SEPTIC ARTHRITIS IN HAEMOPHILIA


From the Nuffield Orthopaedic Centre, Oxford, England

Septic arthritis has been regarded as rare in haemophilias, but its incidence may have increased since HIV infection has become widespread in these patients. We describe six cases treated at one haemophilia unit over a two-year period and discuss their investigation, diagnosis and treatment. Four of the patients were seropositive to anti-HIV.

Received 1 October 1992; Accepted 5 January 1993

Septic arthritis is hitherto been regarded as a rare complication of haemophilia. The first case was reported from this centre by Houghton in 1977. By 1987 a further 15 cases had occurred and were collected in a literature review (Bleasel, York and Rickard 1990).

The usual treatment of haemophilic haemarthrosis is replacement of coagulation factor and immobilisation of the joint. Aspiration of the joint is not usually done due to the risks of aggravating the bleeding, causing joint damage, and introducing infection (Duthie et al 1972). Since the clinical presentations are similar, standard treatment may fail to distinguish between haemarthrosis and septic arthritis.

We report six cases of septic arthritis in patients treated over a period of two years.

PATIENTS AND METHODS

In the United Kingdom there are approximately 5000 patients with haemophilia A (due to deficiency of Factor VIII) and 1000 with haemophilia B (also known as Christmas disease and due to deficiency of Factor IX). The Oxford Haemophilia Centre is the largest in the country and provides specialised care for about 800 patients.

Since the late 1970s many patients have been maintained on home-treatment programmes. They are taught to inject themselves with coagulation factor concentrates as soon as they have a joint bleed. Those with significant musculoskeletal disorders requiring admission are treated at the Nuffield Orthopaedic Centre in one ward, under the care of one consultant orthopaedic surgeon and one haematologist.

The records of admissions to this ward were reviewed for 1991 and 1992. Of 150 haemophilic patients admitted, six had septic arthritis. Details of the patients are given in Table I.

RESULTS

All six patients thought that they had developed a typical, spontaneous haemarthrosis, and all of them initiated self-treatment at home with coagulation factor concentrate. They became aware within 24 to 72 hours that the pain and swelling in the joint were not responding as usual to replacement therapy and sought further medical advice.

On presentation all had a hot, swollen joint with a restricted range of movement and five of the six had systemic signs of infection with pyrexia and tachycardia. Leucocytosis was present in the two patients who were HIV-seronegative but not in the four who were seropositive. The C-reactive protein (CRP) level was increased in all six patients. The ESR was not measured as the laboratory was unwilling to perform the test on ‘high-risk’ specimens.

Site of infection. The knee was always the infected joint and in every case it had been the most frequent site of haemarthroses over several years. One patient had had a MacIntosh hemiarthroplasty nine years previously without complications; the other five had had no operation on the knee.

Microbiology. Gram-positive bacteria were isolated by blood culture from four patients. The other two had been treated initially at another hospital and blood cultures had not been taken at presentation. Joint aspiration was positive in all cases (Table I). Pseudomonas was grown from the joint of one patient who had been treated by bilateral open arthroscopy at another hospital.

HIV status. Four of the six patients were seropositive for anti-HIV and they all had CD4 lymphocyte counts of less than $0.2 \times 10^9/l$ (normal range, 0.6 to $1.2 \times 10^9/l$). One
had had a previous episode of *Pneumocystis carinii* pneumonia, but none of the four had symptoms attributable to HIV infection at the time that they developed septic arthritis.

**DISCUSSION**

Septic arthritis has been regarded as a rare complication in haemophilic subjects but the diagnosis should be considered when an episode of apparent haemarthrosis fails to respond promptly to treatment with coagulation factor concentrate and joint immobilisation. Severe haemarthrosis may cause slight pyrexia but, if the fever exceeds 38°C or is accompanied by rigors, septic arthritis should be suspected.

Other possibilities to be considered in these circumstances are a fracture, the presence of inhibitory antibodies to Factors VIII or IX and other haemostatic disorders, such as those due to cirrhosis or from hepatitis C infection.

Blood culture confirmed the diagnosis within 24 hours in the four patients in whom it was performed and in the light of this experience it is no longer our policy routinely to aspirate joints in which sepsis is suspected. Swabs should be taken from any infected sites elsewhere on the body. Patients infected with HIV do not mount a neutrophil response to sepsis, and the white cell count may be normal (Gerding et al 1989; Biglino et al 1991). Laboratories are often unwilling to measure the ESR in 'high-risk' patients. A further limitation to the value of the ESR in diagnosis is that intravenous infusion of plasma-derived coagulation factor may cause it to rise, probably because of the presence of fibrinogen in the concentrate. The CRP levels were greatly increased in all our patients but we do not know whether such changes occur in uncomplicated haemophilic haemarthrosis.

The apparently increasing incidence of septic arthritis in the haemophilic population has been attributed to infection with HIV (Gilbert and Aledort 1989; Bleaselt et al 1990) and our cases show that septic arthritis can develop in subjects who are in reasonably good general health and who have no other symptoms of HIV infection.

Infection with HIV, however, is not an essential feature of septic arthritis in haemophilia. The first reported case occurred in 1976 (Houghton 1977), at a time when the haemophilic population in the United Kingdom was not infected with HIV, and two of the patients reported here were seronegative. Both had been injecting themselves intravenously with concentrate for many years and one (case 3) had an infected ingrowing toenail and an infected cut on the thumb, both wounds yielding the same organism as that isolated from the blood. This patient had disregarded advice to wear gloves or apply dressings over wounds or sores on the hands when injecting the concentrate. Poor attention to technique during the preparation and intravenous injection of coagulation factor concentrate at home may therefore have been a causal factor, and the increasing incidence of septic arthritis in haemophiliacs may reflect the increasing number of patients self-administering treatment at home, a trend which has developed since the early 1970s. Case 2 initially presented with a unilateral septic arthritis, but after arthroscopy at another hospital which was complicated by bleeding and failure of wound healing, he developed sepsis in the other knee.

All the infected joints had haemophilic arthritis, with chronic synovitis, damage to the articular cartilage and subchondral bone cysts. Such joints may be readily colonised in the event of a bacteraemia and the presence of blood within a joint may facilitate the growth of microorganisms. In this context it is noted that none of our patients had recently had dental surgery.

The five patients who had been treated by aspiration and immobilisation of the joint had a much smoother clinical course than the patient treated by arthroscopy and open drainage. All were treated initially with a broad-spectrum antibiotic given intravenously in large
doses (cefuroxime 1.5 g three times daily) followed by a more specific antibiotic in accordance with the laboratory results. The antibiotic treatment was continued for a minimum of six weeks and no patient has had a recurrence of infection. The joints were immobilised for a minimum of two weeks, and longer in patients who responded less well as measured by pain and swelling. Case 2 was immobilised for six weeks to obtain healing of his arthrotomy.

Recently, there has been a move towards joint replacement in haemophilic patients but we suggest that, at least in HIV-infected patients, there may be a high risk of secondary infection.

We recommend that septic arthritis in a haemophiliac should be treated in a specialised unit where appropriate orthopaedic and haematological expertise is available.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

REFERENCES


