

RSA for Proximal Humeral Fractures: The DFER Approach

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Disclosures

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AG: Consultant for Zimmer BIOMET, Device Tech, Sironix; Founder and CEO Akunah; hold shares with Tetrous

KI: employee of Akunah



Aim of the Study

- To show the surgical technique and the outcomes of **RSA for comminuted proximal humeral fractures** in the elderly using an approach based on 4 important principles (**DFER Approach**):
 - **D** – Delayed surgery
 - **F** – Functional tuberosity reattachment
 - **E** – External rotation abduction brace
 - **R** – early Rehabilitation

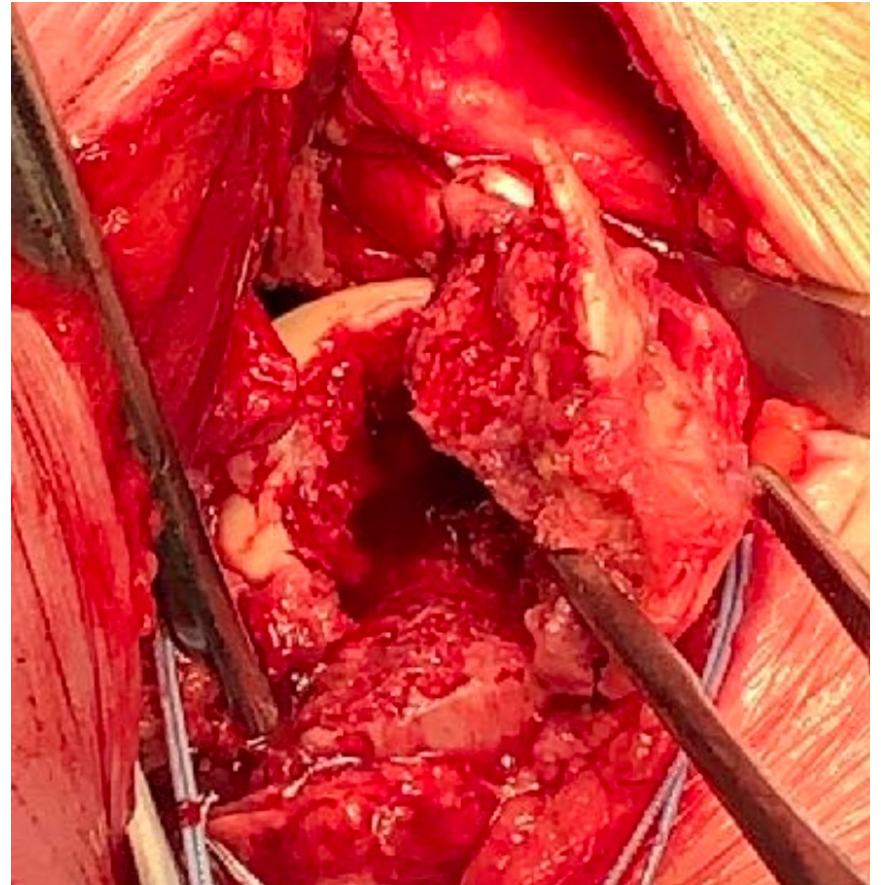
Methods

- Patients with comminuted proximal humeral fracture who underwent RSA following the DFER approach from 2016 to May 2022
- **Clinical outcomes** (preop, 6 months, 12 months, 24 months postop)
 - Active range of motion (forward elevation, lateral elevation, ER, IR)
 - VAS
 - Constant score
 - ASES score
- **Radiographic outcome:** tuberosity healing at 3-month CT scan/x-ray

The DFER Approach

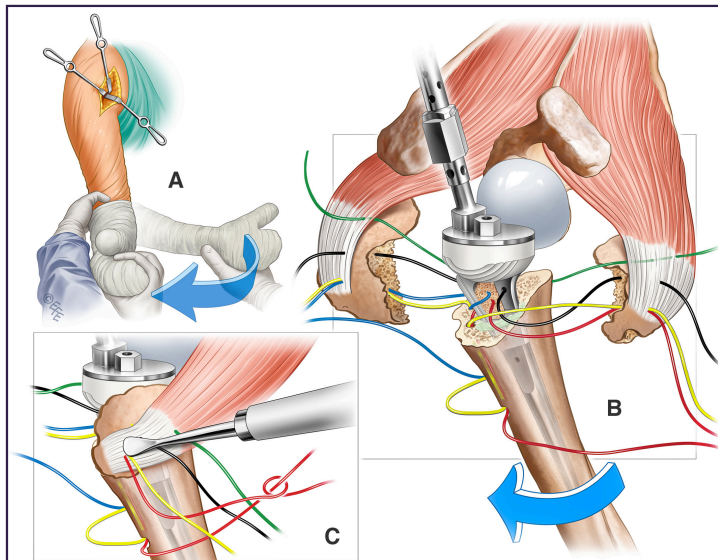
D – Delayed surgery

- 2 to 3 weeks after injury
- Better soft tissue conditions
- Better tuberosities management

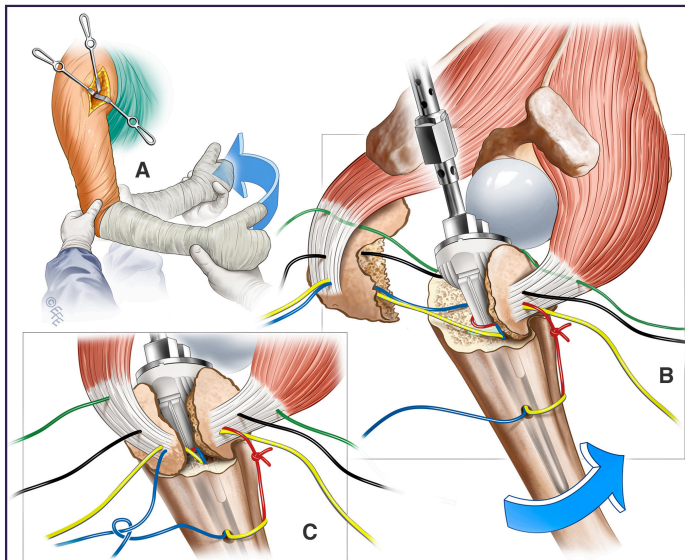


The DFER Approach

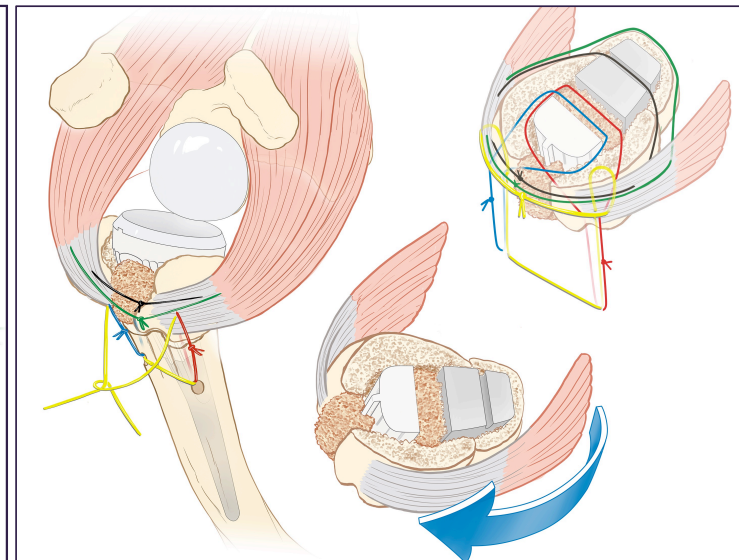
F – Functional tuberosities reattachment



Repair LT in ER



Repair GT in IR



Always bone graft the gap

Rigid suture fixation between the diaphysis-stem-tuberosities

The DFER Approach

E – External rotation brace

- Brace with 60-degree abduction
- Weakens powerful abductors
- Stabilises scapulothoracic joint
- Allows patient to commence active rotation while in brace



The DFER Approach

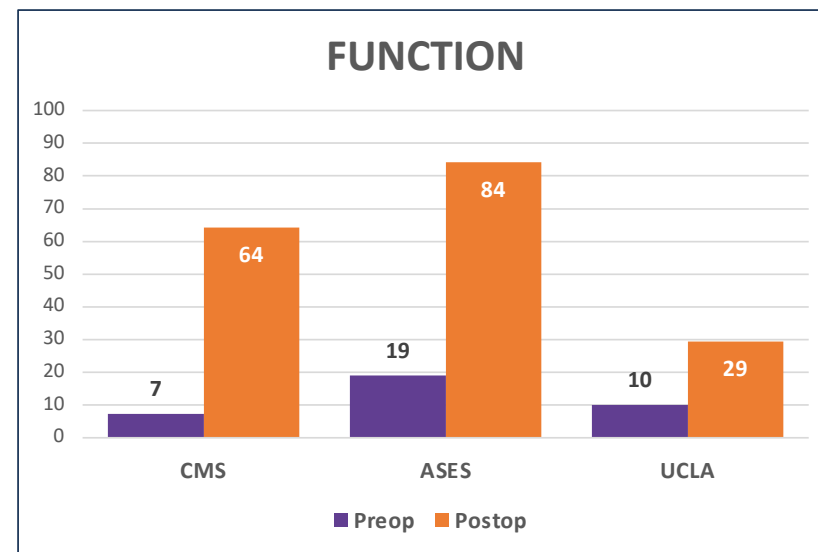
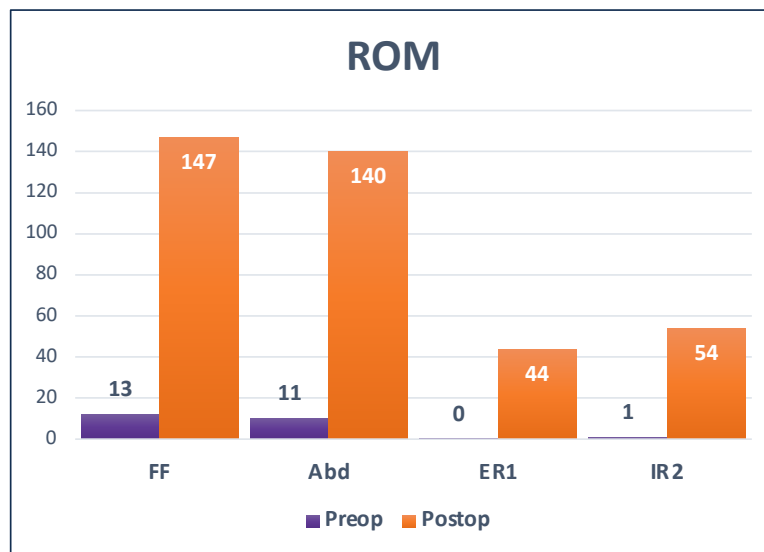
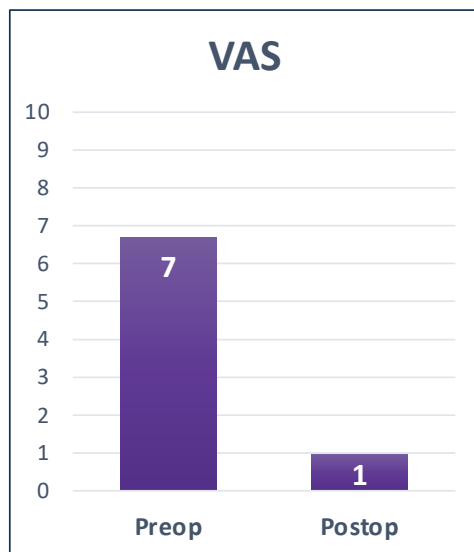
R – Rehabilitation (early)

- Active rotations in brace from day 0
- Wall walks at 48 hours
- Concentrate on scapular stabilisation
- Forward flexion
- Unrestricted ER and IR from day 1



Results

- 50 patients (mean age: 72yo)
- Mean follow-up: 24 months



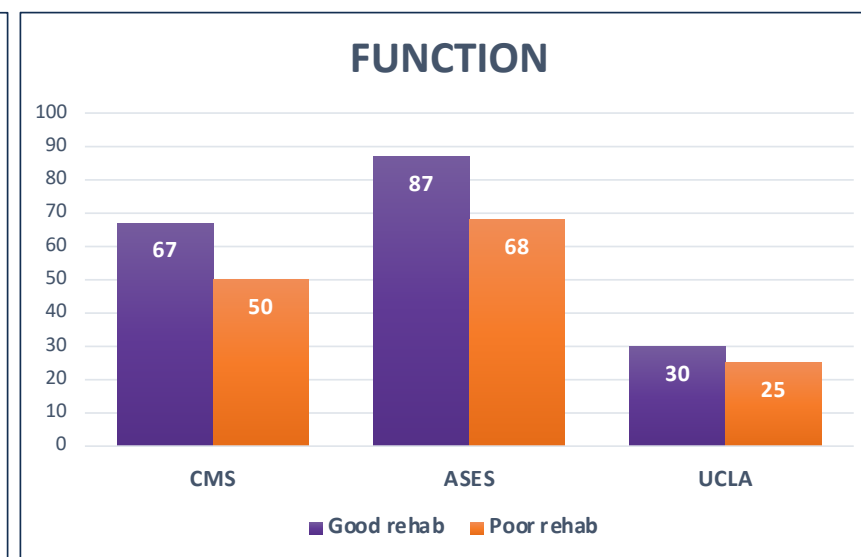
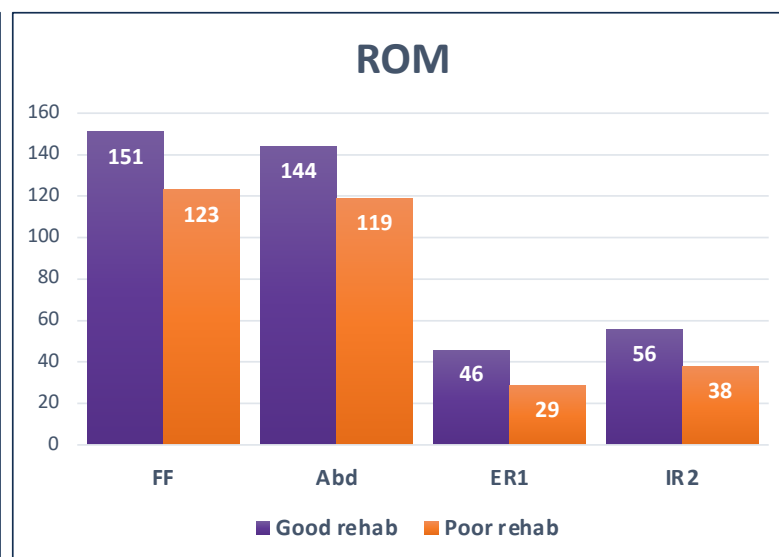
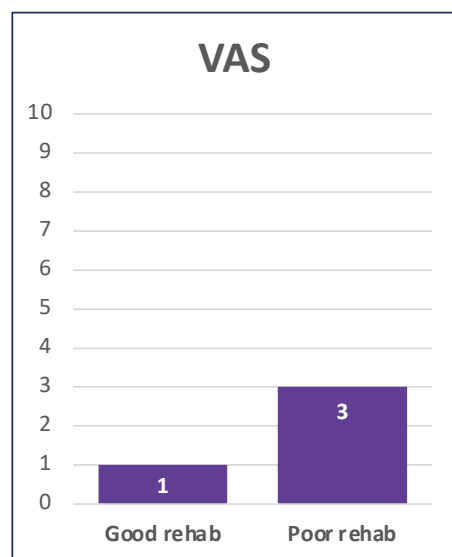
Results

- 100% tuberosity healing at 3 months



Results

- 6 patients who did not comply with DFER protocol



Conclusion

- The DFER approach results in **satisfactory outcomes** in RSA for acute proximal humeral fracture.
- It ensures **rigid tuberosity fixation** and **early active mobilisation** following surgery.
- **Patients who were not able to follow the prescribed rehabilitation protocol did not do as well** as those who were compliant with physiotherapy, proving the importance of compliance with prescribed rehabilitation postoperatively.