The complications of displaced intracapsular fractures of the hip

Sir,
I read with great interest the article by Gurusamy, Parker and Rowlands1 in the May 2005 issue entitled ‘The complications of displaced intracapsular fractures of the hip’.

In this study, the only factor the authors considered for cases of nonunion was the position of cannulated screws on radiographs. The rate of nonunion was approximately 39% in this series. However, it is well established that a number of other factors are also responsible for nonunion, for example comminution at the fracture site, osteoporosis, physiological age of the patient, apex-tip distance of screws, and delay between fracture and fixation.2 None of these factors was considered in this study.

The authors stated that they felt that mechanical failure of fixation should be blamed for most nonunions, which is a generalization. In fact, in most cases of nonunion implant failure is secondary to biological failure. Their other conclusion is that the degree of angulation between the screws had no measurable effect on the risk of nonunion. It is well known that collapse at the fracture site will not occur unless the screws are parallel.3,4 Lack of parallelism between the screws was one of the important factors in the failure of Gardens screws placed at 90˚ used for fixation of these fractures.5

doi:10.1302/0301-620X.87B11.17089

M. TODKAR
Nuffield Orthopaedic Centre, Oxford, UK.


Authors’ reply:

Sir,
We thank Mr Todkar for his interest in our article. Indeed, there are numerous factors which influence the risk of fracture-healing complications for intracapsular fractures. Some of these factors may, however, only be associated with complications of healing, rather than being causal. A study of all these factors would be extremely difficult to undertake. The study by Barnes et al1 addressed some of these factors, but 23 pages of The Journal of Bone and Joint Surgery [Br] were required to report the findings.

The reader should not use the figures from our article to calculate the incidence of nonunion for displaced intracapsular fractures (39%). As stated in our article, this is not a consecutive series of patients. Overall, 591 patients were treated at our unit for a non-pathological displaced intracapsular fracture during the period of the study. This gives a rate of nonunion of 26%.

Regarding the parallel insertion of screws, one should differentiate between the methods previously described such as crossed Garden screws, in which there was an attempt to prevent fracture collapse by placing the screws at an angle of 60˚ to 90˚, and our study where the mean angle between the screws was 5˚. We feel that a minor degree of angulation for screws in the osteoporotic bone of the femoral neck would not have much effect in preventing collapse of the fracture. As our study shows, the separation of screws into different areas of the bone is more effective in reducing the risk of nonunion than is parallelism.

doi:10.1302/0301-620X.87B11.17090

M. PARKER, MD, FRCS
T. ROWLANDS, MBBCh, MRCS (Eng)
Peterborough District Hospital,
Peterborough, UK.

K. GURUSAMY, MBBS, MRCS Ed
QUQM Hospital,
Margate, UK.


Glove perforation and contamination in primary total hip arthroplasty

Sir,
We read with great interest the article in the April 2005 issue by Al-Maiyah et al1 entitled ‘Glove perforation and contamination in primary total hip arthroplasty’. It is interesting to note that changing gloves at regular intervals decreases the incidence of glove perforation and glove contamination during total hip arthroplasty. However, the authors did not mention the association between glove perforation and glove contamination in their study, which is an important issue to consider, with the data available to them.

Perforation of gloves can spread the bacterial flora from the skin to the surface of the gloves. But with 63% of the operations showing bacterial contamination in the operating field even under laminar air flow,2 contamination of the gloves can arise from anywhere in the field including being airborne. McCue, Berg and Saunders3 found draping to be an important factor in causing the contamination of outer gloves. Interestingly, Dodds et al3 showed
that glove perforation did not influence the bacterial counts on the outer surface of the gloves in general surgical operations.

If perforation of the outer glove is associated with its contamination, it may indicate a causal relationship, suggesting that the inner gloves are one of the sources of contamination. In such circumstances, changing both the outer and inner gloves at regular intervals may be necessary to further reduce the incidence of contamination.

The association between perforation and contamination of the glove needs to be analysed from the data included in the authors’ study. Determining the incidence of the perforation of inner gloves and their contamination as well could have further enhanced the outcome of their study.

Furthermore, upon analysing the results of Table I we note that the surgeon for each operation in the study group changed gloves only once more on average compared with the control group ((120 - 94 pairs)/25 operations = 1.04). The fact that this extra change of gloves per member of the surgical team in a single operation produces such a difference in the incidence of glove perforations and contaminations somehow appears unlikely.

Author’s reply:

Sir,

We would like to thank Doctors Agarwal for their interest in our article. The choice of 20-minute intervals in this study group was not arbitrary. It followed careful observation of our practice and the evaluation of the results of our pilot study.

Surgical teams involved in the study used the same techniques and protocol. However, because of the nature of the study, whereby a surgeon has to change gloves, there is no objective scientific method to rule out the possibility of bias completely. It is unlikely that experienced arthroplasty surgeons would work less carefully in the control group.

In the study and control groups median operating times at 70 minutes (95% confidence interval (CI) 60 to 80) and 75 minutes (95% CI 65 to 90) respectively were similar. This shows that half the total number of operations lasted longer than the median time. In the study group no glove was used for longer than 20 minutes, while in the control group the gloves were worn for a longer time. Median times between each glove change were 16 minutes (95% CI 15 to 20) in the study group and 23 minutes (95% CI 21.5 to 25) in the control group. In those study group operations which lasted longer there was more than one glove change. However, in the controls there was a smaller number of gloves used even if the operation lasted longer than the median time, unless a perforation was noticed. We noticed more glove perforations and contaminations.