Correspondence

Open reduction and internal fixation combined with hinged elbow fixator in capitellum and trochlea fractures

Sir—We read with interest the article by Giannicola et al. (2010) and commend authors for their work.

Coronal shear fractures of distal humerus have received much attention in recent years (Giannicola et al. 2010) and the consensus of treatment has been open reduction and internal fixation. We also experienced good results with these fractures after internal fixation and agree with literature that early mobilization after a stable fixation is the key to good functional results (Dubberley et al. 2006, Mighell et al. 2006, Ruchelsman et al. 2008, Singh et al. 2009, Ashwood et al. 2010).

We also agree with Giannicola et al. that a poor osteosynthesis leads to prolonged immobilization of elbow and limits the functional results. We also understand that stable fixation is sometimes difficult to achieve but most of capitellar fractures can be fixed reasonably well to allow early mobilization (Mighell et al. 2006, Ruchelsman et al. 2008, Singh et al. 2009). It seems unreasonable to supplement internal fixation in all the cases as authors have done in their series.

Supplementing stable fixations with external fixator not only increases surgical time but also subjects the patients to increased risks of complications of added surgery. We would like to ask the authors to comment on the increased cost of treatment associated with fixator used.

The high rates of reoperative procedures and the discordant results for these fractures are found in largest series (28 patients) of Dubberley et al. (2006) But these fractures were treated over a period of 10 years and by different surgeons not following a uniform protocol. In series where a single protocol was followed, the results have been excellent and reproducible (Mighell et al. 2006, Ruchelsman et al. 2008, Singh et al. 2009, Ashwood et al. 2010).

Authors report extrusion of Herbert screws occurred in 2 cases. What could be the reason for this fixation failure in spite of being supplemented by external fixator?

Though we disagree on external fixation supplementation in all types of cases, we do congratulate the authors for extending the concept of supplementation of fixation to capitellar fractures. Further studies would be required to evaluate the efficacy and laying out specific indications for this kind of supplementation.

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Sir—We thank Dr. Singh for the comments.

We believe that dynamic external fixator was indicated in all patients of our series because, in each of them, an unstable elbow and/or an unstable osteosynthesis was still present after ORIF and ligaments repair. A high incidence of associated lesions was present in our series, including 4 posterior elbow dislocations, 5 medial collateral ligament tears, 4 lateral or medial epicondyle fractures and 5 comminuted fractures (Giannicola et al. 2010). Other series (Ruchelsman et al. 2008 Singh et al. 2009) reported less severe elbow injuries and a lower incidence of associated lesions compared to our series. We underlined that external fixator is not indicated in all capitulum humeri and trochlea fractures but only "in complex articular fractures, particularly in those with associated ligamentous injuries and when stable fixation of the fracture fragments cannot be obtained with ORIF". We believe these conditions should be considered a pattern of complex elbow instability and, as that, the same therapeutic algorithm should be applied (Giannicola et al. 2010).

We agree with Dr. Singh about the increased complications related to the use of external fixator, although we reported only 1 radial neuropathy and 1 pin tract infection. Overall, our complication rate was similar, or even lower, than that reported in recent series of capitellar and throclear fractures (Ring et al. 2003, Dubberley et al. 2006). As a result, we believe that when internal osteosynthesis does not guarantee a sufficient elbow stability at the end of surgery or when severe capsule-ligaments injuries contra-indicate the early motion, it is justified to perform a concomitant dynamic stabilization with external fixator and expose the patients to the possible complications related to this procedure. In extremely difficult cases such these, the use of external fixator can improve the recovery of range of motion and possibly reduce the re-operation rate related to stiffness, instability and fixation failure.

Finally, we do not consider as fixation failure the two cases with loosened screws because such events occurred 9 and 12 months after surgery. The extrusion of Herbert screws was actually caused by bone resorption of capitellum, as a result of pseudoarthrosis in the first case and degenerative changes in the latter. Osteonecrosis, osteoarthritis and pseudoarthrosis were reported by some authors (Ring et al. 2003, Dubberley et al. 2006 Giannicola et al. 2010) while others did not report such complications (Ruchelsman et al. 2008, Singh et al. 2009). In our series, these conditions were probably related to the presence small bone fragments at the fracture site and can explain the subsequent screw loosening.

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In conclusion we do not recommended a blanket supplementation in all patients with capitellum and throclea fractures but only in presence of an insufficient internal osteosynthesis and/or concomitant severe ligamentous injuries. We agree with Dr. Singh that further studies are necessary to demonstrate the efficacy of concomitant external fixation, particularly in cases with associated soft tissue injuries.

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