

**CASE REPORT**

# Loosening of Total Knee Arthroplasty after Brucellosis Infection: A Case Report

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**Abstract**

In this report we describe a 78-year-old man whose total knee arthroplasty showed the symptoms of infection with brucella with radiographic signs of loosening 5 years after the index surgery. The patient was treated successfully after a 2-stage revision arthroplasty surgery along with using rifampicin and doxycycline for 8 weeks.

**Keywords:** Brucellosis, Knee arthroplasty, Knee replacement, Loosening

**Introduction**

Total knee Arthroplasty (TKA) is one of the most common procedures in orthopedic surgery (1-3) while infection is a deleterious complication after this surgery (4, 5). Coagulase-negative staphylococci or staphylococcus aureus are the responsible organisms in more than 50% of cases (6, 7), which might result in loosening that requires revision arthroplasty (2). Systemic symptoms of brucellosis including sweats, fever, fatigue and weight loss start within two to three weeks of inoculation. However, Brucella infection of arthroplasty is a very rare phenomena (4, 8, 9). In this report, we describe a patient who underwent a TKA after which the knee became infected with Brucella resulting in prosthesis loosening.

**Case report**

A 78-year-old man with diabetes mellitus was referred to the hospital with knee pain, limited range of motion, swelling, and the knee was warm. He had a total knee arthroplasty 5 years ago at the same hospital [Figure1]. Radiographs showed components loosening and the blood work showed a rise in ESR to 105 and C-reactive protein to 36 mg/l. Wright and 2ME were also positive. Infected prosthesis was removed and tissue samples were sent to the microbiology department for further



**Figure 1.** Anteroposterior knee radiograph showing the primary arthroplasty.

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cultures. A dynamic spacer was used in the void after removing the prosthesis. We started antibiotic therapy immediately after confirming the diagnosis of infected prosthesis with brucellosis.

Rifampicin (300 mg/day) and doxycycline (100 mg/day) were given orally for 2 months and blood work was done regularly to confirm and follow the lowering of ESR to 54 and CRP to 2. Stage 2 revision was planned after the



Figure 2. An anteroposterior radiograph of the knee after the second stage revision arthroplasty surgery using stemmed components.

results of 2ME and Wright were negative [Figure 2].

### Discussion

The incidence of infection is 2.3 per 1000 between the

second and tenth years after knee arthroplasty (10). Brucella infection of total knee arthroplasty was described first in 1991 (11). Brucellosis can cause loosening of the components requiring debridement, 2-stage revision arthroplasty, and lengthy antibiotic therapy. However, if the clinical and radiologic studies are suggestive of no implant loosening, nonoperative management with antibiotic therapy may be an appropriate treatment for this infection (12, 13). Marbach *et al.* described a patient with a prosthetic joint infection due to *Brucella* spp, which was treated after two-stage revision arthroplasty and long-term antimicrobial therapy (14). Tassinari *et al.* reported a case of *Brucella* infection in a total knee arthroplasty without radiological signs of prosthetic loosening. They were able to manage the infection only with antibiotic therapy using rifampicin and doxycycline for 8 weeks (4). Erdogan *et al.* showed a patient with overriding brucella melitensis on a total knee arthroplasty. However, there were no obvious signs of implant loosening. The patient was treated successfully with rifampicin and doxycycline with no further surgery (8).

Because prosthesis loosening was clearly noted in our patient and the symptoms were suggestive of infected prosthesis, we pursued a two-stage revision surgery. Our patient was successfully treated with doxycycline and rifampicin along with a revision surgery. Infection of the TKA with brucella is a very rare condition; however in endemic areas, one should be thoughtful of this infection as a reason of painful total knee prosthesis with or without loosening.

The authors have no conflict of interest in this study.

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