

Accepted Manuscript

Title: Capitellar Erosion after Radial Head Arthroplasty: A Comparative Biomechanical Study of Operated Radial Head Fractures on Cadaveric Specimens

Author: I.D. Chytas C. Antonopoulos A. Cheva P. Givissis



PII: S1877-0568(18)30079-3
DOI: <https://doi.org/doi:10.1016/j.otsr.2018.02.007>
Reference: OTSR 1978

To appear in:

Received date: 29-10-2017
Accepted date: 6-2-2018

Please cite this article as: Chytas ID, Antonopoulos C, Cheva A, Givissis P, Capitellar Erosion after Radial Head Arthroplasty: A Comparative Biomechanical Study of Operated Radial Head Fractures on Cadaveric Specimens, *Orthopaedics and Traumatology: Surgery and Research* (2018), <https://doi.org/10.1016/j.otsr.2018.02.007>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Original article

Capitellar Erosion after Radial Head Arthroplasty: A Comparative Biomechanical Study of Operated Radial Head Fractures on Cadaveric Specimens

I.D. Chytas¹, C. Antonopoulos², A. Cheva³, P. Givissis¹¹ 1st Orthopaedic Department of Aristotle University, "G. Papanikolaou" General Hospital, Exohi, 57010 Thessaloniki, Greece² School of Electrical and Computer Engineering of Aristotle University, 54124 Thessaloniki, Greece³ Pathology Laboratory of "G. Papanikolaou" General Hospital, Exohi, 57010 Thessaloniki, Greece**Corresponding Author:**

Ioannis D. Chytas, MD, MSc

Affiliation & Affiliation Address: 1st Orthopaedic Department of Aristotle University, "G. Papanikolaou" General Hospital, Exohi, 57010 Thessaloniki, Greece

Email Address: ichytas@hotmail.com

Abstract**Background:** We asked whether either open reduction and internal fixation (ORIF) or radial head arthroplasty (RHA), common techniques used for the confrontation of displaced or comminuted radial head fractures, are correlated with cartilage wear of the capitulum.**Hypothesis:** We hypothesized that neither ORIF nor RHA are correlated with capitellar cartilage wear.**Material and Methods:** On 5 cadaveric elbow specimens, osteotomies were employed to simulate radial head comminuted fractures followed with ORIF by Herbert screws. Radial heads were also excised from other 5 cadaveric elbow specimens and were replaced by metallic monopolar implants. Finally 2 elbows were not operated and used as a control group. Custom-made rotary machines, working unstoppably, generated 700.000 pronation and supination forearm movements at an 110° arc of motion. The elbow joints were examined with pre- and postoperative Magnetic Resonance Imaging (MRI) scans and the articular surfaces of the capitula were resected and sent for histopathology study.**Results:** In the 2 cadaveric elbows of the control group and the 4 elbows treated with ORIF no cartilage damage was found. The fifth one displayed cartilage fissures which were classified according to International Cartilage Repair Society (ICRS) grading system as grade I cartilage damage. On the contrary, all 5 elbows treated with RHA sustained complete

Download English Version:

<https://daneshyari.com/en/article/10221530>

Download Persian Version:

<https://daneshyari.com/article/10221530>

[Daneshyari.com](https://daneshyari.com)