The Oxford medial unicompartmental knee replacement using a minimally-invasive approach

Sir,

I read with great interest the paper by Pandit et al\textsuperscript{1} in the January 2006 issue entitled ‘The Oxford medial unicompartmental knee replacement using a minimally-invasive approach’. I wish to congratulate the authors on such a large series of Oxford unicompartmental knee replacements, followed up for a good period of time, with excellent survivorship and clinical results.

Although it may not be very obvious in the manuscript (it occupies only one sentence), the way in which the authors reported the Oxford knee score (OKS) deserves careful consideration. The long story of the OKS lies behind that sentence.

Since its first description, the OKS has been the subject of rigorous validation, which demonstrated the score to be a short, practical, reliable and valid outcome measure for knee arthroplasty. It is time that a single method is agreed on by the originators and users’ groups together. If I may suggest an ‘Egyptian’ initiative to reconcile Oxford, Oswestry and Birmingham.

My first encounter with the OKS was during my work and research at Oswestry, where the scoring system was different. Each question was marked on a scale of 0 to 4, and the total score ranged from 0 to 48. The worst knee therefore attracted a score of 48, and the best score of 48, was achieved by the normal or best possible knee. In their reply to a letter to the editor of the Journal of Bone and Joint Surgery [Br] about this specific scoring method, authors White, Jones and Harcourt commented that they preferred to use the scoring system along a conventional scale, and that this format of scoring the OKS was widely used. They also stressed that authors using the OKS should clearly describe how they use this instrument to avoid any confusion. By reading only the abstract, it was not possible to tell which scale was used in 16 of 24 references which studied or used the OKS. Four papers obviously used the score in its original form, and another four papers, including this one by Pandit et al,\textsuperscript{1} used it along the conventional scale. It was interesting to see two papers from Oxford, again including this paper, using the OKS in its ‘Oswestry’ form.

In an annotation published in this journal, Pynsent stated that once an outcome measure is chosen, its scoring system should not be changed as attempts at change or modification will make comparison with other studies valueless. However, four years later Pynsent himself was one of the authors of a ‘Birmingham’ initiative to modify the Oxford knee score. Nevertheless, to give the Birmingham group the credit they deserve, they repeated the process of validation and testing of reliability, a prerequisite for any modification of outcome measures according to Pynsent’s annotation. In their recent paper they suggested changes in the layout, enabling patients to record pain and function for each knee separately. They described techniques for dealing with and recording scores for incomplete questionnaires. They also suggested an alternative scoring system, in which each question was scored between four and zero and the final index was expressed as a percentage. Only one other paper followed the same lines and reported normalised medians for the OKS, expressing it as a percentage.

Despite the definite improvements suggested by the Birmingham group, which were welcomed but not adopted by the originators of the score, they still retained the inverted scale of the original score. The worst possible joint thus scored 100% and a healthy joint scored nought. The difficulty with this scale became obvious when the authors tried to categorise results, thus designating a knee with a score above 90% as poor and below 10% as excellent. Most of the other general health questionnaires (Short Form (SF) 12 and SF 36) and disease/site specific scores (Harris hip score and American Knee Society score) use a conventional scale with a higher score indicating a better and more normal knee.

It is therefore clear that we have at least three versions of the OKS and that simply quoting a mean ‘Oxford score’ does not tell the reader if results were good or bad, unless the specific scale is indicated. Furthermore, this compounds any attempt at comparing different studies. It is time that a single method is agreed on by the originators and users’ groups together. If I may suggest an ‘Egyptian’ initiative to reconcile Oxford, Oswestry and Birmingham, I think that a score expressed as a percentile, which follows a conventional scale, from 0 to 100, would be most appropriate. Thus the worst knee would score a 0 and the normal knee would achieve a 100% score. This is easily understandable and would bring the OKS in line with other commonly-used scores. Finally, a modification of the OKS name would indicate to the reader that it was the final modification/version of the score which was used.

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A fully referenced version of this letter is available on our website at www.jbjs.org.uk

Author’s reply:

Sir,

We are grateful to Mr Saweeres for making an important point about the Oxford Knee Score (OKS). There are now four methods of expressing the score in general use. When first described the score ranged from 12 to 60 with 12 being the best. As orthopaedic scoring systems usually ascribe the highest score to the best result, the scoring method was modified so that it ranged from 0 to 48 with 48 being the best. More recently it has been proposed that the score should range from 0 to 100 with either 100 being the best, or worst. Provided it is clearly described how the score is used, any of these methods are acceptable, as it is easy to convert from one to another. In our paper, although not in the abstract, we did describe how the score was used.

The group that developed the OKS are currently analysing a large amount of OKS data obtained from a number of studies and are reviewing the published work containing the OKS. The aim is to publish a consensus paper with firm recommendations as to how the OKS should be used. Currently, it remains our preference to use the score from 0 to 48, with 48 being the best.

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Removal of acetabular bone in resurfacing arthroplasty of the hip

Sir,

We read with interest the article by Loughead et al1 in the January 2006 issue entitled ‘Removal of acetabular bone in resurfacing arthroplasty of the hip: a comparison with hybrid total hip arthroplasty’. Its demonstration that there is a greater loss of acetabular bone stock in resurfacing compared with conventional hip replacement, reminded me that at a revision hip meeting a decade ago I challenged Derek McMinn with the opinion that resurfacing was, in fact, not conservative on the acetabular side.

Despite my initial belief that this was true, in the intervening years I have found that with careful femoral head preparation, it is possible to downsize the femoral head size sufficiently, without risk of neck notching, so that excess acetabular bone need not be removed.

After seeing this paper, I have been prompted to look at the figures that I, as a single surgeon, have achieved. Of 620 hip resurfacings, we have had one femoral neck fracture, and this was not actually associated with femoral neck notching, but with lack of full seating of the femoral component, and with the component being put in varus, thus increasing the offset.

We have looked at our groups of hip resurfacings, and total hip replacements for the diagnosis of avascular necrosis and osteoarthritis, excluding developmental dysplasia of the hip, previous hip surgery, and patients with grossly abnormal femoral morphology, and studied the types of acetabular components used.

Although this method has not used the contralateral hip as a reference, we would reasonably expect the average acetabular size for the natural acetabulum for hip resurfacing and for hybrid hip replacement to be the same.

In the group studied, we have used either a hemispherical Birmingham Hip Resurfacing (BHR) or a hemispherical Trilogy uncemented socket. The results of this unpublished study support our argument and can be viewed in the correspondence section at www.jbjs.org.uk.

We would refute, therefore, that the conclusion of this paper is correct because with care and attention to detail, it is possible to safely use an acetabular component whose size is determined anatomically, rather than a larger shell to complement a reciprocal prosthesis.

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Author’s reply:

Sir,

We would like to thank Miss Muirhead-Allwood and her colleagues for their letter in response to our article.

The views expressed in the letter are based on a personal and unpublished series. It does not follow the methods employed in our study and therefore direct comparison is impossible. If this were carried out, perhaps a more informed opinion could be given.

The ‘trade off’ is between anatomically sizing the component (which will equalise the size to that used in total hip replacement) and running the risk of notching for a matching head, or erring on the side of comfortable femoral fit. The latter technique in our series has given slightly larger components in the larger-necked, bigger patient (smaller head/neck ratio), but in other patients has no observed effect.

The aim of this paper was to highlight the issue for discussion and draw attention to the detail required for Birmingham hip replacement in certain patients with large, broad femoral necks and relatively small heads (the ‘pistol-grip’ deformity). Certainly, in most patients the size of components is comparable, but it would be a shame if the drive to seat an anatomical component was taken as paramount since it could lead to problems on the femoral side with impingement, an impairment of femoral head vascularity, a risk of notching in inexperienced hands and subsequent fracture, or the decision intra-operatively to opt for total hip replacement.

This would not be good for what is emerging as the treatment of choice for younger, more active patients.

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