Preventative surgical treatment for osteoarthritis of the knee

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Osteotomy has an established place in the treatment of osteoarthritis of the knee. The ideal candidate is active, with high pain tolerance and normal weight.

Basic requirements for a satisfactory result are early unicompartmental disease, an absent or slight fixed flexion deformity, at least 100 degrees of movement, a stable knee and a deformity of less than 15^{o}.

GENU VARUM

The aim of valgus tibial osteotomy is to transfer the weight-bearing axis from the medial compartment to 30-40% across the lateral compartment.

The best results in genu varum are obtained when there is a low adduction moment preoperatively, metaphyseal bowing, and early disease.

Early results were reported as 85% good or excellent at 0-5 years, but at 10-12 years deteriorate to 60%. Over correction into valgus improves the results.

Preoperative planning requires standing x-rays with 90% weight bearing to assess the mechanical and anatomical axes.

Arthroscopy is a valuable diagnostic aid in determining management but the therapeutic role is controversial.

Proximal osteotomy has a high union rate and corrects the deformity close to the knee. A proximal wedge with a medial bridge and fixed with a compression plate to gradually close the osteotomy is accurate, prevents rotation deformity, leads to rapid union, avoids plaster and prevents late collapse. Predictable correction has been achieved with this technique.

Osteotomies can easily be combined with an anteriorisation procedure for bicompartmental disease and with procedures for ligamentous instability. Some myths concerning osteotomy have been exploded:.

1. The outcome of TKA following HTO is no worse than primary TKA.
2. Patella baja is NOT common after HTO if patellar height is related to the femur.
3. UNI's are more difficult to revise than osteotomies.

GENU VALGUM

Distal femoral osteotomy is generally preferred for the correction of genu valgum because of the risk of tilting the joint line.

Correction can be achieved by a medial closing wedge or a laterally based opening wedge with graft. Generally I prefer an opening wedge with a toothed plate.

CPM is used to mobilise the knee postoperatively.

Osteotomies can also be combined with resurfacing procedures. Drilling and abrasion arthroplasty have given disappointing long term results, clinically and experimentally. Autologous osteochondral grafting has donor site morbidity, doubtful long term results and the problems of disease transmission and graft viability. Naturally occurring and synthetic scaffolds have been used with mixed results. Good results have been seen with carbon fibre resurfacing and, more recently, autologous chondrocyte grafting has produced encouraging results. Growing chondrocytes in scaffolds and implanting them has great potential advantages. Tissue recruitment using growth hormones is another approach that shows early promise.

CONCLUSION

With preoperative planning, image intensifier control, improved implants and precise technique, osteotomy is an effective, low technology. and low cost procedure. Correction of both the biological and mechanical abnormalities is essential.