



Primary Total Knee Arthroplasty in Infection Sequelae About the Native Knee



Jai-Gon Seo, MD^a, Young-Wan Moon, MD^a, Sang-Hoon Park, MD^b, Kye-Young Han, MD^c, Sang-Min Kim, MD^d

^a Department of Orthopaedic Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

^b Department of Orthopaedic Surgery, National Health Insurance Service Ilsan Hospital, Ilsan, Korea

^c Department of Orthopaedic Surgery, Kangwon National University School of Medicine, Chuncheon, Korea

^d Department of Orthopaedic Surgery, Samsung Changwon Hospital, Sungkyunkwan University School of Medicine, Changwon, Korea

ARTICLE INFO

Article history:

Received 15 May 2013

Accepted 14 January 2014

Keywords:

bone or joint sepsis
native knee
total knee arthroplasty
periprosthetic infection

ABSTRACT

The aim of this study is to assess the results of primary total knee arthroplasty (TKA) after bone or joint sepsis about the native knee and to analyze the risk factors of periprosthetic infection. Sixty-two patients (62 knees), considered to have prior sepsis history to be resolved, underwent primary TKA and were followed during a mean of 6.1 years (range, 2–10.4 years). Of the 62 patients, periprosthetic infection occurred in 6 after primary TKA (9.7%). Five of 6 patients grew the same organism as prior infection. The number of prior surgeries undertaken for deep infection was found to be an independent risk factor of periprosthetic infection.

© 2014 Elsevier Inc. All rights reserved.

Although infection is not a frequent complication of total knee arthroplasty (TKA), it can be disastrous and is certainly one of the most worrisome outcomes [1,2]. The incidence of periprosthetic infection in modern practice has been reported to be as low as 0.2% in routine cases but as high as 12% in high risk groups [3–5]. Reported risk factors of deep infection following TKA can be classified as patient-related, surgery-related, or environment-related factors. Patient-related factors include hemophilia [3], rheumatoid arthritis [4], diabetes [6], obesity [7], and prior open surgery [8]. In particular, prior sepsis history about the knee has been considered as one of the major sources of infected TKA [3,6,9].

Septic arthritis or osteomyelitis can destroy articular cartilage and bone sufficiently enough to cause considerable knee pain and functional limitations. If joint or bone sepsis still persists in those patients, therapeutic alternatives include amputation, arthrodesis or two-stage joint arthroplasty [10–12]. On the other hand, in cases of previous joint infection quiescent for long enough to be considered to be resolved, many surgeons have performed primary TKA in clinical practice [13–15]. Bae et al [16] reported that the one-stage procedure was successful in 31 of the 32 knees of quiescent joint sepsis. Lee et al [14] performed primary TKA in 18 knees of prior sepsis and deep periprosthetic infection was observed in only 1 knee. However, the resolution of infection may remain uncertain even after several years

free of symptoms, especially in cases of septic arthritis with subsequent bone involvement [17].

The objective of this study was to investigate whether prior bone or joint sepsis of native joint which is believed to be resolved, would result in a high rate of infection after primary TKA, compared with that of primary TKA in the general population. In addition, we sought to assess the predictive value of multiple variables that cause deep infection following primary TKAs in knees with prior bone or joint sepsis.

Materials and Methods

From our prospective database, we retrospectively identified 90 patients (90 knees) who had a clear history of deep infection about the knee and were treated with TKA from January 2001 to December 2010. All patients were associated with either persistent or quiescent bone or joint sepsis and showed severe arthritic change combined with functional disability. These patients were examined according to our routine diagnostic protocol prior to surgery. Measurements of a full blood count, erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) were performed and plain radiographs were routinely checked. Eighteen patients suspected to have persistent osteomyelitis were evaluated by MRI or bone scanning. Aspiration of the joint was carried out in each case under sterile conditions.

Of the 90 patients, 20 patients (20 knees), who suggested features of persistent deep infection such as radiographic signs of progressive joint line narrowing and appearance of areas of osteolysis or bone loss, a positive culture from knee aspiration, abnormal differential cell count of joint fluid or elevated serum inflammatory markers such as ESR and CRP values, were excluded in this study (Fig. 1). According to

The Conflict of Interest statement associated with this article can be found at <http://dx.doi.org/10.1016/j.arth.2014.01.013>.

Reprint requests: Sang-Min Kim, Department of Orthopaedic Surgery, Samsung Changwon Hospital, Sungkyunkwan University School of Medicine, 50 Hapseong-dong, MasanHoiwon-gu, Changwon-si, Gyeongsangnam-do, 630-522, Korea.

<http://dx.doi.org/10.1016/j.arth.2014.01.013>

0883-5403/© 2014 Elsevier Inc. All rights reserved.

the previous studies [18,19], ESR of 30 mm/h and CRP of 1 mg/dL were used as the cut-off values to determine infection in this study. In terms of joint fluid analysis a leukocyte count of >1700 cells/ μ L combined with a neutrophil percentage of 65% was considered to be highly suggestive of infection [20]. In 5 patients (5 knees), although persistent deep infection was not suspected preoperatively, intraoperative frozen section tissue was found to show more than 5 polymorphonuclear cells per high-power field and two-stage implantation was performed. These 5 cases were also excluded. Thus, of the 90 patients who provided a clear history of bone or joint sepsis, 65 patients (65 knees) were considered to have prior sepsis history to be resolved and underwent primary TKA. After surgery, 2 patients (2 knees) died because of problems unrelated to the surgery and 1 patient (1 knee) was lost to follow-up before the minimum of 2 years. None of these patients underwent a revision or reoperation until the last follow-up. The final cohort included 62 patients (62 knees). The mean follow-up period was 6.1 ± 1.7 years (range, 2–10.4 years). Fifteen male and forty-seven female patients had a mean age (standard deviation) of 67.1 ± 9.5 (range, 51–78 years). There were no cases of revision for any reason except deep infection during the follow-up period. The origin, microorganism and treatment for initial infection are summarized in Table 1. We obtained prior approval from our Institutional Review Board.

Intraoperative Procedures

All patients underwent TKAs with associated synovectomy as a one-stage procedure by a single surgeon (JGS), at a mean period of 4.3 years after the initial septic episode (range, 0.3–22 years). After medial parapatellar arthrotomy was performed, the intraoperative effort was

Table 1
Origin, Microorganism, and Treatment of Initial Infection.

	Number of Knees
Origin of infection	
Postoperative	31
Hematogenous	22
Secondary to infiltration	6
Miscellaneous	3
Initial Treatment	
Arthroscopic debridement	30
Open debridement	14
Open debridement and cement bead insertion	8
Irrigation and drainage	6
Intravenous antibiotics alone	4
Preoperative microorganism	
MRSA ^a	17
MRCNS ^b	9
<i>Staphylococcus epidermidis</i>	5
<i>Streptococcus</i> species	4
<i>Escherichia coli</i>	3
<i>Pseudomonas aeruginosa</i>	3
<i>Enterobacter</i> species	2
<i>Propionibacterium acnes</i>	1
<i>Clostridium</i> species	1
Polymicrobial	4
Unknown	13

^a MRSA, methicillin-resistant *Staphylococcus aureus*.

^b MRCNS, methicillin-resistant coagulase-negative Staphylococci.

expended to clear the scar tissue from the suprapatellar pouch, the medial and lateral gutters of the knee and from the retropatellar fat pad region. No patient required a quadriceps snip, V-Y quadricepsplasty or tibial tubercle osteotomy to aid in the exposure of the knee.

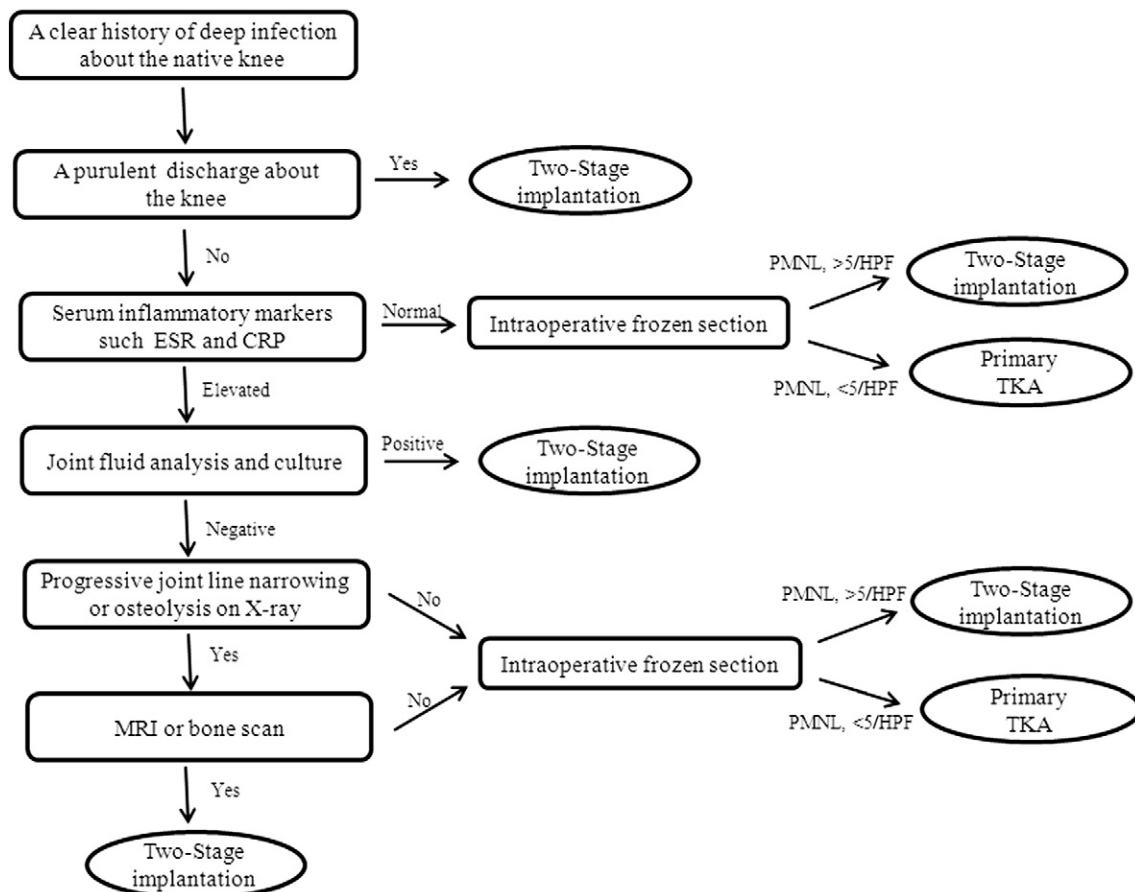


Fig. 1. A diagnostic algorithm, which incorporates both preoperative and intraoperative work-up, for infection sequelae about the native knee. PMNL = Polymorphonuclear leukocyte, HPF = High power field.

Download English Version:

<https://daneshyari.com/en/article/6209264>

Download Persian Version:

<https://daneshyari.com/article/6209264>

[Daneshyari.com](https://daneshyari.com)