Osteoarthritis in the Young Patient!
“Ream and Run v Total Shoulder Replacement!”
What should we do?
David Duckworth

My backyard Sydney!

Declarations!
• I wasn’t asked by the organisers which side of the debate I would like to be on!
• I still don’t know the perfect answer!
• I am still trying to work it out in my practice
• I actually do both operations!
**What I do know!**

- Nothing is as good as the real thing!
- You can always make someone worse with an operation
- Be very selective with these patients
- Don't force them into an operation!

**Think before you operate!**

- 42yo male
- Surfs, gym
- Xray looks average
- No sig night pain
- He contacted me from overseas asking for surgery!

Does he really need surgery?
What is the ideal Treatment?

Ream n Run  TSA

What are we worried about with this surgery?

Worn Glenoid  Loose Glenoid

Literature

• You can always find a paper in the literature to back your argument!

• So of course I have!
“Minimum fifteen-year follow-up of Neer hemiarthroplasty and total shoulder arthroplasty in patients aged fifty years or younger.” Sperling JSES 2004

- Compared hemiarthroplasty with TSA in patients less 50 yo for min 15yrs No diff in ROM or functional outcome was found
- Humeral lucency was observed in 60% of the TSA’s, compared with 34% in hemis.
- Glenoid lucency in 76% of TSA’s,
- Glenoid erosion in 72% of hemis.
- Implant survival rate at twenty years was greater following TSA than it was following hemiarthroplasty (84% versus 75%)

“Shoulder arthroplasty in patients aged fifty-five years or younger with osteoarthritis” Cofield, JSES 2011

- 46 TSA and 20 hemis were performed in 63 patients
- 9 shoulders underwent a revision operation.
- The implant survival rate was 92% at 10 years for TSA and 72% for hemi’s.
- TSA’s had less pain, greater elevation, and higher satisfaction at final compared with those who underwent hemi’s.

What Facts do we know?

- A well done TSA gives a better outcome than a Hemiarthroplasty/ Ream n Run
- A TSA gives better pain relief and better ROM
- In a young patient they will both need revision in the future
- A solid Subscapularis repair is imperative otherwise the revision in the future will always be a reverse!
Facts of Replacements in the Young

- Ream n Run
  - Glenoid wear will occur
  - A revision will have to be done at some time
  - The revision to convert to a TSA needs to be possible

- TSA
  - A loose glenoid will occur
  - A revision will have to be done at some time
  - One needs to be able to convert a loose glenoid into another stable glenoid replacement
  - (Graft and recementing or a metal back)

Matsen’s Ream n Run

- Fellowship late 90’s
- We were doing Ream n Runs then
- The patients were painful for a lot longer and often never completely settled
- Stiffness was a factor
- In review in the clinic it was always unpredictable compared to a TSA

- What should we do?
- What do I do?
- What are the options for the future?
One has to look at the causes of arthritis in the young!

- Capsuloraphy Arthropathy
- Rheumatoid arthritis
- Post Traumatic arthritis
- Avascular necrosis
- Glenoid Dysplasia
- Bad luck / OA

What are our Current Options?

- Hemiarthroplasty +/- Ream n Run
- TSA Stemless v stemmed
- The materials we use!

- What is my Aim?
- To create a longlasting replacement with excellent function that can easily be revised in the future!

Humeral Component?

Better materials for the humeral component more forgiving on the glenoid?

- Chrome cobalt
- OR
- Ceramic?
- Pyrocarbon?
**Glenoid**

Leave alone?
Reshape with a Ream and Run?
- Or Smaller glenoids/ inset glenoids/
  Staying away from a keel
- Less bone destruction and less wear potential
- Easier to revise

**Newer Materials**

**Pyrocarbon**

**Ceramic**

“Pyrocarbon Humeral Resurfacing Arthroplasty Early Results of a Prospective Trial”
Dr Mark Ross, Phil Duke, Australia

- 104 cases over 5 years
- Ages 24 to 84yo
- 80% due to primary OA

- Results similar in outcome to TSA’s in regards ROM, pain relief and function
- Average ASES score 88 at 3.5 years, constant score 89 at 3.5 years
- Results looking promising
Glenoid size!

- I am now using smaller glenoids and have seen no difference with outcomes
- Size 1 and 2’s rather than 3 and 4’s (less bone reaming and more glenoid preserved)
- Hopefully this will make the revision easier

- OR Insert Glenoids maybe an option!

Inset Glenoids

Inset Glenoid
Algorithm in my practice!

- 60 yo plus
  - Definite TSA unless there is poor cuff tissue
- 50 to 60yo –
  - TSA to give a predictable result (May consider a stemless ceramic hemi in a male manual worker only)

Algorithm in my practice!

- 40 to 50yo female - Stemless TSA
- Male - stemless ceramic +/- glenoid depending on pathology and demands
- Less than 40yo
  - Really depends on pathology and symptoms but would generally be a Stemless anatomic hemiarthroplasty +/- Ream n Run

No matter what you do!

- Get the anatomy right the first time!
- Make sure your replacement is anatomical
- Don’t overstuff
- Soft tissue releases
- Don’t jeopardize the cuff
- Subscap reattachment
Summary OA in the Young!

• Every case should be taken on its merit
• TSA is still the gold standard in pain relief and ROM
• Newer materials may improve the outcomes of hemiarthroplasty
• The glenoid always has to be concentric with the humerus
• An inset glenoid maybe an option for the future
• Revision surgery is becoming more predictable and possible

Summary OA in the Young!

• Most importantly do what works best in your hands
• Don’t operate if you aren’t capable of doing the revision in the future
• It should not be an operation you do in the young if you are only doing 5 to 6 a year!

Thank You!
What is the ideal Treatment?

Revisions of TSA's due to glenoid loosening!

- Revision surgery of TSA's is definitely easier today
- Use of stemless humerii, pegged glenoids.
- Easier to convert to new glenoid with graft if necessary or into a reverse if the cuff has failed!
The complex characteristics of 282 unsatisfactory shoulder arthroplasties Amy K. Franta, MD, Matsen, III, MD, JSES 2007

- Glenoid component loosening, which was present in 63% of the unsatisfactory total shoulder arthroplasties, remains a problem in total shoulder arthroplasty.
- Glenoid erosion is a recognized sequela of proximal humerus replacement, especially in young active individuals. The data from our study support the idea that glenoid erosion is a prominent feature among unsatisfactory shoulder arthroplasties.

Glenoid (What I do agree on!)

- No matter what operation you do it is important to get the glenoid concentric with the humeral head (especially with ream n run)
- Pic of a biconcave glenoid

“The complex characteristics of 282 unsatisfactory shoulder arthroplasties” Franta, MD, Matsen, JSES 2007

- Loosening of glenoid was noted in 85 of the 136 TSA’s,
- Glenoid erosion was found in 51 of 80 hemiarthroplasties
- Patients with an unsatisfactory outcome after shoulder arthroplasty present with poor shoulder function and pain.
- Component malposition, glenohumeral malalignment, and glenoid failure are all prevalent features among patients with an unsatisfactory outcome
Ream n Run v’s TSA
• I have never regretted putting a glenoid in!
• I have only ever regretted not putting a glenoid in!

Advances in the last 10 years
• Name another joint where we don’t replace both sides in the young.
• We do know that a TSA gives better results than a hemi or ream and run.
• Materials are improving? Cobalt chrome, ceramic, pyrocarbon
• Revisions are a lot easier these days

Materials
• Chrome cobalt
• Ceramic
• Pyrocarbon
Matsen

- More complex pathological conditions are likely to have greater abnormalities of soft tissue and bone that can make surgery more difficult and compromise the outcome of shoulder arthroplasty in individuals under the age of fifty. (Matsen)

Other Options?

- Better materials more forgiving on the glenoid?
- Ceramic?
- Pyrocarbon?
- Using a smaller glenoid and staying away from a keel
- An inlay glenoid
- Less bone destruction and less wear potential
- Easier to revise

Pyrocarbon
What Facts do we know?

- You have to get the **humerus** right in both operations for the procedure to be a success.