Hemiarthroplasty for 4 part fracture: How to improve results?
New technique of tuberosities osteosuture

*Multicenter prospective evaluation*

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Introduction

Tuberosity healing is strongly correlated with functional results in all series of 3&4 part fractures … treated by hemiarthroplasty

An anatomic study on 22 cadaveric shoulders & a prospective multicentric clinical study on 49 cases have been conducted to evaluate the use of new tools …
**Material & Methods**: 3 tools

Placement of a **locked stem** at right height (pectoralis major)

Massive **horse shoe graft** in a metaphyseal frame (to avoid medialization)
Material & Methods: 3 tools

Strong looped osteosuture of tuberosities - a ring knot

Evaluation by QDash and Constant score correlated with positioning of the tuberosities using Xray & CT scan
Results

N = 49 patients (82% of 4 part) Age: 67y (50-90)
operated by 9 senior surgeons in 6 centers
FU: 18 mo (12-96)
Abduction: 95° (60-160) Flexion: 104° (70-160) ER1: 25(0-55)
Constant: 50,8 (27-88) Adjusted Constant: 72,3 (31,5-120)
QD: 30,2 (4,5-68,1)

Complications:
Capsultis (4 cases), infection (2 cases), problem with locking without reoperation (3 cases) secondary displacement (5 cases)
In all cases (7 cases) with post operative non reduction of tuberosities … shoulder was stiff (abduction and Flexion < 70°)
F, 68 yo, 4 part & dislocated ...
M, 55 yo, 4 part fracture ...
**Conclusion**

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.