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Epidural abscess due to *Streptococcus milleri* and *Bifidobacterium* species

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Sir,

The name *Streptococcus milleri* was first used in 1956 to describe a group of non-haemolytic streptococci isolated from oral infections.[1] These organisms have subsequently been associated with infections in many parts of the body.[2] Typically, they are associated with abscess formation especially in the liver.[2,3] We report a case of acute spinal epidural abscess caused by *S. milleri* and *Bifidobacterium* sp.

A 57-year-old woman presented to the Neurosurgical Unit at Charing Cross Hospital on 29 August 1989 with severe neck pains and quadriparesis. She had undergone diagnostic discography for non-specific neck pain 5 days earlier.

She was febrile, confused and quadriparetic with grade 2 power (MRC scale) in all muscle groups and a sensory level at C5. An extradural abscess was diagnosed clinically and confirmed by a cervical myelogram and CT scan (see Plate 1). Emergency cervical laminectomy from C3 to C6 was performed in order to decompress the spinal cord. Culture of pus obtained at operation revealed a moderate growth of *S. milleri* and *Bifidobacterium* sp. The organisms were sensitive to penicillin.

The patient was treated with parenteral benzyl penicillin in high doses (2·4 g 4 hourly) for 2 weeks followed by oral phenoxy-methyl penicillin for a further 4 weeks. Her legs improved rapidly but weakness in her arms persisted.

Six weeks later her condition deteriorated and a second CT scan showed persistent anterior infection. Further surgical decompression was performed. Pus obtained at this operation grew *S. milleri* which was sensitive to penicillin. Large doses of penicillin were given again and the patient was put in a Halo-Jacket. Three months later, the Halo-Jacket was removed. On review at the beginning of May 1990 the patient was able to walk but had residual grade 4 (MRC scale) quadriparesis.

Spinal epidural abscess is uncommon, being seen in 0·2–1·2 patients per 10000 hospital admissions.[4] The most often implicated pathogen is *Staphylococcus aureus*.[4] Streptococci, Gram-negative organisms and mixtures of organisms are less frequent. *Streptococcus milleri* is associated with abscess formation in the liver, lung, jaw, neck,

Plate 1. CT scan of neck showing pus and gas anterior to the spinal cord.

subdural space and brain.[2] To our knowledge, only two cases of spinal epidural abscess due to *S. milleri* have been recorded.[5,6] The case described differs from both of them in several aspects. In the other cases, *S. milleri* was the sole pathogen. In one of them the primary focus was cervical osteomyelitis, which followed intradiscal injection.[6] A primary focus was not detected in the other case, which involved the thoracic spine.[5]

In the case described here, the organisms causing infection most likely gained access to the abscess site when the discogram was performed. The temporal relationship between the two events, and the fact that the two organisms involved may be part of the upper gastro-intestinal and respiratory tract flora, all suggest this as the most likely explanation. On the other hand, epidural abscesses are often associated with trauma at the site of subsequent infection.[4] Occult *S. milleri* bacteraemia may have originated from any of the body sites where *S. milleri* is part of the normal flora, and the organism may then have lodged at the traumatised site of this patient's discogram.

Nearly all strains of *S. milleri* are sensitive to penicillin.[7] Many *S. milleri* infections include other organisms so that combination therapy is often needed as well as drainage of the abscess and other surgical procedures.[8] In the two cases previously reported, as in this case, the combination of surgery and antibiotics resulted in good functional recovery. The real incidence of *S. milleri* infections is probably underestimated. In many laboratories *Streptococcus* spp. are identified on the basis of their haemolytic activity and Lancefield group antigen. Haemolytic activity and Lancefield group antigens vary among strains of *S. milleri*.[9] Biochemical testing is therefore necessary for complete identification of clinically significant strains of streptococci.

Streptococcus milleri has serious pathogenic potential and its true incidence should be determined.

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