

(total knee arthroplasty; TKA)

가 2% 가 6

가

가

가

(total knee arthroplasty)

가

가

(1).

(1, 2).

(3).

가

(Fig. 1A,B).

가

90% (abrasion), (burnish-  
ing), (deformation), 50%  
가 (delamination) 37% 가

(1).

가

metal line sign

(Fig. 2A,B).

(1).

<sup>1</sup> interleukin-1, tumor necrosis factor, interleukin-6,  
<sup>2</sup> pro-staglandin E2

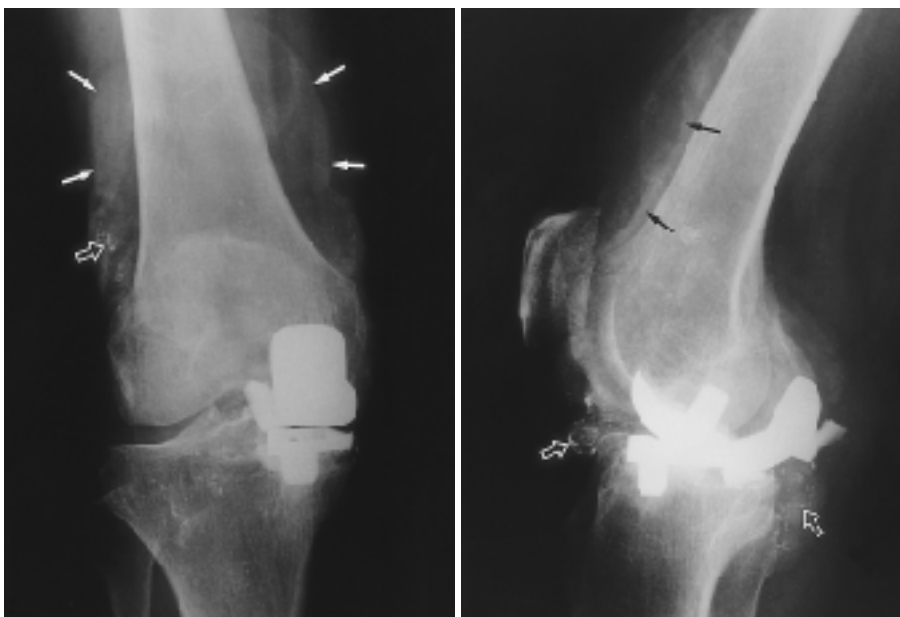
(Fig. 3A,B), , 4) 가 - , (4). 12% , 1 (5), (malalignment), 가 가 , (Fig. 4A,B). (1). 1) 2 , 가 , 2) , 3) .



A

B

Fig. 1. A 64-year-old woman with prosthesis wearing at 7 years after TKA. A. Initially, the thickness of radiolucent zone polyethylene is 3.5mm at medial(arrows) and lateral tibial plateau. The femorotibial alignment is good. B. The polyethylene shows severe wearing at medial side(arrow) and the knee joint shows varus deformity at 7 years after TKA.



A

B

Fig. 2. A 73-year-old woman with metallosis at 4 years after TKA. A, B. The radiographs show diffuse cloud like increased opacities(arrows) with multiple tiny metal densities(open arrows) around knee joint(metal-line sign), which represent synovitis by wearing materials from prosthesis. The unilateral prosthesis shows wearing.

X-  
 .  
 2-3% , Bengtson  
 9%  
 (1) 1.7%  
 4.4%, 2.9%  
 (condylar prosthesis) 가  
 가  
 가 가  
 activity) 가  
 가 가  
 (4). 가  
 (metabolic (perioperative wound complication),  
 (1, 4).

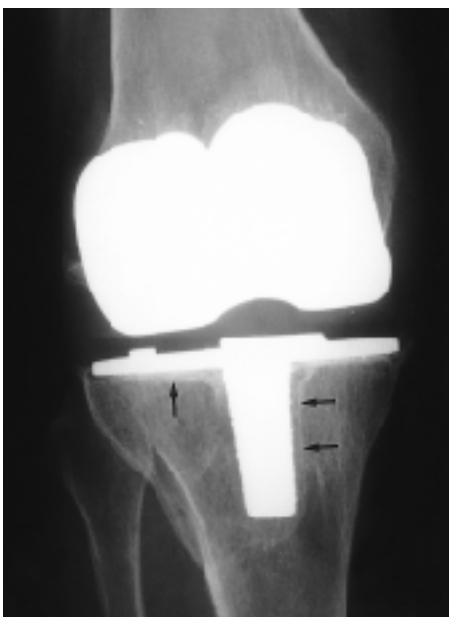


A



B

Fig. 3. A 66-year-old woman with osteolysis at 8 years after TKA.  
 A, B. Diffuse osteolytic areas(arrows) are seen at medial and lateral tibial condyles around the stem of prosthesis. The polyethylene of prosthesis shows severe wearing.



A



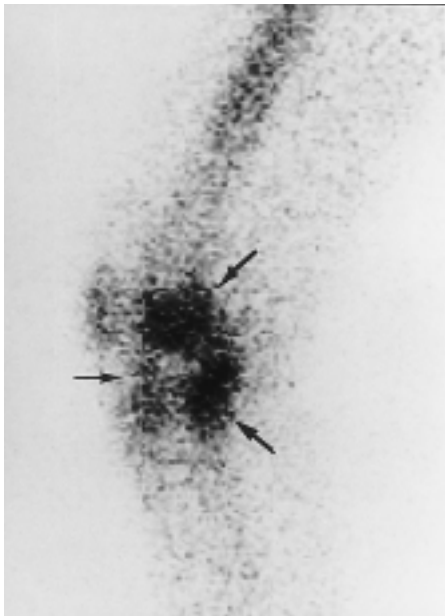
B

Fig. 4. A 66-year-old woman with loosening at 7 years after TKA.  
 The radiolucent zones with thin and sharp sclerotic margin(arrows) are seen at tibial(A,B) and patellar prosthesis(B). The thickness of radiolucent zone is about 2.5mm.

가 (radiodense line) , ESR, (radiodense line) , (5). 가 (Fig. 5B). 가 (Fig. 5A). , 2) - 1) 가 , 3) , 4) techneitium-99m phosphate complex 가가 6-12



A



B

Fig. 5. A 66-year-old woman with infection at 5 months after TKA.

A. Soft tissue swelling(arrows) is seen around the knee joint. But the irregular radiolucent zone or loosening is minimal.

B. Gallium scan. There is increased uptake about the both femoral and tibial components(arrows) of the TKA after 72 hours.



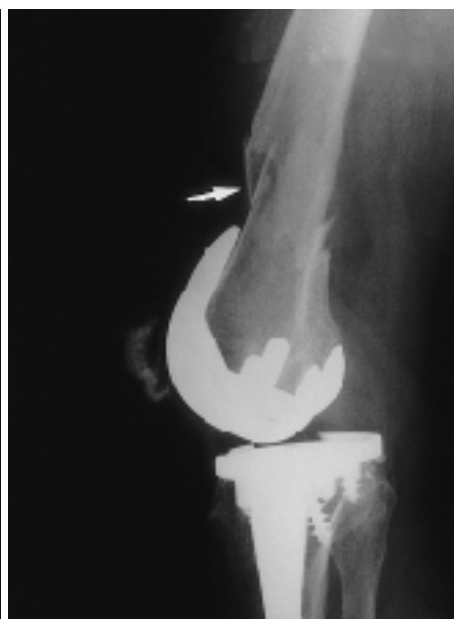
A



B

Fig. 6. A 62-year-old woman with femorotibial subluxation at 3 years after TKA.

A, B. The tibia shows anterior subluxation with loosening of tibial prosthesis.



B



B

가 가 (Fig. 6A,B)(4). , 2 (4). 3% , (6). 가 , 3 가 , 1-1.5 , 7 가 (7). (stem) (Fig. 7A, 가 tracking, B)(1).

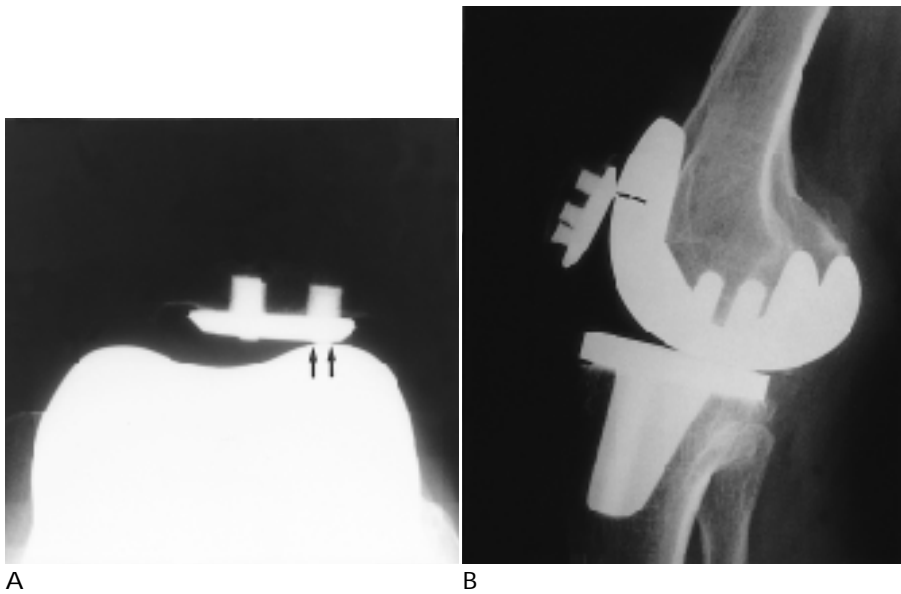


Fig. 9. A 65-year-old woman with patellar component subluxation and wearing at 8 years after TKA. A, B. The patellar prosthesis is subluxated to lateral side. And the absence of the normal radiolucent polyethylene between the patella and the femoral component shows metal-on-metal contact(arrows).

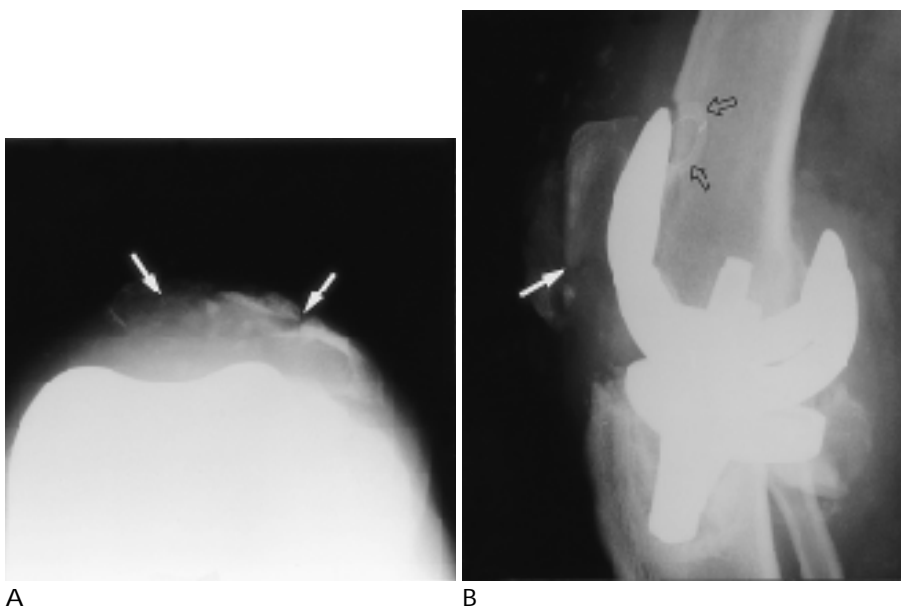


Fig. 10. A 55-year-old man with patellar fracture at 2 years after TKA. A. The skyline radiograph shows patellar fracture and fragmentation(arrows). B. The lateral radiograph shows patellar fracture(arrows) accompanied by patellar component displacement(open arrows).

5% , (patellar tendon) (avulsion) , (8, 9). (Fig. 10A,B). 가 , an- choring hole (lateral release , lateral superior geniculated artery가 , (infrap- atellar fat pad) , 가 가 가 . 가 가 가 (7).

congruence mechanism) 가 가 +16 95% (complex extensor -6 , 56% 가 ) (infrap- atellar fat pad) , 가 가 가 . 가 가 가 (7).

가 (7). 가 (7). Q angle 가 , tracking (retinaculum)가 가 (Fig. 8A,B) (10). 가 가 가 가 (Fig. 9A,B) (5,8). 가 peg-metal back , metal back peg-metal backing 가 metal plate 가 . (10).

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## **Radiologic Findings in Cases Involving Complications Arising from Total Knee Arthroplasty<sup>1</sup>**

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Total knee arthroplasty(TKA) has been used for the treatment of knee joint pain, deformity, and instability caused by osteoarthritis, rheumatoid arthritis, or tuberculous arthritis, and by virtue of good results and rapid development, the procedure has been increasingly employed. With the development of total knee prosthesis, complications have also increased, however, and due to complications occurring up to six years after surgery, fusion occurs in about 2% of all replaced knees. The most common complication of TKA is loosening, followed by infection. Others are thrombosis, subluxation, dislocation and fracture, and complications may be divided into four groups: biologic, technical, specific to type of components, and associated with certain diagnosis. Where these complications occur, a patient must undergo a second procedure, but the success rate is lower than for the initial procedure. Exact etiological evaluation important clinically and radiologically. We illustrate the etiologies and radiologic characteristics of TKA complications according to classification.

**Index words :** Bones, radiography  
Knee, prostheses  
Knee, surgery  
Surgery, complications

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