



## Semitendinosus Autograft for Reconstruction of Chronic Acromio-Clavicular Joint Dislocations. A Safe, Cheap and Effective Alternative

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## Conflict of interest statement

- All authors declare that they have no conflicts of interest.
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## Introduction

- Stabilizers of Acromioclavicular joint
- a) Anteroposterior stability Acromioclavicular ligaments
- b) Vertical stability Coracoclavicular ligaments (Trapezoid and conoid)
- Mechanism of injury:
- a) Direct



#### Indirect









# Cost Burden !!

- Numerous techniques for reconstruction
- Implants range from

Dog bone buttons ,Suture anchors,Adjustable loops

- Hospital with a large chunk of patients receiving extremely subsidized treatment
- Cost burden on patients & hospital
- Developing country
- Majority of patients having out of pocket expenditure or a *Government*

#### Medicaid with low reimbursement to health care setup

• Eg. Ayushman Bharath , TN-CMCHIS





#### Ayushman reimbursement for private hospitals short of costs incurred: FICCI/EY report

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### Aims & Objectives

- To present the method and mid term clinical and radiological outcome of Anatomical Acromioclavicular joint reconstruction with semitendinosus graft.
- To Evaluate the complications and Cost effectiveness of this methods compared to techniques using implants





# Materials and methodology

- 15 consecutive patients
- Rockwood type 4 and type 5 Acromio-Clavicular disruptions
- Site of study: Sri Ramachandra Medical college, Chennai , India
- Prospectively followed
- Outcome Variable: Oxford shoulder score
- Difference in cost evaluated between Our technique and an alternative with a cost effective implant







# Diagnosis













# Surgical technique

#### **Positioning** :

- Beach chair position

### Marking and incision:

- Mini incision over antero-lateral end of clavicle.
- Vertical incision over pes anserinus to harvest Semitendinosus graft.

### Critical steps:

- Tunnels reamed in clavicle for conoid and trapezoid limbs based on graft diameter
- Graft looped around coracoid shuttled through tunnels and tied over the clavicle (tie secured with fiber wire)
- Excess graft limb tied over acromion

#### Anatomical:

Restoring coracoclavicular and Acromioclavicular ligament





Category - I Deemed to be University) Porur, Chennai

# Post op rehab

Phase I (0 to 4 weeks) Immediate post op phase	<ul> <li>Broad arm sling for 2 – 3 weeks.</li> <li>Active finger, wrist and elbow movements.</li> <li>Initiate ROM after 2 weeks</li> </ul>
Phase II (4 to 8 weeks) Intermediate phase	<ul> <li>Gradually regain full ROM</li> <li>Shoulder isometrics</li> <li>TheraBand exercises</li> <li>Cervical stretches</li> </ul>
Phase III (week 8 to 16) Dynamic strengthening phase	<ul> <li>Improve strength, power and endurance</li> <li>Improve neuromuscular control and dynamic stability</li> <li>Isotonic and gym exercises</li> </ul>
Phase IV (>16 weeks) Return to activity phase	<ul> <li>Progressively increase activities to prepare patient/athlete to full functional return</li> </ul>





### Results

- Mean prospective follow up of 3.8years
- Mean duration from date of injury to date of surgery- 61.33 days
- Pre op Oxford score 19.28[SD 8.51] <<< Post op 51.67 [SD 3.48]
- All excellent outcomes with full ROM and no visible deformity
- Final follow up stress radiographs No subluxations
- Cost saved INR 18,900 (cost of the cheapest implant)
- Complications : 1 patients with graft donor site neuropraxia. Resolved at 3months





## Discussion

- Surgical treatment- Considered for ACJ injury grade III B, IV, V or VI.
- Mini open ACJ reconstruction with semitendinosus graft
- A surgical technique that is biomechanically stable, by using anatomically placed clavicular tunnels and reconstruction of CC ligament using autologous ST tendon graft.
- This technique also minimizes the risks of fractures, by not drilling the coracoid and by performing low diameter and anatomically placed tunnels in clavicle.
- No implants Lower costs , No osteolysis , again *no coracoid drilling*







- Mini open Acromioclavicular joint reconstruction with ST graft equally efficacious outcomes when compared with other techniques
- Advantages include:
  - $\checkmark$  No implant related complications
  - √Lower cost
  - $\checkmark$  Good restoration of shoulder biomechanics and anatomy.





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