Further opinion

Outcome of combined unicompartmental knee replacement and combined or sequential anterior cruciate ligament reconstruction


A young and active patient with an anterior cruciate deficient knee and isolated painful medial compartment osteoarthritis presents an infrequent and difficult problem to manage. Current surgical options usually include anterior cruciate reconstruction (ACLR) with either high tibial osteotomy (HTO) or unicompartmental replacement (UKR). Total knee replacement (TKR) is usually reserved for older patients, those with progression to end stage arthritis and revisions. In order to achieve consistently satisfied patients, several important aspects must be considered. They include careful patient selection and an effective operation with a good track record which is carried out with sound surgical technique and aftercare.

The authors of this paper report the largest series to date of ACLR and UKR with a nearly complete follow up at a mean of five years. Although the longest surviving knees in this series reach 10 years, the numbers at risk beyond 5 years are relatively low and therefore less likely to be dependable at present. Overall good results have been demonstrated with either a one or two staged procedure as clinically indicated, even though the original ACLR may not have been in an optimal position. The low revision rate to date indicates that this treatment option can be considered for appropriate patients. Other centres report smaller series treating patients in their 50s with a shorter follow-up but also with promising results. Tinius et al included younger patients in his group, with a mean of 44 years (range 38-53 years).

The major alternative contender for the surgical treatment of this condition is HTO with ACL reconstruction; however published series report smaller numbers than this series. Bonin et al reported a series of 30 knees operated on in a younger age group from 18 to 41 years with a mean follow-up of 12 years. Twenty-five cases had closing wedge and five opening wedge osteotomies for congenital tibia vara. The severity of medial compartment narrowing of all knees was <50% pre-operatively which progressed one arthritis grade (IKDC assessment) in only five knees. Good functional results were reported including nearly half playing regular pivot sports. A further series reports a short follow-up of eight patients aged 27 to 46 years of whom three returned to football.

Many of these patients are sportsmen and women, some of whom are keen to return to pivoting sports. However, the numbers presenting may be fewer than previously because of early ACL reconstruction for unstable knees in order to delay further injury to the knee and an increased risk of arthritis. Techniques of HTO have changed since the traditional valgus closing wedge osteotomy which was the standard treatment available before TKR was readily available. More precise correction is now carried out with more stable fixation and earlier rehabilitation. These series show HTO being used with ACL reconstruction in somewhat younger and more active patients than the UKR group and probably with an earlier stage of medial compartment osteoarthrosis. However, unfortunately there are no comparative series in order to inform patients.

Young and active patients like information about activity levels that they may expect, and about the probable longevity of the surgery offered. The former is limited because of the relatively small numbers of patients studied to date, although this paper gives added information, and the data collected in current scoring techniques such as the Knee Society Score for mobility are pain dominated and subjective. Senden et al studied Acceleration-based Gait Analysis (AGA) in a cohort of patients post TKR, showing weak correlation with clinical outcome and functional recovery. Prospective post-operative AGA may assist in patient assessment.

The other problem is that we do not know what the long-term future holds for these active patients. Revision from ACLR to TKR is reported by Hoxie et al to show similar results as primary TKR, comparing a cohort of 36 patients with a control group of primary TKR. Considering the revision rate of UKR alone, Price et al reports a 10 year rate of Oxford UKR of 4.3% in patients aged 60 and older, and 9% in the under 60s. They conclude that this procedure can be considered for the over 50s. Other centres do not support the same longevity of UKRs, in younger patients. The NJR (2011), registering 26,317 operations shows a 6.4% revision rate of Oxford UKR at 5 years for all patients. Kuipers et al from the Netherlands raises concerns about increased revision rates in patients younger than 60 years and Parratte et
al\textsuperscript{12} from France reported a 12 year survival rate of 80% with Miller-Galante UKRs in the under 50s.

Since orthopaedic surgeons are beginning to consider joint preservation more in the management of their patients, HTO should not be discounted. Whatever treatment is undertaken, the feasibility of revision procedures should be considered. A systematic review of HTOs revised to TKR, reflected problems of heterogenicity of studies and small numbers. However they concluded that with a mean delay to TKR of seven years after HTO and in 25\% of the series, there was a significantly prolonged operating time.\textsuperscript{13} Revision surgery in a consecutive series of 29 revision HTOs reported an 8.5 year interval before revision surgery and a 15\% use of revision prostheses.\textsuperscript{14}

Considering revision of UKR, Pearce et al reported 236 revisions to TKR in the New Zealand Registry of which 25\% required revision prostheses.\textsuperscript{15} Thirty percent of 89 UKRs revised in a UK hospital database reported by Jones et al required stems or augments.\textsuperscript{16}

Surgeons and informed patients in the future will want to know the longer term outcomes of function and complications of the treatment of ACL deficient knees with associated medial compartment arthritis. This cohort of patients will provide further information but more comprehensive evidence could be supported by a multicentre comparative trial.

Mrs J Murray, Royal Glamorgan Hospital, Wales Judy.Murray@pr-tr.wales.nhs.uk

References