



Pectoralis major tendon as reference to restore humeral length in case of hemiarthroplasty for fracture : *CT scan study*

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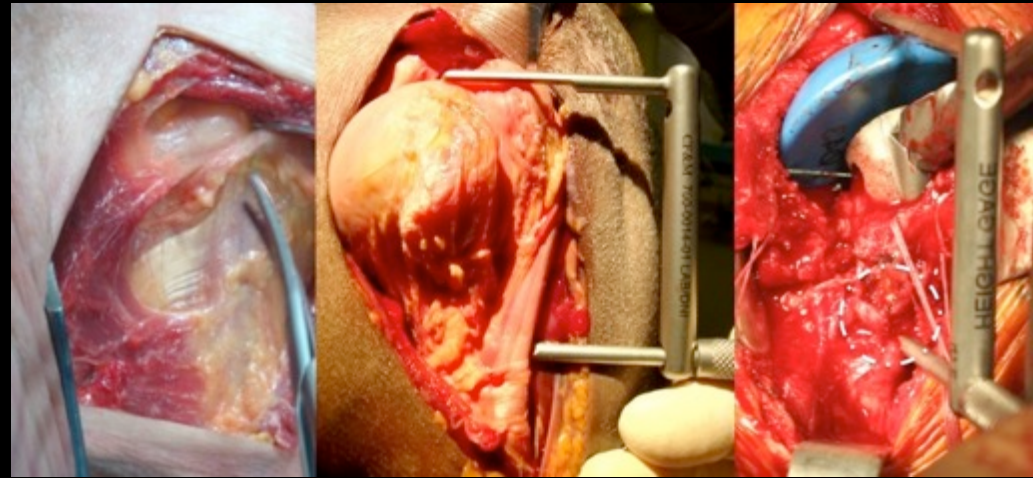


No Conflict of interest



Introduction

Functional results following hemiarthroplasty for fracture are strongly **correlated with bone healing of tuberosities** and height of the implant



We analysed the distance between the top of the humeral head and the upper part of Pectoralis Major (PM) **on 137 shoulder scans** so as to carry out a wide ranging study on the measurements reported in anatomical studies

Material & Methods

200 consecutive shoulder CT scans of adult patients without post-traumatic lesions were analysed retrospectively *88 women & 112 men, mean age 49,79 years (18-93)*

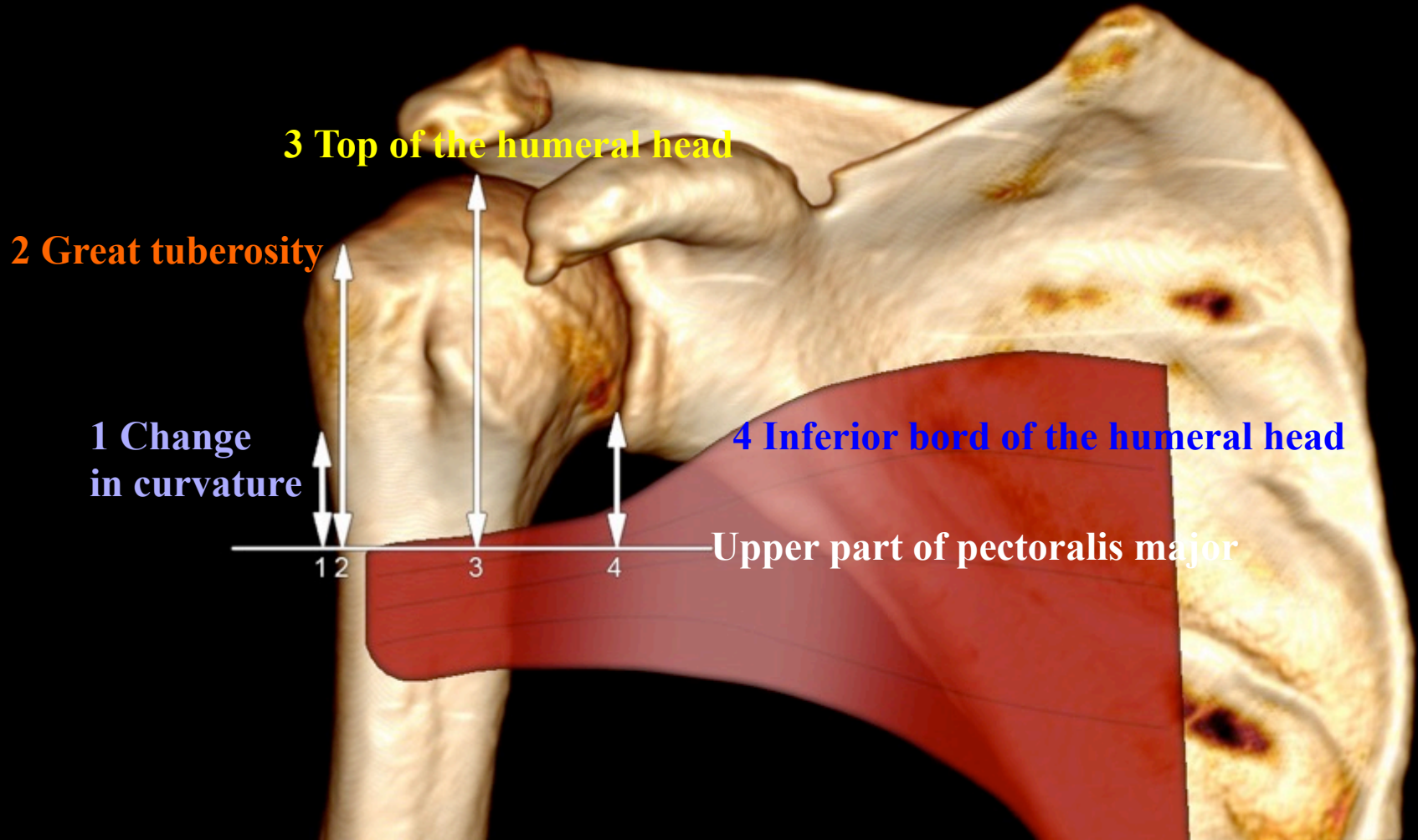
All of the examinations were read by the same multiplane reconstruction technician on a PACS post treatment console

For each of the **200 scans** (64 slice CT device, 140KeV, 350mAs, rotation time 1s, slice thickness 1mm, obtaining 64 slices/0.6, pitch 0.8)

Only 137 were able to show a definitive analysis of the sternal head of the pectoralis major There was a very

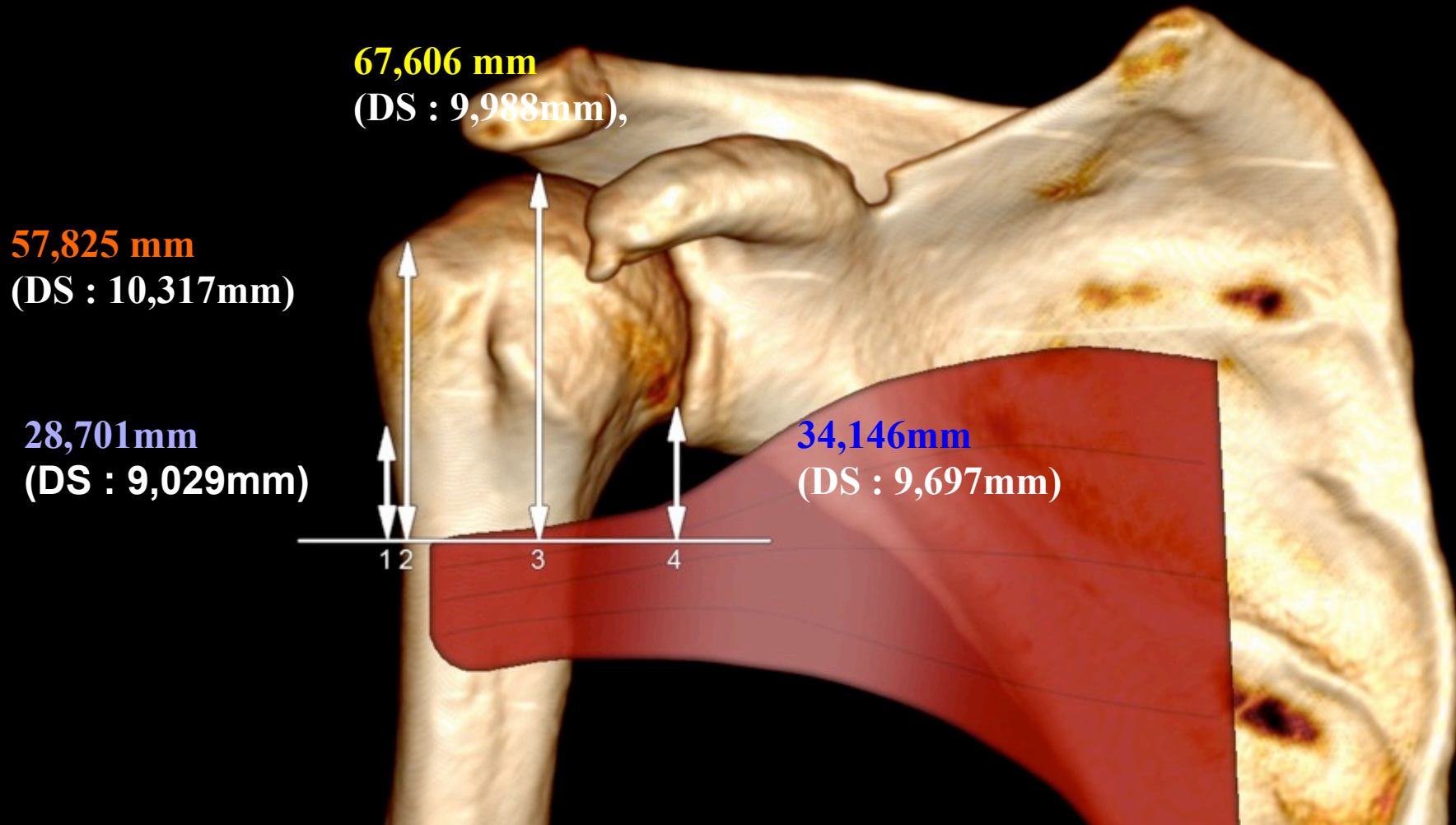
Material & Methods

Distance between GP & ...



Results

There was a very significant difference in this distance due to gender ... an **average of 7.8mm more for the men** ($p < 0.001$)



Series

Study	N cadavers or patients N shoulders	M/F	Age/ height	Distance
Murachovsky JSES 2006	20/40	11 M, 9F	? 1.62 m (1.45- 1.78)	5.6 cm (5.0-7.0 cm; SD, 0.5 cm)
Torrens C JSES 2008	20/40	12 M, 8F	68 y (54-96)	5.64 cm (5.29-5.99)
Hasan Orthopedics 2009	31/38 distance between head & pectoralis (HP) / lenght of humerus (PL)	?	?	HP =0.2323xPL
Greiner SH JSES 2008	Clinical study N=30		73 y	5,1 à 5,4 cm
Rouchy Trucs et Astuces 2010	Clinical study N = 9	3M, 6F	1.68 m (1.55-1.78) H :1,76 F :1,64	5,46 cm (5-6)
Lascar T OTSR 12	Clinical study 11/22	?	?	5,5 cm (5-6)
Ponce BA JSES 12	Cadaver & Clinical study 41 /82 + 107 patients	?	?	5,89 cm men and 5,52 cm in women

Conclusion

With the reported anatomical studies and **this first CTscan analysis ...**

Right distance between humeral head & Pectoralis Major can be defined **as 6 cm**

... but with differences depending on the gender

