Case Discussion: The Role of Reverse Arthroplasty in the Weightbearing Shoulder

***Gilles Walch***

Hi JP,  my opinion in the last slide

Very tricky case indeed !

all the best

Gilles

***Moby Parsons***

Hi JP et al.

when I see chronic large effusions, I worry about an overstretched deltoid and instability. Her vault is quite narrow due to medial erosion. It is surprising that her function is so reasonably well compensated. My worries with RTSA would be: 1) eventual baseplate cutout due to vault erosion and peg penetration; 2) potential for instability from chronic effusion and effect on deltoid function and quality. I have 3 patients like this whose baseplate ultimately loosened or cut out that I converted to "big ball" hemi with the largest humeral head to provide a fulcrum for the deltoid. Zimmer has a huge one. Uniformly they have done pretty well in terms of pain and function and you do not have to do any cuff work. It allows pretty immediate function and rehab with low risk in terms of glenoid sided complications from an implant. She appears to be quite small so it would seem that most systems' larger diameter and thicker humeral heads would prove sufficient. She doesn't have too much retroversion and this is a low risk potential solution that can be salvaged with a later reverse if necessary provided a platform stem. Just a thought.

Moby

***Gregory Mallo***

 I am certainly no expert however my partner and I have had about 4 cases with severe bone loss over the last 5 years in our local community level practice.

We were able to use the VRS custom baseplate system (I have no relationship with them) from Biomet.

They will create the custom baseplate and align the angle of locking screws insertion to catch the most bone with the longest screws.

They will also advise if there is too much bone loss for this to work after the engineers run their simulation.

It is fairly expensive.

Hope you are well Dr. Warner-

Greg Mallo

***Mark Frankle***

JP I have performed rsp on probably 30paraplegics I don’t rehab them difference the. Any other person that needs to weight barring shoulder I suggest they wait 6 weeks till transferring ,I would use the alternative spine line orientation with a central screw device I would plane to get maximum purchase of the central screw in bone (probably you will get 28mm) in the system that I use I would select a glenosphere that has an extended hood and portion the hood so when it’s fully impacted it will be adjacent to the bone glenoid surface to provide for load sharing .

On the humerus I would select 135 inset humeral stem (with a smaller outer shell) so you can truest inset ,you can then adjust the soft tissue tension with humeral inserts

Mark.A Frankle M.D.

***Christian Gerber***

Der JP:

Thank you for askin. As we have a center of paraplegiology,we do see these patients and do ttreat them

Without having reviewed our files, we see more rotator cuff disease problems than oa. Results have been published by Jacek Kerr (JSES) and were surprisingly good. As there was not an alternative, we could not really assess the importance of rehab but all patients wee kept in a highly specialized institution for paraplegics for a least sicx weeks (!!!) and protected from weightbearing at transfer. I personally do not believe that the reported results c an be reproduced without institutionalizing such patients.

In terms of the present patient, we have a weigh-bearing shoulder most probably associated with CPPD, a wet oa. Hemiarthroplasty will probably not cure her recurrent effusions, as opposed to (R)TSA which usually does. I therefore think that with the presented symptoms, I would advise her to be treated with a RTSA using a bio -RSA but I would use a bone graft from the head (which will be of very good quality) which will induce more downward tilt than what is illustrated in the planning. I would also get two chest X-Rays about two or three days apart of the patient with her arms in the position to try to stand up from a chair. Usually  chest X-rays in a non-paralyzed patients taken in the standing position show a very reproducible position of the scapula on the thorax (Luc Favard has studied that quantitatively) and tell you what the glenoid inclination is with respect to the expected vertical or  loading. If the patients shrugs extremely I would try to incline more to induce compressive loading rather than shear upon induding transfer. Obviously there are limits to the inferior inclination but I would look at that: if at the time of load transfer from the hands to the shoulder the baseplate is substantially oriented upwards, I think the likelihood of loosening by tilt of the central peg is high.

In our health care system the patient would be institutionalized in a specific paraplegic center for six weeks. We would protect as swell as possible from full loading at transfer from chair to bed and vice versa for six weeks, then do a CT scan see whether ther is evidence of graft incorporation and absence of central peg loosening and then increase the load during transfer (may be the other side is good and can be specifically utilized (the patient can turn right or left out of the chair, when turning towards the left more loading on left when turning right more load on right). At three months she should be fine

I do not know whether such protection regimens are still possible in the modern world ( for the fun of the two of us an aphorism: Walter Conkite: "The American health care system is neither healthy nor caring nor a system“), for our patients on the old continent, it is still possible to assist such poor patients for a few weeks in a specialized institution. But I very m uch doubt that this will still be possible in a few years

May not be very well substantiated what I say, but i would do it like this anyway. May be you can use some of the info

Yours

Christian

***George Athwal***

Hello JP and friends,

I’ve done a number of arthroplasties on paraplegic patients. In pts that still want to use a manual chair, ROM is very important, especially shoulder extension motion. In electric chair users, less important, usually more sedentary status. Another important question is how often she uses crutches, routinely or just for transfer. I have no good evidence, but I am not thrilled with crutch use as the primary mode of ambulation after RSA… saying that, most paraplegics that are coming in considering an arthroplasty have already transitioned to near full time wheelchair.

In this case, I would use a porous metal baseplate with some lateralization, and a small 32mm inlay humeral stem. I would prefer pressfit, but would not hesitate to cement the humerus if the bone quality questionable in this 80lbs pt. I would preop plan to get the best motion possible, aiming for high IR, adduction, and extension.

For postop rehab, I would slow her down, sling for 6 weeks, and assisted transfer for 6 weeks with no manual wheelchair or crutch usage. I recommend pts be admitted to rehab facility if limited supports at home.

Cheers,
George

***Patrick Denard***

JP

I don’t have Dr. Frankle’s numbers but I’ve also had success in paraplegics with the use of RSA. I probably have about five of these. I think the points he talked about are important. Particularly slow rehab. I place patients in a sling for four weeks then they can do range of motion but no transfers until eight weeks. I’ve done bone graft in these cases and used the principles described by Boileau with a long post or screw post in the glenoid. Single stage bone graft heals at a high rate and I think the key is to just be slow on transfers in this patient. This often means SNF placement postop depending on home capabilities of the patient.

 Lastly, I think Dr. Frankle‘s point about an inlay humeral component is important in this because of the soft tissue contracture. An onlay is going to be more difficult to reduce aside from the published higher complication rates with onlay stems.

Best

Patrick

***Joaquin Sanchez-Sotelo***

Dan had consulted me about this case before sending over to Codman. Enclosed please find a publication that may be of interest JSS.