

3 and 4 part fractures treated with hemi-arthroplasty with locked stems: 1st prospective multi-centre evaluation with a minimum 2 year follow-up

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Introduction: The aim of this study was to evaluate the functional and radiological results of cement-less, locked implant for 3 and 4 part fractures of the proximal humerus.

Materials and methods: An anatomical study on 22 cadavers and a prospective multi-centre study of 21 fractures evaluated with a minimum 2 year recall were both carried out. The anatomical study allowed us to evaluate the use of the locked stem (Hemelock, FX-Solutions®) and its ancillary in patients with a normal or obese BMI. The clinical (constant score, QDash) and radiological (x-rays and scans) evaluations were performed by an independent operator.

Results: The anatomical study allowed us to confirm the height markers in relation to the large pectoral muscle, the use of a massive horse-shoe shaped transplant and osteosuture with a looped thread. No nerve damage was observed. 21 patients (18 4-part fractures) with an average age of 67.8 years (50-90) were operated on by 5 senior surgeons in 4 centres and seen at 51 months for follow-up (24-96). Abduction reached: 95° (60-160), the anti-elevation: 108° (70-160), ER1 : 34°(0-55), QDash: 33 (4.5- 59), the raw constant score: 53 (27-75), the weighted constant score 75 (31.5-109). In the two cases with no reduction in tuberosities post-operatively, the shoulder was stiff with a pseudarthrosis of the proximal end of the humerus. Six complications were described: 2 cases of capsulitis, 2 problems with the rotator cuff and one perioperative fracture requiring stitching. No complications connected to the locking were observed.

Discussion: This first series of hemiarthroplasty with locking stem shows results at least equivalent to the series noted in literature and to the sofcot (Society of French orthopedic surgeons) 14 series. There were no complications linked to locking in this sub group of patients, but it is a short series. At a 2 year follow-up, the integration of the locking stem had not generated any specific complications. Avoiding cement in emergency shoulder surgery in cases where a hemiarthroplasty is indicated is possible and logical in this population.