Case Report

Destructive Pneumococcal Septic Arthritis in End-Stage Renal Disease

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Summary Pneumococcal arthritis generally presents as non-destructive monoarthritis, although some underlying metabolic disorders such as liver failure and diabetes have been suggested to represent a risk factor for severe joint disease. Here we report a case of destructive pneumococcal arthritis of the left hip joint in a patient suffering from chronic renal failure treated with hemodialysis for ten years. Inspite of effective anti-pneumococcal antibiotic treatment, the patient with pre-existing renal osteopathy and a mild osteoarthritis continued to suffer from severe and disabling pain of the left hip. This case demonstrates that pneumococcal joint infection in patients with underlying uremic bone disease can lead to quick deterioration of the affected joint.

Key words Arthritis, Sepsis, Streptococcus Pneumoniae, Pneumococcal Infection, Arthritic Complications, Haemodialysis, Chronic Renal Failure.

INTRODUCTION

Streptococcus pneumoniae is a rare cause of septic arthritis that accounts for 2 to 6% of nongonococcal bacterial arthritis (1,2). Before the introduction of antibiotics, pneumococci-induced pneumonia was frequently associated with arthritic manifestations (3). Although pneumococcal arthritis may lead to cartilage destruction and subchondral bone erosions if untreated, immediate antibiotic treatment generally prevents progression to severe joint destruction (4,5). Haematogenous spread of pneumococci to joints is favored by underlying medical conditions such as diabetes mellitus or cirrhosis, or by local predisposing factors such as osteoarthritis or rheumatoid arthritis.

Here we report a case of pneumococcal arthritis of a hip in a patient with terminal renal failure of long duration, leading to severe residual joint disease after infection with *S. pneumoniae*, which to our knowledge has not been reported so far.

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CASE REPORT

A 67-year-old Caucasian lady was admitted to the emergency room of our hospital for a severe pain of the left hip associated with fever and chills, which developed on the same day. Her previous medical history revealed terminal renal failure due to polykystic kidney disease requiring haemodialysis for 9 1/2 years, three times per week. Two years prior to admission, the patient underwent a subtotal parathyroidectomy due to secondary hyperparathyroidism. She had been suffering from shortness of breath due to haemodialysis-associated dilative cardiomyopathy for eight years.

A physical exam revealed decreased mobility of the left hip and a clinical work-up showed a left lower lobar pneumonia. A blood count showed normochromic, normocytic anaemia with a haemoglobin of 113 g/l. The leukocyte count was 5.2 G/l with 40% of hyposegmented polymorphonuclear leukocytes (PMN). The sedimentation rate was 95 mm/h and the CRP was elevated at 272 mg/l. A radiograph of the left hip showed a severe osteoarthritis with subchondral lytic changes of the left hip (Figure 1b) which were not present two years before admission (Figure 1a). A magnetic resonance imaging revealed an increased amount of joint fluid, but no signs of osteitis or bone necrosis. Fluid aspirate from the hip joint was slightly haemorrhagic with moderate viscosity and con-





Fig. 1: Anteroposterior view of the left hip of a 67 years old uremic patient undergoing haemodialysis since 1986. An X-ray on the February 5th 1993 shows mild changes of bone structure (a). Osteoarthritis is present on the day of admission for acute hip pain on November 28th 1995 (b). After antibiotic treatment of septic pneumococcal arthritis, progressive osteoarthritis is revealed on January 16th 1996 (c).



↑ B

tained 22.5 G/l leukocytes with a PMN fraction of 86%. Two out of two blood cultures were positive for s. pneumoniae. One culture of synovial fluid showed s. pneumoniae as well. The patient was treated with intravenous ceftriaxone for 10 weeks. Although laboratory parameters suggested an effective antimicrobial effect, an invalidating pain of the left hip persisted and a new radiograph confirmed the severe progressive destruction of the left hip joint (Figure 1c). Because of severe cardiomyopathy surgical treatment was refused. The patient was offered a 23-polyvalent pneumococcal vaccine at the end of her hospitalization and used two crutches for walking.

DISCUSSION

Patients undergoing chronic haemodialysis are known to suffer from an altered immune function and are at increased risk for severe infectious diseases including septic arthritis (6-9). In the general population, infections due to s. pneumoniae presenting as pneumonia are frequently associated with bacteriaemia and positive blood cultures can be observed in up to 25% (10). Involvement of joints leading to septic pneumococcal arthritis is rare and presents generally as a non-destructive septic monoarthritis usually of the knee, although other sites such as the wrist, shoulder, and ankle can also be affected. Involvement of the hip joint is uncommon (11). Destructive pneumococcal arthritis of one or two joints, especially the knee and the shoulder joints, has been de-

scribed in patients with chronic alcoholism, cirrhosis, or diabetes mellitus (3). Non-destructive pneumococcal arthritis has been associated with other medical conditions as well, such as Felty's syndrome, bone marrow transplantation, or multiple myeloma (12-14). In dialysis patients infectious arthritis has been reported involving sometimes uncommon sites such as the sternoclavicular, sacroiliac, and acromioclavicular joints (8). No trend to an increased risk for residual severe joint disease has

been noted so far. End-stage renal disease has not been reported to predispose for pneumococcal arthritis, although the overall risk for infections in uremic patients remains substantial (7,15). This report indicates, that dialysis patients may suffer from pneumococcal arthritis, which in our case led to severe residual degenerative joint disease. More information on the prognosis of pneumococcal arthritis in uremic patients is warranted.

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