

Postoperative bilateral knee prosthesis exposure due to trauma

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Total knee arthroplasty (TKA) is an effective and commonly performed procedure in knee arthritis. The most common wound complications in TKA are erythema, infection, prolonged drainage, and skin necrosis. Disruption of the operative wound is a rare complication. This paper presents a case where knee prostheses were exposed 17 days after the knee replacement operation. A 67-year-old male patient was admitted to our hospital for bilateral osteoarthritis of the knee. Simultaneous bilateral total knee arthroplasty was applied. The postoperative hospital stay reached ten days, and with 90° of flexion and mobilization, the patient was discharged. 17 days after the operation the patient was re-admitted to hospital after having a fall. A physical examination revealed dehiscence of the wound and median parapatellar arthrotomy sutures. Both prostheses were exposed and visible. Under general anesthesia P/E was repeated and stress tests revealed medial collateral ligament injury on the right knee and a lateral collateral ligament injury on the left knee. The role of the extensor mechanism is important in knee prosthesis. Any weakness in the extensor mechanism may lead to prosthetic instability and concurrent complications. If the strength of the quadriceps mechanism is not sufficient, it must be strengthened postoperatively, and rehabilitation and mobilization should be applied carefully until collagen maturation is complete.

Keywords: arthroplasty, exposure, knee, prosthesis.

Introduction

Total knee arthroplasty (TKA) is the treatment of choice in knee osteoarthritis and is widely applied where conservative measures have failed. Postoperative early wound complications include erythema, superficial wound infections, postoperative prolonged drainage and skin necrosis [1]. Wound dehiscence is not a common complication. In this case report, we present a patient whose bilateral knee prostheses were exposed after a fall on the 17th day after the operation.

Case report

A 67-year old male patient underwent simultaneous bilateral total knee arthroplasty for bilateral knee osteoarthritis (Fig. 1a, b). During the 10 day postoperative hospitalization period, daily wound dressings, mobilization, and a rehabilitation program were applied until both knees could achieve 90° flexion, at which point he was discharged. On the 17th day after the operation, he was hospitalized again having had a fall.



Fig. 1. Preoperative and postoperative bilateral knee radiographies of the patient

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Posttraumatic bilateral knee prosthesis exposure

The patient's physical examination on his admittance revealed bilateral wound dehiscence of skin, subcutaneous tissue, and median arthrotomy sutures. Both prostheses were exposed (Fig. 2). The patient was taken to the operating theater immediately and was examined under anesthesia. A physical examination showed dehiscence of all sutures and stress tests revealed medial right knee, and lateral left knee collateral ligament ruptures.



Fig. 2. Exposition of bilateral prostheses

Both knees were irrigated vigorously with saline and the old sutures were removed and debridement was performed. The prosthetic inserts were changed for constrained inserts for medial and lateral instabilities and the prosthetic stabilities were rechecked. Further surgery was not required. Following the operation, the medication used was cefazolin. On postoperative day 1, he was mobilized and active and passive motion exercises were started. On the 3rd day he was taken to the operating room because drainage occurred on the right knee. Debridement and irrigation were again applied. He was discharged 6 days later. He was followed up with a physical examination, laboratory parameters (C reactive protein, erythrocyte sedimentation rate, white blood cells), and x-rays in the 3rd, 6th, 9th and 12th months. The final examination revealed no erythema, tenderness, or any positive infection parameters. Laboratory parameters were normal. There were no abnormalities on the x-rays. There was no mediolateral instability, flexion was 90° and extension was neutral at 0 degrees.

Discussion

Dehiscence of the wound and disruption of the extensor mechanism is an infrequent but catastrophic complication after total knee arthroplasty. In a

retrospective study that defined the postoperative complications of 1,636 patients that underwent primary total knee arthroplasty, the mortality rate was found to be 0.06% and 104 life-threatening complications were found. Of these complications, 90% occurred in the first 4 days following the operation. Complication rates increased with senility, obesity and concordant systemic illnesses [2]. Wound dehiscence is seen extremely rarely. Mempoisidis et al. observed 3,830,420 patients at five year intervals between 1990 and 2004. According to this study, the wound dehiscence complication was found to be 0.03- 0.05% over the entirety of the study [3]. In that study, the exposure of the prosthetic body parts to open air is not clear. This means that possible rupture of arthrotomy sutures and the timing of surgical wound dehiscence are unclear.

In the case we presented, wound dehiscence occurred on the 17th day following the operation, at which point his sutures were removed, and flexion of 90° was achieved in line with expectations. In our clinic, arthrotomy sides, skin and subcutaneous tissues are sutured continuously, locked and in double layers. We do not think interrupted or continuous suturing is important, particularly in obese patients, however, biomechanical studies should be carried out in order to test our thesis.

An important point is the questioning of the preoperative extensor mechanism strength. The importance of the extensor mechanism increases with an increasing range of motion after total knee arthroplasty. The only restraint of early wound dehiscence in an obese patient after a fall is the quadriceps' role in the mechanism. The etiology of extensor mechanism failure is complex and often multifactorial. Risk factors include obesity, history of corticosteroid use, stiffness, previous extensor mechanism complications, osteolysis, and previous osteotomy. In obese patients whose extensor mechanism strength is weak, preoperative strengthening exercises should be performed.

Postoperative rehabilitation and mobilization should be applied cautiously until collagen maturation has finished. It is important, therefore, to identify those patients who are at risk preoperatively to avoid this catastrophic complication.

Conflict of interests

Authors have no conflict of interests.

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