Case Report

SALMONELLA INFECTION OF THE HIP

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FOR many years it has been the teaching that joint and bone involvement can be a complication of a Salmonella infection; though infrequent in members of the group other than typhoid. However, on perusal of the literature, we can find only one recorded case of paratyphoid involving a joint in the last twenty years (Lewis 1927), and we consider the following case to be of interest particularly in reference to the diagnosis of an "observation hip".

Case Report

A twelve-year-old boy was admitted to hospital on the 21.8.61, with a seven day history of slight general malaise and intermittent fever up to 100°F. He had fallen out of bed on the 16th August, and during the following day he complained of a transient pain in the right thigh but apart from the fever there were no abnormal physical signs. Two days later, he was seen again by his practitioner because his temperature had continued to fluctuate; again nothing abnormal was found on examination. A blood count and culture were normal.

When visited on the 21st August, he still had a temperature of 100°F. and was complaining of a severe pain in the right thigh and knee, walking with a pronounced limp. He was then transferred to hospital for further investigation.

On admission he was found to be an intelligent boy, slightly flushed, with a temperature of 100°F.; his only complaint was of pain in the right thigh and knee, and he denied any history of a gastro-intestinal disturbance during the present period of malaise. General examination was negative, the only abnormal physical sign being a marked limp although hip movements were full. He was treated as an "observation hip", the leg being put on skin traction.

Investigations:—

X-ray Hip, Femur and Knee: normal. Hb 12.9 g/100 ml. W.B.C. 6,000/cu. mm., polys 63%, lymphs 26%, eosinos 2%, monos 9%. Blood Culture: No growth after seventy-two hours. Slide Latex Test: negative. Rose Waaler: less than 8.

Examination on the day after admission, revealed painful limitation of hip movements in all directions; the pyrexia continued. A diagnosis of infective synovitis of the hip was then made and in order to establish the causative organism, the hip joint was aspirated under a general anaesthetic, two ml. of turbid fluid being obtained. This fluid was later reported on as follows:—

"Yellow turbid fluid containing fibrin and cells, mainly red cells and mononuclears with some polymorphs." Gram film—no organisms. Culture—"No growth".

The presence of pus cells in the joint forced us to commence antibiotic therapy although the causative organism had not been isolated; a course of tetracycline was started and the leg kept on traction. A further blood culture taken before the antibiotic

therapy was again negative but the blood examination was as follows:—

E.S.R. 50 mm/hr. W.B.C. 9,000/cu. mm., polys 59%, lymphs 39%, monos 12%.

This blood picture was puzzling and we wondered whether this could be an atypical case of glandular fever with joint involvement, but a Paul Bunnell agglutination was negative. A further check on the urine revealed a sterile culture and only an occasional cell on microscopy.

On the 23rd August, his general condition and physical examination remained unchanged. We were then faced with the problem of an established hip infection not producing a polymorphonuclear reaction, but with an increased lymphocyte and monocyte count. A Widal was performed and the result was:—

Agglutination: A suspension of *Salmonella paratyphi B* gave an O titre of 500. A suspension of non-specific *Salmonella* at a titre of 500.

No agglutination (1/25): *Salmonella typhi* O & H. *Salmonella paratyphi B* H, *Brucella Abortus* (titre range 10 to 1,256).

On the 24th August, the temperature started to fall and he became symptom free. We received the agglutination report on the 25th August, and a course of chloramphenicol was commenced the same day; his temperature which had been fluctuating fell to normal within twenty-four hours.

Urine and stool examinations on the 26th August, failed to grow any *Salmonellæ*. The Widal was repeated the same day:—

Agglutination: A suspension of *Salmonella paratyphi B* gave an O titre of 2,500. A suspension of non-specific *Salmonella* H. at a titre of 500.

No agglutination (1/25) to *Salmonella typhi* O & H. or *Salmonella paratyphi B* H.

The pathologist reported that these results were consistent with an infection of *Salmonella paratyphi B* or *typhimurium*.

On the 31st August, the patient's serum was found to agglutinate a suspension of *Salmonella typhimurium* H(i) to a titre of 1,250; with the previous findings this would be consistent with an infection due to *Salmonella typhimurium* but not paratyphoid B.

On the 1st September, stool culture showed the presence of a *Salmonella* organism which was later proved to be *Salmonella typhimurium*, sensitive to neomycin, streptomycin, chloramphenicol, tetracycline and the sulphonamides.

On the 6th September, he was removed to an isolation hospital where there was difficulty in sterilising the bowel, but this was finally achieved with streptomycin and chloramphenicol. A follow-up reveals that he has remained free of symptoms and signs and an absence of radiological changes in the affected hip joint.

We wish to record our thanks to Mr. R. H. Young for permission to publish the case and to the Pathology Department, St. Peter's Hospital, Chertsey, for their help in the investigations.

REFERENCE

LEWIS, J. T. (1927): Arthritis due to Paratyphoid B. Bacillus with General Symptoms, *Brit. med. J.*, ii, 1080.