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Shoulder replacement for Trauma Protocol (Hemiarthroplasty or Reverse Shoulder Replacement)

Procedure Summary

Hemiarthroplasty for fractures is for unreconstructable proximal humerus fractures. To achieve a good result after this is recognised as one of the biggest challenges in shoulder surgery – unfortunately most of these patients get a poor functional outcome. The greater and lesser tuberosities, holding the rotator cuff tendon attachments, are secured around the prosthesis stem, and the humeral head itself is replaced. Failure of the greater tuberosity (attachment of supra and infraspinatus) to heal in a good position is associated with very poor results.

Reverse shoulder replacement is performed for trauma when there is a particularly complex fracture pattern, or the patient is elderly with poorer healing potential/pre-existing chronic cuff tears. The operation also involves reconstruction/fixation of the greater and lesser tuberosities, in addition to implanting the prosthesis itself. It is called a “reverse” because unlike in the normal shoulder (glenoid=socket, humeral head=ball), the humeral side is replaced using a stem with a socket and the glenoid is replaced with a hemisphere, i.e. the positions of the ball and socket are switched. The underlying biomechanics are relatively complex, but essentially the design allows a stable fulcrum for rotation and the deltoid takes over the function of the rotator cuff.

The reverse has a higher complication rate and is more difficult to perform than standard arthroplasty, also it is relatively new so there are few reports of any long term results, so usually done in patients over 65-70 years of age. The most frequent complications are infection or instability of the prosthesis, both of which are very difficult to resolve with a good result.

Technique 1- Deltopectoral approach: a muscle splitting approach. No further tendon detachment is required as access to the joint can be achieved through the fracture itself

Technique 2 Anterio-superior approach: gives better access to the greater tuberosity, but the anterior deltoid is detached and repaired at end.

Notes: Rehab is geared towards protecting the repair of the tuberosities and the tissues disrupted during the surgical approach

AIM: 1 year to achieve good ROM- as a general guide the best outcome possible is to achieve 120° flexion and 20° external rotation and hand to waist level but is often significantly less than this. Relief of pain is the primary aim and ROM a secondary aim. (Refer to procedure summary above as well)

Patients can be discharged once returned to independent living with ADL’s and function as required dependant on the patient.

Trauma Protocol:

DO NOT stress, strengthen or stretch the muscles that attach to the greater tuberosity for 6 /52 (supraspinatus, infraspinatus, teres minor).

Sling
6/52

Day 1- 6 weeks:

- Importance of pain control
- ice pack use + +
- sling use
- sleeping position (e.g remove sling and use body strap for support)
- washing and dressing
- movement of unaffected joints eg fingers, wrist and elbow (depending on op procedure and restrictions)
- Postural advice and scapular setting
- Encourage waist level ADL's (e.g. brushing teeth, eating).

Patients discharged at Day 2 if they can do HEP, use sling and pain is well controlled.

Exercises taught on the ward
Pendulum
Passive shoulder ER to neutral.
Hand, wrist and elbow ROM.

Follow-up Physiotherapy
2/52 post op.
Start passive shoulder flexion up to 90°/ pulley to 90° for 6/52.

Follow Phase 1a and b whilst:
-avoiding IR/HBB for 6/52.
-limiting ER to neutral for 6/ 52.

Phase 1 Aim: to increase joint ROM passive to active

Range of movement progressing gradually through the following

1a Passive ROM (controlled by the patient)
1b Active assisted ROM

NOTE - ER limited to 30° for 2/12.
- encourage SCAPTION rather then pure abduction.
- progress using short to long lever principles.
- Add isometric strengthening in flexion and ER (focus on ER rather than IR in the early stage as patients rarely have IR weakness given the ratio of internal rotators to external rotators.)
- Avoid abduction combined with IR or ER for 2/12.

3 months onwards:

Phase 2 Aim: Stretching at end of range and strengthening

2a Stretches at end of range

- encourage stretches to be done by the patient using a broom handle etc rather than by physiotherapist
- attention to posterior capsule stretch (within relevant restrictions).

2b Strengthening against resistance only once patient is achieving functional AROM and no pain to resisted muscle testing.

- include strengthening of rotator cuff, UFT, LFT, serratus anterior, biceps, triceps, deltoid as per assessment.

4 months onwards:

(If required)

Phase 3 Aim: full active rehab/ higher level function

Start sport specific rehab.

Patients can return back to competitive sports when achieving full AROM and normal strength.

General guidelines

Consultant post op follow up

All patients are normally followed up in clinic with consultant at 2-6/52 post op

Driving

Usually possible post op at 2/12+.