What are the indications for UKA?

Shuichi Matsuda, Kyoto University, Japan

1. Anterior cruciate ligament

   In a cadaver testing, the ACL-deficient knee after UKA exhibited significantly greater anterior tibial translations than the native knee and the knee after UKA with an intact ACL *(Suggs JF, J Arthroplasty, 2004)*. Although some studies showed no significant difference in clinical results or survivorship of UKA between the ACL-knees and ACL+ knees groups *(Boissonneault A, Knee Surg Sports Traumatol Arthrosc, 2013)*, a functional ACL is necessary to ensure normal stability after UKA.

2. Patellofemoral joint

   Berend KR et al compared the failure rate of mobile-bearing, medial UKA in patients with and without preoperative radiographic evidence of patellofemoral joint degeneration. They found no survival difference was noted between knees with medial or lateral patellofemoral joint disease *(Orthopedics, 2011)*.
   Song EK et al also reported that preoperative anterior knee pain and patellofemoral joint degeneration were found to be unrelated to poor outcome *(Knee Surg Sports Traumatol Arthrosc. 2016)*. Current clinical results do not support patellofemoral arthritis is contraindication for UKA.

3. Deformity

   Classical indication was a correctable maximal anatomical coronal deformity of 10°varus or 15° valgus. For more detailed preoperative evaluation, we recently take preoperative FULL-LENGTH valgus stress radiography *(Tashiro Y, Knee Surg Sports Traumatol Arthrosc. 2014)*. We showed strong correlation between postoperative alignment and the values on the preoperative valgus stress radiographs. Preoperative valgus stress radiography is useful for predicting the postoperative coronal alignment, and this would help to more precisely select patients.

4. Obesity

Poor outcome of UKA was reported in the patients with BMI >32 kg/㎡(Berend KR, et al, CORR, 2005), or >35 kg/㎡(Bonutti PM, et al, J Arthroplasty 2011). Although some studies reported obesity did not affect clinical results of UKA, TKA would be safe for high BMI patients.

5. Other issues

Previously, clinical outcome of UKA for spontaneous osteonecrosis was inferior to that for osteoarthritis, but recent studies reported excellent long-term clinical results for spontaneous osteonecrosis. On the other hand, it is difficult to do UKA for steroid-induced osteonecrosis due to relatively large lesion.

Controversy remains on the effect of bone marrow lesion on clinical results of UKA. Jacobs CA reported bone marrow lesion did not affect clinical results *(J Arthroplasty 2016)*, but further investigation is necessary.

Activities and age are important factor to determine surgical procedure. Some studies reported high activities were not related to poor outcome of UKA, but recent reports show young age is a risk factor for revision *(van der List JP, et al, J Arthroplasty, 2016) (Jeschke E, et al, JBJS, 2016).*