OSTEOMYELITIS OF THE SPINE DUE TO SALMONELLA MUECHEN

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Osteomyelitis caused by the salmonella group of bacteria is a well recognised but uncommon clinical entity. This paper is a report of osteomyelitis of lumbar vertebrae caused by Salmonella muenchen.

CASE REPORT

A girl of sixteen had suffered attacks of severe pain over the right iliac crest for two months in 1962. She then developed severe low back pain and was admitted to hospital. On examination there was marked spasm of the paravertebral muscles and rigidity of the lumbar spine. She was pyrexial and the erythrocyte sedimentation rate was 68 millimetres in the first hour. The white blood cells numbered 5,150 per cubic millimetre with 71 per cent of polymorphs. Radiographs showed a small area of osteolysis of the adjacent anterior angles of the second and third lumbar vertebrae and diminution of the disc space (Fig. 1). Chest radiographs and an intravenous pyelograph were normal. The blood and urine were sterile and stool culture produced no pathogens. The Mantoux reaction was positive but she had received bacille Colmette-Guérin (B.C.G.) three years before. Agglutinins were present in the blood to salmonella typhi "H."

One week after admission needle aspiration of the affected area under general anaesthesia produced a few millilitres of pus which, on culture, grew S. muenchen sensitive to streptomycin. This antibiotic was given for one week, but as the pyrexia did not settle, ampicillin (Penbritin)
was added (250 milligrams six-hourly). On this treatment the temperature fell to normal and the pain subsided, but the lumbar spine remained rigid.

On further enquiry the patient stated that she had had no bowel disturbance whatsoever in the months preceding her admission, nor had any member of the family. She had not had T.A.B.T. inoculation. She had attended a secretarial college at a town twelve miles from her home and regularly took lunch at a restaurant there. It may be significant that the only other isolations of *S. muenchen* in 1962 in North-East Scotland were from a family in the same town two weeks before the patient first developed pain. However, no direct connection between this family and the patient has been established.

Antibiotics were discontinued after six weeks and there was no recurrence of fever. The patient was nursed flat for twelve weeks, and thereafter was allowed to resume movement slowly in a Goldthwait brace for two weeks before going home. Radiographs at this time showed no further bone destruction but some collapse of the lumbar 2-3 disc space. In the following nine months the patient remained well and the latest radiograph shows early fusion of the first and second lumbar vertebrae (Fig. 2). She is back at work free of symptoms and does not wear a spinal support. The lumbar spine remains stiff.

**DISCUSSION**

*S. typhi* was first isolated in a case of osteomyelitis in 1889 by Erbermaier. Murphy (1916) found an incidence of 0.82 per cent of osteomyelitis in 18,840 cases of typhoid fever: eighty-eight of these cases had spinal foci; 44 per cent of the cases of osteitis appeared months or years after the enteric infection. Separation of many salmonella serotypes has led to the recognition of cases of osteomyelitis caused by organisms other than *S. typhi*. Webb-Johnson (1917) reported two cases of *S. paratyphi* B osteomyelitis while White and Meynell (1956) found reports of osteomyelitis caused by *S. choleraesuis*, *S. enteridis*, *S. typhimurium*, *S. panama* and *S. oranienberg*. Harvey (1937) and Goulder, Kingsland and Janeway (1942) suggest that up to 20 per cent of cases of enteric infection with *S. choleraesuis* develop osteomyelitis. *S. dublin*, *S. stanley*, *S. montevideo* and *S. barietyli* are other uncommon serotypes which have caused isolated cases of osteomyelitis. De Torregrosa, Dapena, Hernandez and Ortiz (1960) discussed the association of salmonella osteomyelitis and sickle-cell anaemia. Black, Kunz and Swartz (1960) discussed the other surgical aspects of salmonellosis—perforation, peritonitis, appendicitis, vulval ulceration. Grinshpun and Pertsovich (1961) reported an epidemic of enteric infection caused by *S. muenchen*, but the reported case is the first instance of osteomyelitis caused by this organism that can be traced in the literature.

*S. muenchen* is one of over 700 serotypes of the salmonella group of organisms. It was first described in 1932 and the earliest reports of its isolation were from South and North America. However, it was found in batches of dried egg in the United Kingdom during the war and has been isolated on many occasions in the past five years. It is characterised by an antigenic formula—(VI, VIII, d, 1; 2, −, −).

Diagnosis of salmonella osteitis may be difficult until pus is obtained. Even enteric infections may not produce diarrhoea until the second or third week and stool culture may be negative at first. Blood culture may produce the organism if the sample is taken during a spike of fever. A rising antibody titre is helpful provided the patient has not been recently inoculated with T.A.B.T. vaccine. In the patient reported, *S. typhi* antibodies rose from a titre of 1/200 on admission to 1/2,500 at the time of aspiration of the abscess. When streptomycin alone appeared ineffective, ampicillin was added because of its wide "spectrum" and ease of administration. This combination effectively reduced the fever and removed any need for operation.
SUMMARY

A case of salmonella osteitis of the spine is described. It is thought to be the first case reported due to the serotype Salmonella muenchen.

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REFERENCES


