

# **Hemiarthroplasty for 4 part fracture : How to improve results ?**

## ***new technique of tuberosities osteosuture - multicenter prospective evaluation***

**L Obert, R Saadnia, F. Loisel, A Adam, E Jardin, Polveche, J Uhring, S Rochet, L Hubert, M Juvenspan, E Baudouin, T Autom, P Clappaz, T Lascar**

Tuberosity healing is strongly correlated with functional results in all series of three- and four-part fractures of the proximal humerus treated by hemiarthroplasty.

An anatomic study on 22 cadaveric shoulders & a prospective multicentric clinical study of 49 cases have been conducted to evaluate the use of new tools : placement of a locked stem at right height (pectoralis major), massive horse shoe graft in a metaphyseal frame & strong looped osteosuture of tuberosities. Evaluation by QDash and Constant score were correlated with positioning of the tuberosities using radiographic examinations & CT scan

49 patients (% of 4 part : 82%) mean age 67yo (50-90) have been operated by **9** senior surgeons in 6 centers and reviewed with a minimum follow up of 12 months (mean : 18 ;12-96). At highest follow up Abduction reached 95° (160-160), flexion : 104° (70-160), ER1: 25(0-55). QD reached 30,2 (4,5-68,1), Constant score : 50,8 (27-88) and with ponderation : 72,3 (31,5-120). In all cases (7 cases) with post operative non reduction of tuberosities shoulder was stiff ( abduction and Flexion < 70°). Capsulitis (4 cases), infection (2 cases), problem with locking without reoperation (3 cases ) and 10% of secondary displacement were pointed.

The series from Sofcot, Boileau, and Reuther yielded results of 40 to 66% malposition or non union of the tuberosities. The initial clinical results from our series are encouraging and demonstrate that using a variable volume metaphyseal frame to fix tuberosities with control of the height of the implant is reliable.