Correspondence

RAB-plate vs Richards CHS plate for unstable trochanteric hip fractures—a randomized study of 233 patients with 1-year follow-up

Sir—The conclusion of the paper by Buciuto et al. (1998) that the RAB-plate provides a good alternative to the Sliding Hip Screw (SHS) needs to be interpreted with caution. Cut-out and penetration of the implant from the femoral head were reported as the most prevalent complication, with an incidence of 6% for the RAB-plate and 11% for the SHS. The re-operation rate was 13% for the RAB-plate and 24% for the SHS.

Recent reported results for the sliding hip screw are better than that reported by Buciuto et al. A meta-analysis of all randomized trials of the SHS against the Gamma nail (Parker et al. 1997) indicated that, for the 757 patients treated with the SHS in 9 studies, the cut-out rate was 2.5%. For 661 patients treated with the SHS in 8 studies, the re-operation rate was 3.5%. These studies generally included both stable and unstable fractures, unlike the study by Buciuto et al., but even this would not account for the discrepancies in cut-out rates.

The high incidence of cut-out, varus dislocation, malunion and leg shortening associated with the SHS in the study by Buciuto suggests that surgical techniques were more pertinent to the eventual trial results. Leaving the fracture in a varus position was recommended as a means of maintaining medial support and thereby preventing fracture collapse and screw penetration with a fixed nail plate. Such a surgical technique may therefore be appropriate for the RAB-plate. Dynamic fixation surgical techniques differ in that valgus reduction produces the lower incidence of fixation failure (Parker 1993). Any gap created on the medial side of the fracture is corrected by the controlled collapse at the fracture site, cut-out is reduced and varus dislocation is rare.

Further randomized trials must therefore be undertaken before it can be confidently stated whether the RAB-plate is equivalent or even superior to the SHS. Such studies should also report fracture reduction, as such aspects of surgical fixation are possibly of more importance than the implant.

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Sir—There was no (zero) cut-out among patients stabilized with the RAB-plate. The majority of the 5.5% incidence of complications in the RAB were femoral head penetrations that occurred in patients where the implant was positioned to high in the femoral head or too close to the subchondral line. Femoral head penetrations among these patients were the result of an imperfect operative technique rather than inadequate mechanical performance of the implant.

The low incidences of cut-out and re-operations in the quoted meta-analysis (Parker et al. 1997) are most likely a consequence of "case-mixture" of unstable and stable fractures. This comparison must therefore be regarded as scientifically inadequate. In unstable fractures, which means the relevant patient population to be discussed, the average reported rate of fixation failures in prospectively followed unstable trochanteric fractures is approximately 10%, following stabilization with different dynamic screw-plate systems.

In a prospective study of 663 patients, Mr Parker (1993) reported a cut-out rate of 28% in 50 patients stabilized with a CHS. In this study, 30% of the patients had a stable fracture configuration (Jensen grades 1 and 2). An average difference in postoperative trabecular angle, defined as the angle between the femoral shaft and the trabecula in the head of the femur, of only 8 degrees, showed the strongest statistical correlation with cut-out. It is perhaps possible to appreciate this angle intraoperatively in a 2-fragment stable fracture, but it is certainly not so easy in comminuted multiple fragment fractures. This, therefore, may be one of several possible explanations of the higher cut-out rate in our (CHS group) and other clinical trials, where only unstable fractures were included.

Furthermore, we consider Mr Parker's statement that there was a re-operation rate of 13% among the RAB group as unfair and ill-advised. We do not think it is correct to include elective removal of the implant (n 9) after the fracture is healed as a relevant re-operation. In fact, late elective removal of implants due to local discomfort was equally frequent among patients stabilized with a CHS (n 11) and, in addition, the complication rate of 24% in the CHA group includes

15% malunions, all limb-length discrepancy due to collapse at the fracture site. Therefore, the true incidences of re-operations in the RAB group were 2.2% and 11% in the CHS group, respectively.

Furthermore, we have not recommended that the fracture be left in varus position as a means of maintaining medial support. This is certainly a grave misinterpretation of the mechanical principles and operative technique when using an RAB-plate. The medial support is maintained by the buttress rod.

Anatomical alignment was always the goal. This was achieved in most patients and, as reported in the paper, 2 patients went on to an uneventful healing with a final limb-lengthening on the fractured side (reported as malunions). Both patients had a large medial gap on postoperative radiographs and a medial gap was the standard finding on early postoperative radiographs, after stabilization with the RAB-plate.

The avoidance of surgical maneuvers in this area obviously creates a positive local biology that, combined with adequate mechanical support, results in uneventful healing in most patients. Consequently, the RAB-plate is mechanically sufficient for early full weight-bearing in unstable trochanteric fractures with maintained fracture alignment throughout the healing process in the majority of patients and with comparatively little risk of collapse or varus malalignment of the fracture.

Therefore, we would continue to insist that the RAB-plate provides a good alternative, or perhaps even a better alternative to the sliding nail in unstable trochanteric fractures. Finally, the study group did not and will not receive any benefits or financial support from the manufacturer of the RAB-plate.

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