Unicompartmental Knee Arthroplasty
Indications and Patient Selection Outline

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1. Introduction
2. General Indications for UKA
   a. Unicompartmental Disease - medial or lateral
      i. Medial more common - due to higher incidence of medial OA
3. Ideal Candidate
   a. Isolated disease in one compartment
      i. No PF or opposite tibiofemoral compartment involvement
   b. Normal weight / BMI
      i. Classic indication: BMI <30 kg/m^2, maybe 35?
   c. No pathologic laxity
      i. ACL intact
   d. No severe malalignment
      i. No more than 15 degrees of correctable varus or valgus
      ii. No more than 9 degrees or varus, or 14 degrees of valgus
   e. Full range of motion with no flexion contracture
      i. Minimum 90 degrees arc with less than 5 degree flexion contracture
   f. Lower functional demand
   g. Older patient
      i. Age greater than 60? 65?
4. Less than ideal - pushing indications
   a. Ritter et al: 4 to 6% of cases of varus OA met the above criteria\(^{18}\)
   b. Isolated Disease
      i. Patellofemoral
         1. Beard et al\(^{1}\) - Intra-op
            a. Evaluated patellofemoral cartilage at UKA in 824 knees
            b. 128 with full thickness loss - no influence of outcome
         2. Beard et al\(^{2}\) - Pre-op
            a. 91 medial UKA's
            b. 55% with radiographic OA - no worse at 2 yrs
            c. 55% with pre-operative anterior knee pain - outcomes no worse at 2 yrs
         3. Song et al\(^{19}\)
            a. 105 patients undergoing medial UKA
            b. No worse outcomes at 5.4 years in those with patellofemoral OA
      ii. Other compartment
         1. Medial UKA
a. May be able to ignore early lateral compartment disease
   Especially in older patients (over 80)\(^{15}\)

b. Failure is rarely due to lateral progression\(^4\)
   i. Aseptic loosening most common cause

2. Lateral UKA
   a. Any medial disease is a contraindication
   b. Medial progression most common reason for failure\(^8,12\)

c. BMI
   i. Review of Registry Data - immediate post-op data on 15,770 patients\(^9\)
      1. Early (90 day) major complication risk
         a. Non-Obese - 2.3%
         b. Obese - 5.3%
         c. Morbidly Obese - 7.2%
      2. Early (90 day) revision risk
         a. Non-Obese - 2.7%
         b. Obese - 4.6%
         c. Morbidly Obese - 5.6%
   ii. Short-term follow-up data on high BMI
      1. Bonutti et al\(^5\)
         a. 70 medial compartment UKA’s - 2 year f/u
         b. Increased failure risk with BMI > 35
      2. Kuipers et al\(^11\)
         a. 437 Oxford medial compartment UKA’s - 2 year f/u
         b. BMI > 30 not associated with increased failure risk
      3. Plate et al\(^17\)
         a. 746 medial compartment UKA’s - 2 year f/u
         b. No association between BMI and failure risk
   iii. Longer-term follow-up data on high BMI
      1. Berend et al\(^3\)
         a. 79 medial UKA’s
         b. Increased failure risk at 3.5 years with BMI > 32
      2. Tabor et al\(^21\)
         a. 100 medial compartment UKA’s in 82 patients
         b. Better survival in obese patients at 15 and 20 years

d. No pathologic Laxity
   i. ACL Deficient
      1. UKA generally contra-indicated in ACL deficient knees
      2. Differentiate - ACL deficiency caused by medial OA
         versus medial OA caused by ACL deficiency
3. Good results reported by some authors with fixed bearing in patients without pre-op instability
4. Engh et al - 67 medial UKA's - no difference between ACL deficient and intact ACL Knees
5. Mobile Bearing contra-indicated
   ii. Combined ACLR and UKA
      1. Burgeson et al\textsuperscript{22}
         a. No revisions at 4.5 years in 27 patients
   e. No severe malalignment
      i. Classically - no more than 15 degrees of correctable varus or valgus\textsuperscript{10}
      ii. Others - stricter criteria
         1. Medial - no more than 9 degrees of varus
         2. Lateral - no more than 14 degrees of valgus
      iii. Little objective data but it is very difficult to achieve good post-op alignment in setting of severe deformity
      iv. Burnett et al\textsuperscript{7}
         1. Correction of mechanical axis by more than 5 degrees associated with increased risk of revision to TKA
   f. Low functional Demand
      i. Classic indication
      ii. Changing some with increased use in younger patients
         1. Likely not the final implant in these patients\textsuperscript{23}
      iii. Generally best to avoid impact activities - loosening
   g. Age
      i. Registry Data
         1. Sweden and Australia\textsuperscript{23}
            a. Increased age associated with decreased revision risk
      ii. Other Specific Centers
         1. Swienckowski et al\textsuperscript{20}
            a. 92% survival in 45 patients under age 60 at 12 years
         2. Xing et al\textsuperscript{24}
            a. 178 medial and lateral UKA's with 4.5 year follow-up
            b. No influence of age on outcomes
5. Extended Indications
   a. Post-traumatic OA
      i. Good indication for lateral UKA if good bone
         1. Lustig et al\textsuperscript{13}
         2. 13 lateral UKA - 100% survival at 10 years
   b. Osteonecrosis
      i. Good results reported as long as ON is localized\textsuperscript{16}
      ii. Failure often related to tibial loosening\textsuperscript{6}
   c. Second UKA
i. Interesting option for progression in the contralateral tibiofemoral compartment
ii. Indications same as the first UKA along with no loosening of first

References


