

## Individual Shoulder Anatomy and Degenerative Rotator Cuff Tear (Rct): Comparison of Radiographic Parameters of 800 Patients with Rct and 800 Non-Affected

**Edoardo Franceschetti, MD, ITALY**

Alessio Palumbo, MD, ITALY

Michele Paciotti, MS, ITALY

Luca La Verde, MD, ITALY

Michele Attilio Rosa, ITALY

Nicola Maffulli, MD, PhD, MS, FRCS(Orth), UNITED KINGDOM

Rocco Papalia, MD, PhD, Prof., ITALY

Francesco Franceschi, MD, PhD, ITALY

Campus Bio Medico

Roma, Italy, ITALY

### Summary:

Statistically significant higher Acromion Index and higher Critical Shoulder Angle were found in patients affected by degenerative rotator cuff tears undergoing arthroscopic repair, compared to controls. Other parameters were not strongly related to rotator cuff disease, with no statistically significant difference between mean values measured in affected patients and healthy subject. All paramet

### Abstract:

#### INTRODUCTION

Specific anatomic variants of the glenoid were associated with degenerative rotator cuff tears (RCTs). In particular, an increased rate of RCTs was found in relation to a decreased lateral acromion angle and a flatter acromial slope. The aim of the present study was to evaluate the predictive power of commonly used radiologic parameters of glenoid morphology to discriminate between patients with intact rotator cuff tendons and those with torn rotator cuff tendons

#### METHODS

One thousand six hundred patients extrapolated from a single surgeon's database were included in the study: 800 consecutive patients undergoing arthroscopic rotator cuff repair for degenerative RCT were compared with 800 non-affected subjects with healthy rotator cuff undergoing shoulder arthroscopy for other pathologies. Acromion Index (AI = glenoid-acromion distance/gleno-humeral distance, GA/GH), Lateral Acromion Angle (LAA), Critical Shoulder Angle (CSA), Humeral-Acromion Index (HAI), Acromial slope (AS) and Cervico-Diaphyseal angle (CDA) were assessed on standard antero-posterior radiographs of all patients. Moreover, the acromial type, based on Bigliani classification, was determined on true outlet views. Three independent examiners performed all measurements and intra-observer and inter-observer reliability was calculated with intraclass correlation coefficients. Student's t-test was used to compare all these parameters and mean age of both groups.

#### RESULTS

Intra-observer and inter-observer intraclass correlation coefficients (ICCs) ranged between 0.74 and 0.87 for all assessed parameters. Patients affected by RCTs were statistically significant older than patients without tears (65 versus 59,  $p = 0.009$ ). There was a statistically significant difference between the two groups in mean value of Acromion Index  $0.83 \pm 0.15$  vs.  $0.76 \pm 0.10$  ( $p < 0.001$ ) and Critical Shoulder Angle  $39.64^\circ \pm 7.41^\circ$  vs.  $36.34^\circ \pm 9.27^\circ$  ( $p = 0.002$ ). No significant difference were found as regards Lateral Acromion Angle  $72.03^\circ \pm 9.80^\circ$  vs.  $72.58^\circ \pm 9.86^\circ$  ( $p = 0.379$ ), Humeral-Acromion Interval  $10.61\text{mm} \pm 2.68\text{mm}$  vs.  $10.52\text{mm} \pm 2.14\text{mm}$  ( $p = 0.421$ ) and Cervico-Diaphyseal

# ISAKOS

**International Society of Arthroscopy, Knee Surgery and  
Orthopaedic Sports Medicine**

11<sup>th</sup> Biennial ISAKOS Congress • June 4-8, 2017 • Shanghai, China

---

## Paper #261

angle  $91.35^{\circ} \pm 6.21^{\circ}$  vs.  $90.83^{\circ} \pm 7.64^{\circ}$  ( $p = 0.214$ ).

### CONCLUSION

Statistically significant higher Acromion Index and higher Critical Shoulder Angle were found in patients affected by degenerative rotator cuff tears undergoing arthroscopic repair, compared to controls. Other parameters were not strongly related to rotator cuff disease, with no statistically significant difference between mean values measured in affected patients and healthy subject. All parameters measured obtained an excellent reliability.