophoresis was normal, and the patient could be mobilized. One year after discharge, the patient has resumed full activity, with no clinical or radiographic evidence of recurrence.

Discussion

Haemophilus influenzae is a small, fastidious, gram-negative bacillus that has usually been considered to be of pathologic potential in young children, with type-b strains accounting for the majority of invasive, bacteremic infections (Dajani et al. 1979). More recently, *Haemophilus influenzae* has received increased recognition as an important pathogen in adults (Hirschman and Everett 1979), with non-b serotypes and nontypable strains being mostly responsible (Wallace et al. 1981, Holzgang et al. 1984). *Haemophilus influenzae* occasionally causes hematogenous osteomyelitis in children, with the extremities most commonly affected (Dajani et al. 1979). In adults, however, osteomyelitis due to this organism is rare. We could only find 5 previously reported cases of osteomyelitis due to *Haemophilus influenzae* in the literature (Oill et al. 1978, Holzgang et al. 1984, Beltrani et al. 1987). The lumbar spine, the most commonly involved site of infection in adult pyogenic osteomyelitis (Sapico and Montgomerie 1979, Waldvogel and Pagegeorgiou 1980), was always affected.

Table 1. Reported cases of adult *Haemophilus influenzae* osteomyelitis

Author	Age/sex	Antecedent event	Duration of symptoms (weeks)	ESR (mm/h)	WBC (cells/mm^3)	Level	Antibiotics type/duration (days)
Oill et al. 1978	52 F	None described	14	59	6,000	L3–L4	cephalothin 14 cephazolin 28
Holzgang et al. 1984	36 F	UTI	16	25	Normal	L2–L3	ampicillin 24 ceftriaxone 7 doxycycline ?
Holzgang et al. 1984	72 M	None described	36	99	11,600	L3–L4	ceftriaxone ? trimethoprim/ sulfamethoxazole ?
Beltrani et al. 1987	59 M	RTI	14	61	9,500	L3	ceftriaxone 42
Beltrani et al. 1987	39 M	RTI	12	55	12,000	L3	ceftizoxime 42
Present case	66 M	RTI	8	60	11,100	L2–L3	amoxicillin 56

ESR = erythrocyte sedimentation rate, WBC = white blood cell count, UTI = urinary tract infection, RTI = respiratory tract infection.

All the cases were typical of spinal infection, with an insidious onset of back pain as the only symptom and elevated ESR values (Table 1). Only 1 patient presented with fever.

Appropiate culture of bone biopsy will permit a correct diagnosis (Waldvogel and Papageorgiou 1980). Stained smears of the biopsy specimen may be erroneously interpreted because of the small size and pleomorphism of *Haemophilus influenzae*. Unfortunately, the isolation and identification of *Haemophilus influenzae* may be delayed because of its fastidious growth requirements (Raff and Dannaher 1974). Given our patient's history of respiratory tract illness, it seems likely that the vertebral osteomyelitis resulted from secondary hematogenous spread of *Haemophilus influenzae*. As in the previously reported cases, no immunologic impairment was present that could account for the invasive infection due to this organism. *Haemophilus influenzae* osteomyelitis can be cured with antibiotics, the choice of drug depending on the results of sensitivity testing (Simon et al. 1980).

Complete recovery was achieved in all the cases receiving antibiotic treatment and immobilization, with cephalosporin derivates being most commonly used (Table 1).

The frequency of an extrapulmonary *Haemophilus influenzae* infection is probably seriously underestimated (Hirschman and Everett 1979). This fastidious microorganism may be a more common cause of adult pyogenic osteomyelitis than previously believed.

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