Bilateral septic arthritis of the hips associated with radiotherapy to the pelvis: A case report

Ashley Blom and Ian Dos Remedios
Avon Orthopaedic Centre, Bristol, UK.

Ian Learmonth
Department of Orthopaedic Surgery, University of Bristol, UK.

INTRODUCTION

We present a case of polyarticular septic arthritis associated with radiotherapy to the pelvis. This led to rapid bilateral destruction of the hip joints. Post-irradiation osteonecrosis of the femoral head is rare with only six cases reported in the literature since 1970. The femoral head, with its tenuous blood supply, is susceptible to necrosis if its microvasculature is damaged by radiation, which can also damage osteoblasts and osteoclasts. Necrotic bone is susceptible to infection and this can lead to septic arthritis or osteitis.

In November 1997 he presented to his general practitioner complaining of fever, malaise, night sweats, bilateral hip pain, a rash over his thighs and a weight loss of 6 kg over the previous two months. On examination he was noted to have an erythematous rash over his thighs and hepatosplenomegaly. His hips were painful on both active and passive movement, but the range of movement was normal.

He was found to have Hb 8.4g%, WCC 12.2x10^9/l and CRP 196. Virology screen was normal. Bone scan showed mildly increased uptake in the region of the right hip joint. X-rays demonstrated mild bilateral degeneration of the hip joints (Fig. 1). MRI scan showed reduced joint space in both hips with a mild effusion on the right. Attempted ultrasonically guided aspiration of this effusion failed.

His symptoms of rash, malaise, fever and loss of weight settled spontaneously and he was discharged home. His hip pain gradually worsened and three months later he was referred to the Orthopaedic Surgery Department. He had a markedly restricted and painful range of movement in both hips with marked wasting of the quadriceps mechanism bilaterally. X-rays (Fig. 2) and computerised tomography (Fig 3, 4 & 5) revealed massive destruction of the femoral heads and acetabulae. The right hip was aspirated under image intensifier. The aspirate contained group G betaahaemolytic streptococci.

CASE REPORT

The patient was a 49-year-old male with a past history of pseudoarthrosis of the right tibia for which he underwent right below knee amputation as a child. In 1993 he was diagnosed as suffering from anal carcinoma (small cell). He received local radiotherapy as well as radiotherapy to his inguinal lymph nodes between January and March 1994.
He was thus treated with intravenous antibiotics and subsequent bilateral excision of the femoral heads. Histology showed avascular necrosis with massive destruction of the head, loss of the normal trabecular pattern and pus cells. His CRP returned to normal within 5 days of surgery. He is currently pain free, with no residual clinical sign of sepsis.

DISCUSSION

The incidence of septic arthritis is between 2 and 10 per 100,000 of the population. It is more prevalent among the immunocompromised and those at the extremes of age. The most common organisms to cause septic arthritis amongst adults are streptococcus and staphylococcus. Twenty five to fifty percent of patients develop irreversible loss of joint function. Post-irradiation osteonecrosis of the femur is rare. Ficat and Arlet reported three cases as did Lee and Shih. These cases were characterised by a delay between the cessation of radiotherapy and the onset of symptoms of between 6 months and one year in Ficat’s series and between 2 and 3 years in Lee’s series.

Bone is susceptible to radiation damage either directly, by damage to osteoblasts and osteoclasts, or indirectly by damage to microvasculature that supplies the bone. After the onset of necrosis the necrotic bone, with its poor blood supply, is susceptible to secondary bacterial infection.

The accompanying figures demonstrate the rapid progression and destructive nature of the disease.

REFERENCES