



QUESTION | COULD YOU PLEASE EXPLAIN THE INDICATIONS FOR, AND THE ADVANTAGES OR DISADVANTAGES OF A TIBIAL OSTEOTOMY VS A UNICOMPARTMENTAL KNEE REPLACEMENT FOR AN ACTIVE MALE IN HIS EARLY 50's WITH SEVERE MEDIAL PAIN WITH SWELLING AND DEGENERATIVE X-RAY CHANGES?

Dr Doron Sher answers this month's question:

Although both HTO and UKA are effective for managing medial compartment knee arthritis, they should not be considered equivalent treatment options. There are a few cases where HTO and UKA share the same indications but this is actually not very common.

The perfect "shared" patient will be: 1) 55 to 65 years old; 2) moderately active; 3) non-obese; 4) have mild varus malalignment; 5) no joint instability; 6) good range of motion; and 7) moderate unicompartmental arthrosis.

Correct patient selection is fundamental to obtaining durable and predictable results with both techniques but the indications are very different for the two procedures.

HTO

HTO is used to correct angular deformity of the knee (which results in symptomatic overload of the medial compartment). The ideal candidate for an HTO is a young active patient (<60 years old) with a mild-to-moderate varus knee (5 to 15 degrees). The medial compartment involvement should be mild but symptomatic and they should have good motion. The lateral and patellofemoral compartments should be intact and there must be no joint laxity or instability.

The indications for HTO have also been 'expanded' to include instability where the tibial slope is altered in a multiplanar correction of alignment. This seems to work very well but is not one of the original indications for HTO. These patients are not suitable for UKR as they have instability.

HTO has also been used in combination with other procedures, such as: 1) cartilage resurfacing procedures; 2) meniscal transplantation; and 3) ligament reconstruction.

UKA

UKA is the partial surface replacement of the knee joint. Its increasing popularity is due to: 1) the ability to replace a severely damaged compartment; 2) preservation of bone stock; 3) a faster recovery time and less surgery compared to TKA.

The ideal indications for UKA include: 1) unicompartmental osteoarthritis or femoral condyle avascular necrosis, with intact lateral and patellofemoral compartments; 2) age over 60 years; 3) low demands; 4) no obesity; 5) minimal pain at rest; 6) range of motion (ROM) arc over 90 degrees with less than 5 degrees flexion contracture; and 7) within 10 degrees of axial malalignment, which can be passively corrected almost to neutral. The ACL must be intact.

Indications for both HTO and UKA

For younger, more active patients who have abnormal alignment, HTO seems to be a better choice than UKA. For the older, more sedentary patient, UKA is supported by the literature as a more reliable operation. The Australian joint registry showed a worryingly high revision rate for UKA's a few years ago but since then the surgeons seem to have tightened their indications and the results are improving. This is an operation that will fail early if strict indications are not adhered to.

The results of revising an HTO to a TKR are very similar to those of a primary knee replacement and for the most part osteotomy does not compromise subsequent TKA.

The results of revision UKA-to-TKA are not as good as those of primary TKR. Revision of an HTO-to-TKA remains the better choice.

Both HTO and UKA show satisfactory results and survival rates at mid and long-term follow-up. With the correct indications, both treatments produce durable and predictable outcomes in the treatment of medial unicompartmental arthrosis of the knee. There is no evidence of superior results of one treatment over the other (in the very small group where they overlap).

Summary

UKA and HTO are different procedures with different indications and a comparison between them is meaningful only in the very small population of patients amenable to both treatments.

TKA represents the endpoint of every failed HTO or UKA so whether revision HTO or UKA to TKA performs worse than primary TKA particularly important. Both revision HTO and revision UKA to TKA are technically more challenging than primary TKA: 1) HTO in terms of surgical exposure and tibial component positioning, and 2) UKA in terms of bone stock loss and the need for bone grafting both on the femoral and the tibial sides. While HTO does not seem to affect the results of subsequent TKA, revision UKA to TKA apparently performs worse than primary TKA.

Your patient may be suitable for an HTO but is almost certainly too young for a UKR. Since the results of revision of an UKR to a TKR are compromised by the first operation his best option may well be a primary TKR if he is not suitable for an HTO.