A 65-year-old female was admitted with a 2-week history of remittent fever, arthralgia, rash, vomiting and malaise. She had been bitten by her pet rat, a week before the onset of symptoms. The rat, which had been missing for a number of weeks, bit her on the right middle finger and died 2 days later. The wound healed without complication.

On examination she was afebrile, had an erythematous rash across her shoulders and effusions in both acromioclavicular joints and the left knee, with reduced range of movement. The CRP was 537 mg/l, white cell count 22.5 × 10⁹/l (neutrophil count 20 × 10⁹/l). Her liver function tests were normal. Knee aspiration demonstrated frank pus, but no organisms on Gram stain and microscopy. An ultrasound examination of her abdomen revealed a splenic abscess.

A diagnosis of rat bite fever (RBF) was suspected. An arthroscopic washout of the left knee was performed. The articular cartilage appeared healthy. Both AC joints were aspirated but not formally washed out and she was commenced on intravenous benzyl penicillin. Despite this, the ACJ involvement worsened, requiring two open debridement and lavage procedures.

Her condition stabilised and she was discharged 19 days later. The diagnosis was confirmed when Streptobacillus moniliformis was grown on enrichment culture from the AC joint aspirate. She continued to have pain and reduced movement in the left knee which responded partially to physiotherapy. Subsequent radiographs demonstrated complete loss of medial joint space, and further orthopaedic treatment is expected (Fig. 1).

Discussion

RBF is a rare infection of both children and adults and is usually caused by Streptobacillus moniliformis.¹ Up to 50% of wild and laboratory rats (and some other rodents and domestic animals) carry the organism as part of their normal pharyngeal flora.¹ The disease typically presents with remittent fever, nausea, vomiting, myalgia, polyarthralgia, effusions, lymphadenopathy and rash 2–10 days following a bite or a scratch, or ingestion of contaminated food or water.² The bite wound usually heals spontaneously.³ The arthritis may be suppurative or non-suppurative, and rarely occurs in the absence of other cutaneous or systemic manifestations of RBF.²
**S. moniliformis** is a non-motile filamentous Gram-negative rod that has extremely fastidious growth requirements and therefore is notoriously difficult to culture.\(^1\) There is no reliable serological test, but there are case reports of PCR confirmation.\(^1\) Human streptobacillosis responds well to penicillin,\(^1\) untreated mortality ranges from 10\(^5\) to 53%.\(^3\)

We believe this is the only reported case of confirmed septic arthritis of the AC joints caused by rat bite fever.

**References**


*Figure 1* Radiograph of osteoarthritic changes of knee.