Resurfacing, Stemless, Short stem, and Longer Stem/Standard Stem

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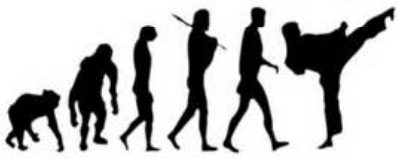
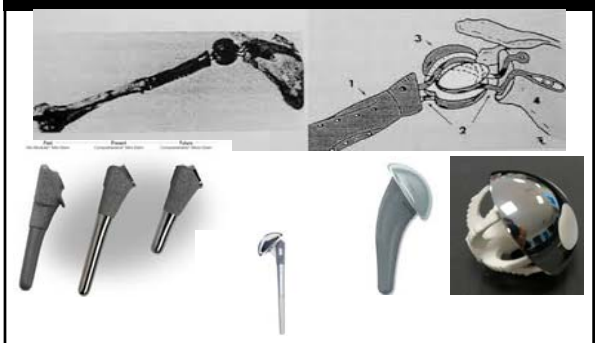
Disclosure

- I am a consultant with
- Tornier (royalties)
- Acumed
- AOS
- I am a speaker for Arthrex

U.S. DEPARTMENT OF JUSTICE

EVOLUTION OF THE HUMERAL STEM





Standard Stem

- Why change the humeral side if it ain't broken?
- The humeral side is not the problem
- Why potentially make it one?
- May be harder to remove,
- May have to split the humerus
- GT may fracture during extraction

The Mayo Clinic Boys

- Sperling, J, et al., JBJS(A), 1998
- 78 HHR, 36 TSA < 50 years of age
- Five years
  - HHR 92%
  - TSA 97%
- 10 years
  - HHR 83%
  - TSA 97%
- 15 years
  - HHR 73 %
  - TSA 84%
- Poor results in 35 HHR patients 17 patients with TSA

- Sperling, JW, et al, JSES, 2004
- 78 patients 15 year f/u age <50 years
- Survivor rate
- 10 years
  - HHR 82%
  - TSA 97%
- 20 years
  - HHR 75%
  - TSA 84%
- Poor results HHR 60% TSA 48 %
- Great care offered in recommending shoulder replacement in patients <50 years

Joe Zuckerman, MD

- Why do we need a short stem?
- Why are companies like Tornier and Biomet coming out with short stems when the humeral side is not the problem?
- There is no science behind the changes

Short Stem

- Tornier Ascend Flex
- Biomet
- Fill the metaphysis
- Don't have to downsize in patients with narrow isthmus
- Malunions and patients with TEA
- Easier to revise?
- Stress shielding at calcar an issue?
- I have gone to a cementer to a non cementer

- Van der Sande and Rozing, Int Ortho, 2004
- 38 hemi, 22 TSA
- 47 month f/u
- Variety of indications
- 56/60 patients were satisfied

- Schnetzke, M, et al, Int Ortho, 2015
- 82 TSA in 80 patients with minimum 2 year f/u
- Uncemented humeral short stem, cemented glenoid
- Minimal or no pain in 92% of patients
- 13.6% medial calcar stress shielding

- Jost, P, et al, JHSS, 2011
- 49 mini stem implants
- 2 yr f/u
- 90% good to excellent results
- 5/49 in varus without differences in results
- "similar results to conventional length arthroplasty "

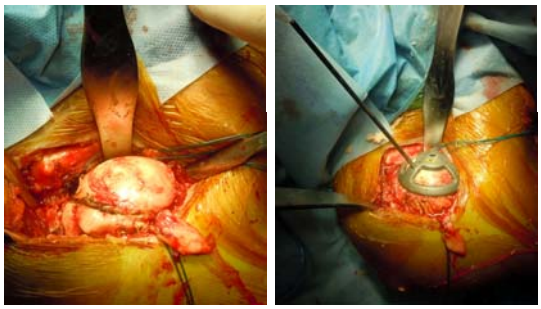
SURFACE REPLACEMENT

Resurfacing

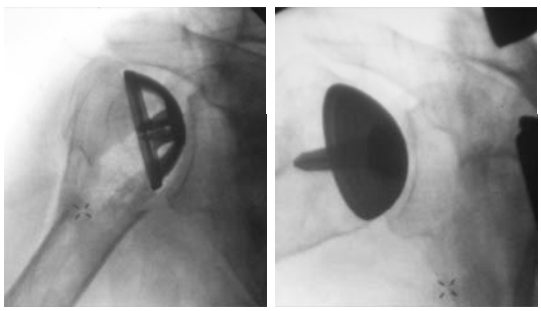
- Arthrosurface
  - Limited use
- CAP Devices
  - Don't always fit well
  - Replacing ovoid head with spherical head
  - Tornier
  - Biomet
  - Intergra
- Advantages:
  - Bone sparing??
  - Malunions
  - Ipsilateral TEA
- Con:
  - Glenoid exposure more difficult, especially if retroverted

Surface Replacement 10yr F/U

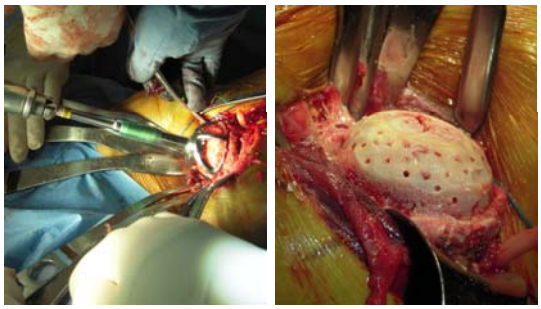
- Levy, O., et al., JSES, 2015
- 54 CAP, 49 patients, (22 to 50yrs)
- 17 TSA, 37 CSRA with glenoid microfracture
- Constant score
  - HHR/microfracture 77%
  - TSA 58%
- Reasonably good results in 81% patients
- 18.5% revisions

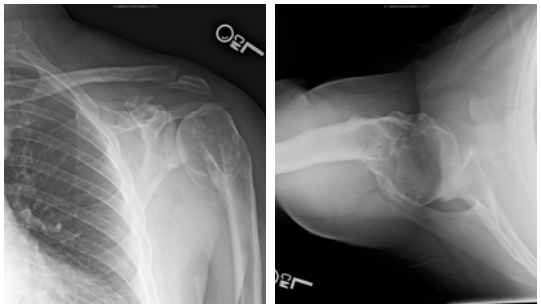


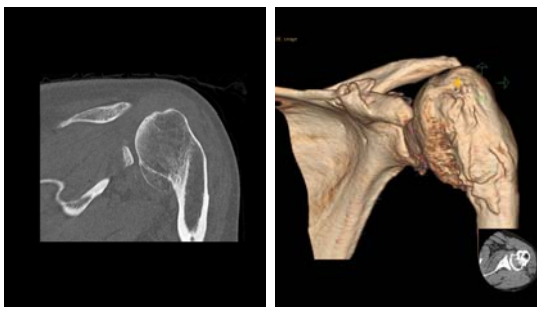
Nice for malunions

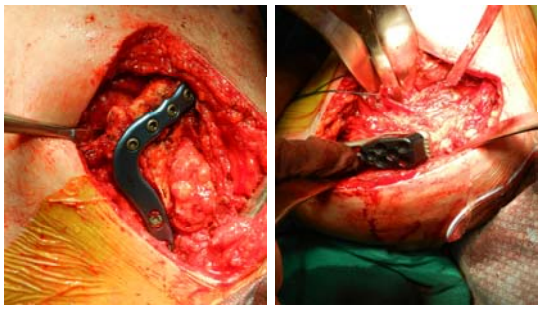


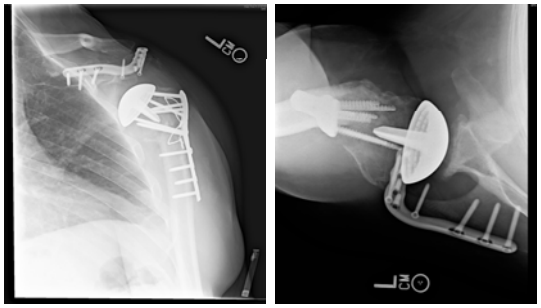
Ream to denude cartilage, drill holes for vascular ingress












McCalmont, Jack
0299642 DOB: 05/06/1950
Itamura MD DOS: 11/02/2015
KJOC
McCalmont, Jack
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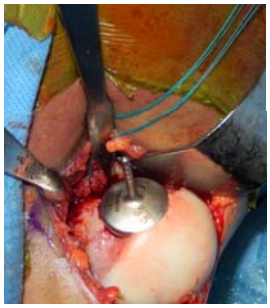
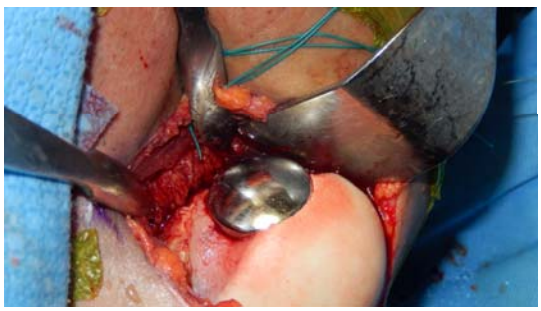
- Delany, RA, et al., JSES 2014
- 39 shoulders focal chondral defects treated with partial resurfacing
- 51 month f/u average age 45.6 years
- Patients without prior or concomitant procedures did better
- 15.3 % revision, 10.2 need revision at just over two years
- Success gaurded

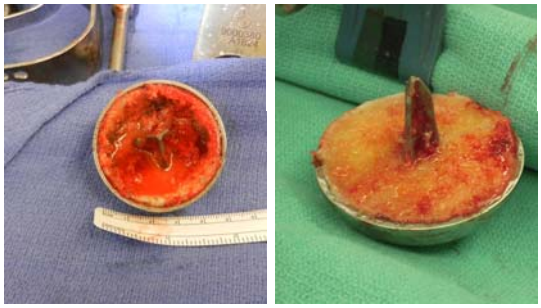
Large hill sachs lesion



Arthrosurface Revision

Pretty good ingrowth



Stemless

Stemless

- TESS
- Eclipse
- Simpliciti …released in US

- European results promising
- Bone sparing
- Easier Access to the glenoid since head is removed

Author	Date	# of patients	# of shoulders	Study	Length of follow-up	Implant	FF	ER	Constant score	complications
Heuberer et al	2010	60	63	Prospective	1-2 yrs	TESS	90-130°	20-40°	25→62	none
Razmjou et al	2013	127	135	prospective	2 yrs	TESS	69-135°	21-39°	28→56	18%
Huguet et al	2010	70	72	Prospective	3 yrs	TESS	96-145°	28-46°	29→75	none
Habermyer et al	2015	78	96	prospective	5-8 yrs	Eclipse	114-141°	25-44°	38.1→75	12.8%
Kadum et al	2011	56	61	prospective	1 year	TESS	N/A	N/A	N?A	9.8%
Berth et al	2013	82	82	Prospective	1-3 years	TESS	106-125°	43-65°	65→110	3.65%
Schoch et al	2011	90	96	prospective	2.3 years	Eclipse	NA	N/A	37→48	8%
Brunner et al	2012	233	236	Prospective	2 years	Eclipse	N/A	N/A	N/A	9.8%
Engelhart et al	2015	67	69	Prospective	17.5 mo	TESS	108-138°	35-46°	11.3→78	13.4%
Mariotti et al	2014	65	71	Prospective	2 years	TESS	N/A	N/A	N/A	N/A
Kadum et al	2015	69	70	prospective	5-6 years	TESS	50-110°	N/A	N/A	12.5%
Maier et al	2015	12	12	Prospective	6 mo	TESS	94-97°	34-52°	34→48	11%

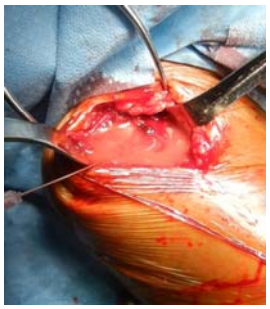
Bone sparing?

Convertible Implants?

- With all of the corporate mergers…
- What happens to implants that are obsolete in ten years
- There may not be trays to convert them, and you may have to remove the stem anyways

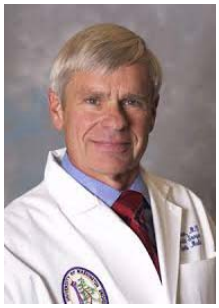
Pus…..yummy

- Personally I have a practice that is about 75 % revisions
- About 50 infections treated last year
- I would prefer to use a stem that you can remove if infected



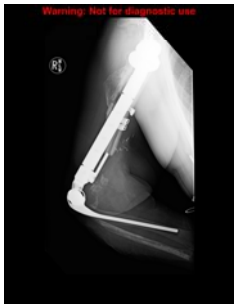
Big 4 : sh$tty prostheses to remove



- Refer to the University of Washington shoulder and elbow service for an encyclopedia of implants

- It is key to know where the porous coating is
- Also key to know is where are the lateral fins
  - If you do a hack job you will break the greater tuberosity
  - You'll loose what is left of the external rotators
- It is really important to release the bone around the fins
  - I usually use a saw with a small blade



- Not sure the stem length really makes a difference
  - Marketing ??
- Use the implant that you can get
  - Adequate exposure
  - Reproducible results
  - That you can remove in cases of disaster

Thank You