***Streptococcus milleri* liver abscesses associated with leiomyosarcoma of the ileum**

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Summary

We report a case of multiple *Streptococcus milleri* liver abscesses manifesting dramatically on serial CT scanning in a patient subsequently shown to have a leiomyosarcoma of the ileum.

KEY WORDS: streptococcus, liver abscess, leiomyosarcoma.

Introduction

A number of case reports of pyogenic liver abscess due to *Streptococcus milleri* have appeared in recent years (Bateman, Eykyn and Phillips, 1975; Reid and Davidson, 1976). The source of infection has either not been apparent or has been localised to the gastrointestinal tract. We describe a case of multiple abscesses in a man who turned out to have a malignant small bowel tumour, an association not previously described.

Case report

A 63-year-old male was admitted with a week's history of vomiting, chills, hiccoughs, and right-sided lower chest and shoulder pain. He had had no significant previous illness and there was no other relevant history. On examination, he was pyrexial (temperature 38.5°C), and jaundiced, but did not look particularly ill. The liver was enlarged and slightly tender. Haemoglobin was 14.5 g/dl and white cell count 13.8×10^9 /litre with a polymorph leucocytosis. Serum bilirubin was 47 μ mol/litre, aspartate transaminase 97 u./litre, alkaline phosphatase 376 u./litre, albumin 25 g/litre. Serum was negative for hepatitis B surface antigen. Chest X-ray showed a raised right diaphragm. Ultrasound scan of the abdomen revealed multiple low density areas in the liver substance, also seen on computed tomographic (CT) scanning as areas of low attenuation coefficient

(Fig. 1). A repeat CT scan 6 days later demonstrated marked enlargement of the lesions, with a tendency towards confluence. At this stage, a non-haemolytic streptococcus was cultured from blood samples taken on admission. It was penicillin sensitive, and was subsequently characterised as *Streptococcus milleri*. Despite parenteral penicillin, his condition deteriorated over the next few days, and at operation, multiple liver abscesses were found, 8 being drained. Gram-positive cocci were seen in pus samples, but cultures were sterile.

FIG. 1. Initial CT scan of abdomen demonstrating multiple low density areas in the liver.

The patient failed to regain consciousness postoperatively, and developed a severe bronchopneumonia. A CT head scan, performed to exclude secondary intracranial abscess, was normal. A further CT scan of abdomen performed 13 days postoperatively, revealed persistence of multiple liver abscesses with the probable development of new ones. At re-operation, 7 more abscesses were drained, and a

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necrotic length of ileum was found, which was resected. This was found to contain a leiomyosarcoma, extensively infiltrating the bowel wall and mesentery and ulcerating into the lumen. The patient continued to deteriorate and died a few days later. Post-mortem examination confirmed the persistence of multiple liver abscesses, but failed to reveal any elsewhere. There was no evidence of residual malignancy.

Discussion

The species *Streptococcus milleri* is characterised by a series of biochemical and physiological characteristics (Coleman, 1968; Coleman and Williams, 1972; Ball and Parker, 1979). It includes all the Lancefield group F streptococci and some from groups A, C and G, but most strains are not Lancefield group typable. Although usually non-haemolytic, strains may be alpha- or beta-haemolytic. Thus, the species does not respect the conventionally accepted classification systems. In addition, it is fastidious, growing poorly in air, and usually requiring 10% CO₂. Consequently, although liver abscesses due to so called anaerobic and microaerophilic streptococci have been recognised for years (Patterson *et al.*, 1967; Sabbaj, Sutter and Finegold 1972) and at least some of these strains would probably now be classified as *Streptococcus milleri*, it was not until recently that the virulence of the species was fully recognised. Parker and Ball (1976) found that it constituted almost one third of all streptococci isolated from visceral abscesses. It has also been implicated in brain abscesses (De Louvois, Hurley and Gortvai, 1976), in a mycotic aneurysm (Fox, 1979) and in endocarditis where it exhibits a characteristic tendency to form metastatic abscesses (Murray *et al.*, 1978). Although the organism is penicillin-sensitive *in vitro*, progressive suppuration may occur despite penicillin therapy as in our patient. Thus, it appears to possess a virulence not traditionally associated with non-haemolytic streptococci. Poole and Wilson (1977) isolated *Streptococcus milleri* from 25% of normal appendices and concluded that it was part of the normal ileocaecal flora. This view has been substantiated by Murray *et al.* (1978).

In the present case, it seems probable that the organism entered the portal system via the ulcerating tumour. Liver abscess due to portal bacteraemia has been described as a rare complication of many abdominal conditions, including perforated peptic ulcer, inflammatory bowel disease, diverticular disease and infected haemorrhoids (Rubin, Swartz and Malt, 1974; Ranson *et al.*, 1975), but we have been able to find only one previous report of an abscess

complicating a small bowel tumour (Selvam, Sokhi and Donaldson, 1979).

The clinical presentation in our patient was consistent with that of a liver abscess, but the patient's 'non-toxic' appearance on admission, and the initial failure to isolate an organism raised the possibility of hepatic metastases following the initial CT scan. In general, liver abscesses have a lower attenuation coefficient on CT scanning than do metastases (Levitt *et al.*, 1977), but there is a large degree of overlap, and in fact necrotic metastases may be indistinguishable from abscesses (Wooten, Bernardino and Goldstein, 1978). However, the marked enlargement of the lesions in the space of a few days as seen on the second scan was judged diagnostic of abscesses.

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