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External rotation deficit of the reverse shoulder arthroplasty: muscle transfer or humeral lateralization

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AIM

A reverse shoulder arthroplasty (RSA), with medialized humeral component, can restore active elevation in patients with pseudoparalytic shoulder but, if there is the lesion of the infraspinatus and the teres minor, cannot restore active external rotation because there are no other external rotator cuff muscles. Aim of the study is identify **the better procedure for recover the external rotation** during the prosthetic surgery.

BACKGROUND

A RSA with **lateralized humeral component** and **without subscapularis** reattachment can restore active elevation and the external rotation (ER). Even a RSA with **medialized humeral component** and muscular transfer **with Latissimus Dorsi (LD) and Teres Maior (TM)** can restore the same function.

METHODS

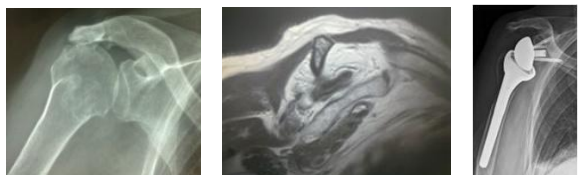
We have operated 34 patients (26 female, 8 male); mean average was 71 years. Clinically they had: ER lag sign positive, hornblower sign positive, active flexion less of 90°. Radiologically there was severe arthritis (Hamada 3,4,5) and there was a severe fatty infiltration (Goutallier 3-4) of shoulder external rotators. Follow up was: 24-100 months. We have used two different kind of RSA:
 - **group 1:** 13 prosthesis with **medialized humeral component associated to LD and TM transfer;**
 - **group 2:** 21 prosthesis with **lateralized humeral component.**

RESULTS

On average, the pre-operative results are been: UCLA score: 5; Constant shoulder score: 16; DASH score: 81.7. Active elevation: 61.5°; ER1: -20°, ER2: 0°, IR D10. On average, in **group 1 post-operative** results are been, UCLA score: 30; Constant Shoulder score: 72; DASH score: 8.3. Active elevation: 140°, **ER1: 0°, ER2: 40°, IR: L3.** On average, in **group 2 post-operative** results are been, UCLA score: 33; Constant Shoulder score: 74; DASH score: 4.2. Active elevation: 140°, **ER1: 10°, ER2: 80°, IR: buttock.**

CONCLUSION

We have observed **impairment** of active flexion and of **external rotation** of shoulder in all RSA but mostly in **RSA with lateralized humeral component** (group 2). **The internal rotation was better in group 1** (because we preserved subscapularis tendon).



Case of group 1



Case of group 2

