

Inverse prostheses with uncemented locked shaft in complex fractures of the proximal humerus: Prospective multi-centre continuous evaluation, with a minimum follow-up of 1 year.

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Introduction The use of cement for prosthetic shafts for fracture cases remains standard. We are reporting on the first series of inverse shafts which are uncemented and locked.

Material and methods 32 patients aged 79 years (70-91) presenting with 10 3 part fractures and 22 4 part fractures were treated with an inverse prosthesis with a locked shaft and at a more vertical humeral angle (145°). The delto-pectoral route was used in 24/32 of the cases (75%) and the surgery duration was 95 minutes. The length of the shaft was 15 cm with a proximal part covered with hydroxyapatite with an automatic two-screw locking system. Four diameters of shaft are available. The shaft can be inverted (Humelock, FX-Solutions®). The patients were reviewed prospectively then evaluated at their main return visit by two independent surgeons (checking range of motion, Constant scores, QuickDash, the glenoidal-metaphyseal angle, lower rim and clinical or radiological complications).

Results 32 patients were able to have been evaluated at an average return visit of 19.9 months (12-41) with 14 patients only being evaluated by the QuickDash autofill. The active anterior elevation reached 111.9°, abduction 102.6° and the RE1 22.5°. The base Constant reached an average of 53.4 and the weighted constant 79.7. The QuickDash results showed an average of 36.4. In 24/32 of the cases (75%), tuberosities were able to have been sutured and the RE1 reached 22.9°. The glenoid-metaphyseal angle reached 35° (19-63) and the lower rim was 5mm (0-8). The specific complications related to the locking system concerned 5 patients without necessitating further surgery (screw review). The other complications were an infection (3%) with implant insertion. There were 3 cases of grade 1 glenoid notching.

Discussion For shoulder surgery, the ablation of a cemented shaft following fracture or infection in a population at risk of falling remains a complex procedure with frequent poor functional results and a high level of complications (Clavert, Boileau). This series is the first to report on the results of a locked shaft, without significant complications linked to locking the shaft. Locking seems to be a new, yet logical tool for shoulder trauma. Besides the more vertical angle of the humerus does not increase the risk of luxation. Monitoring this population is complex given