

# Retrospective Study of Glenohumeral Joint with MRI Modality Minimum 6 Months Follow Up

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**Abstract:** *Background: we performed a prospective observational study to evaluate this clinical outcome with early radiological screening (MRI) of individuals with shoulder dislocations to define the risk of shoulder functional impairment following an episode of dislocation and relevance of severity of shoulder lesions in predicting the outcome and need of future interventions in such patients. Materials and method: we performed an observational prospective cohort study of 80 patients ranging from age of 15 years to 65 years (which is economically productive age and athletically active age group demanding good joint function ) who sustained glenohumeral dislocation were treated with sling immobilization and followed by gradual physiotherapy. Patients followed up regularly to assess weather recurrent instability had develop or is there any shoulder malfunction. Along with this set of patients were screened with MRI of shoulder joint and. cross sectional imaging recommended for those where reduction by routine maneuver not possible due to engaging Hill sach, obstructing fracture fragment from glenoid or humeral head. method used for reduction were L.Prakshan method and modified kocherâ€™s method.with serial screening with MRI, various lesions were found and patients were catagorise as per clinical and radilcological picture. and risk of reoccurrence of dislocation and joint function reassessed and quantified on the clinicoradiological basis. Lesions found were osseous namely Hill sachs fracture in 30 % cases, glenoid rim fracture, soft tissue lesions 66 % cases involving Bankart lesion, Pertheâ€™s lesion, Glenolabral articular disruption (GLAD), Humeral avulsion of glenohumeral ligament (HAGL), Anterior labral periosteal sleeve avulsion defect (ALPSA). Conclusion and results: cohort with clinical findings and the associated lesions were followed up for a period of one year and we found that risk of instability and joint malfunction increases significantly.*

**Keywords:** MRI, Shoulder dislocation, GLAD, HAGL, ALPSA

## 1. Introduction

The shoulder, by virtue of its anatomy and biomechanics, is one of the most unstable and frequently dislocated joints in the body, accounting for nearly 50% of all dislocations. Most commonly, these dislocations are anterior (90-98%) and occur because of trauma with occurrence rates as high as 8% in the group of physically active young adults. Factors that influence the probability of recurrent dislocations are age, return to contact or collision activity, and the presence of a significant bony defect in the glenoid or humeral head and soft tissue lesions of shoulder joint.

### Aims and Objectives

The aim of the study is

- 1)To do a quantitative and qualitative evaluation of the lesions of the glenohumeral joint in patients with traumatic shoulder dislocation with use of MRI as an imaging modality
- 2)To classify and determine prevalence of bone and soft tissue defects

## 2. Material and Methodology

A prospective study of clinical and radiological outcome of acute shoulder dislocation **done at a tertiary level government medical college and hospital.**

### Inclusion Criteria

- Adult patients with clinical and radiological evidence of acute shoulder dislocation. Only the patient who had only one single event of dislocation are included.
- Clinical and/or radiological evidence of deformity and decreased range of motion.
- The patients available for full follow up observation.

### Exclusion Criteria

- Patients younger than 10 years.
- Patient with any past episode of shoulder dislocation or any such event are not included in the study.
- Patients with post history of any shoulder surgery or intervention are not included in the study.
- Patient with any post history of compromised shoulder range of motion and function are not included in the study.

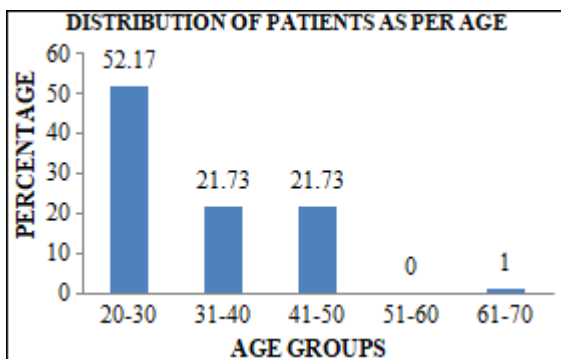
We carried out study with patients visiting us in OPD/emergency room with acute shoulder dislocation or with complain related to shoulder either shoulder pain, compromised range of motion following an event of shoulder dislocation.

These patients were followed Up as in prospective study for 6 months and over this period patients were assessed clinically and radiologically with help of MRI XRAYs and patients clinico-radiological data is collected and essential and relevant derivations were made to set up a correlation between the kind of lesion and its affection on shoulder function.

3. Observation and Discussion

Table 1: Distribution of Patients as Per Age

Age Group	No. of Patients	Percent (%)
20-30	12	52.17
31-40	5	21.73
41-50	5	21.73
51-60	0	0
61-70	1	1
TOTAL	23	100

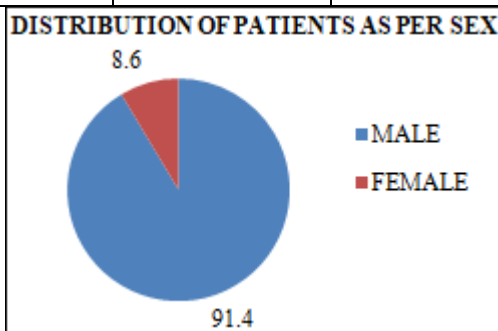


Age	In Our Study
Mean Age	35.3

- Average age incidence in my study is 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> decades
- Most patient are from young age group, a population which is active in laborious work and atheletic activity and contact sports.
- In other studies as well majority of patients are from 2<sup>nd</sup> – 4<sup>th</sup> decade.

Table 2: Distribution of Patients as Per Sex

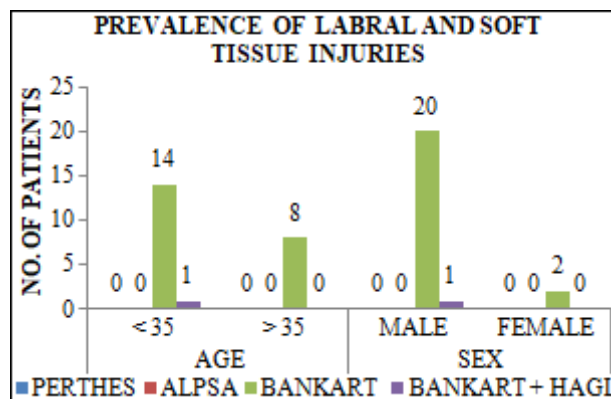
Sex	No. of Cases	Percent (%)
Male	21	91.4
Female	2	8.6
Total	23	100



- Shoulder dislocations are more common in males as compare to females because of more involvement of males in athletic work which put them under stress of such injury.

Table 3: Prevalence of Labral and Soft Tissue Injuries

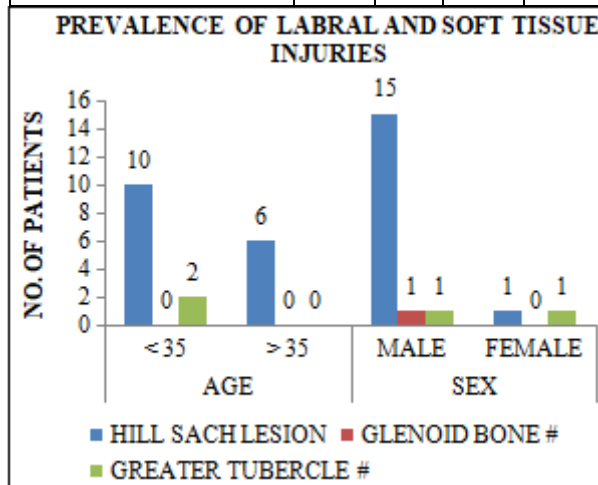
Lesion	Age		Sex	
	<35	>35	Male	Female
PERTHES	-	-	-	-
ALPSA	-	-	-	-
BANKART	14	8	20	2
BANKART + HAGL	1	-	1	0



- In all our patients studied bankart lesion was seen in antero inferior labrum following shoulder dislocation

Table 4: Prevalence of Labral And Soft Tissue Injuries

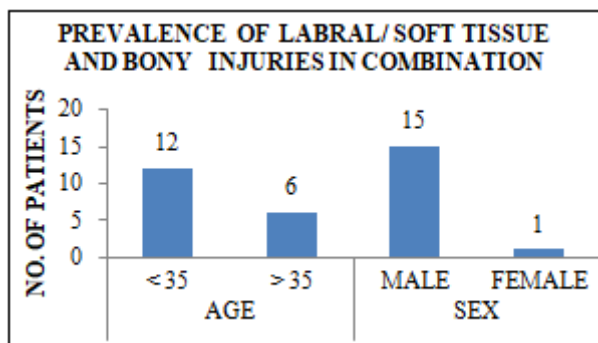
Lesion	Age		Sex	
	<35 (N=15)	>35 (N=8)	Male (N=21)	Female (N=2)
HILL SACH LESION	10	6	15	1
GLENOID BONE #	0	0	1	0
GREATER TUBERCLE #	2	0	1	1



- Prevalence of hill Sach's lesion + bony injury involving greater tubercle is high in <35 year group suggestive of high prevalence of bony humeral lesion in young patients who suffer traumatic dislocations

Table 5: Prevalence of Labral/ Soft Tissue and Bony Injuries in Combination

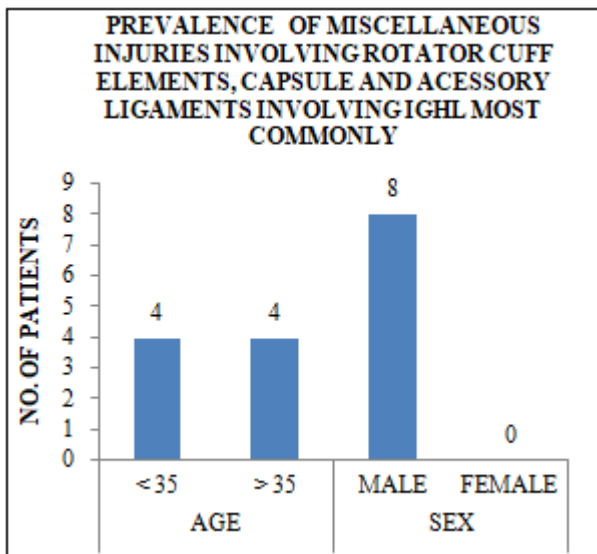
Lesion	Age		Sex	
	<35 (N=15)	>35 (N=8)	Male (N=21)	Female (N=2)
HILL SACH LESION + BANKART	12	6	15	1



Prevalance of combination lesion (bankart + hill sachs lesion + gt fracture) is more in group <35 year which suggest more violent trauma causing dislocation in young patients hence causing more injury

**Table 6:** Prevalence of Miscellaneous Injuries Involving Rotator Cuff Elements, Capsule and Accessory Ligaments Involving IGHL Most Commonly

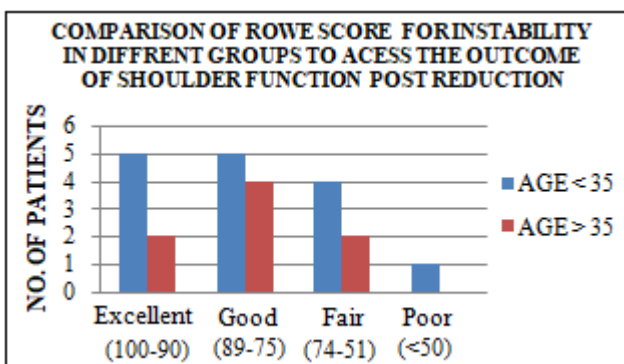
Lesion	Age		Sex	
	<35 (N=15)	>35 (N=8)	Male (N=21)	Female (N=2)
Miscellaneous injuries involving rotator cuff elements, capsule and accessory ligaments involving IGHL most commonly	4	4	8	0



- Miscellaneous injuries involving rotator cuff elements, capsule and accessory ligaments involving IGHL most commonly is very prevalent in almost all classified sets following event of dislocation. For this our inferences are equivocal

**Table 7:** Comparison of Rowe Score for Instability in Different Groups to Assess the Outcome of Shoulder Function Post Reduction

Mean Rowe score of 23 patients = 75		Functional outcome in form of clinical shoulder function following instability			
Patient (N=23)		Excellent (100-90)	Good (89-75)	Fair (74-51)	Poor (<50)
Age	<35 (N=15)	5	5	4	1
Group	>35 (N= 8)	2	4	2	0

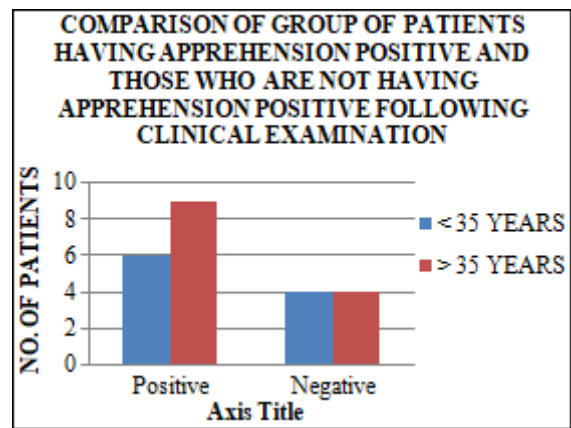


- With this we can derive that in age group <35 years more number of patients managed conservatively for shoulder instability by-“ reduction of dislocated shoulder and immobiliation in adduction and internal rotation with shoulder immobiliser” have good to excellent outcome of shoulder function .

With the other group of patients >35 years age most of them are having good outcome with the management protocol used to treat the condition.

**Table 8:** Comparison of Group of Patients having Apprehension Positive and Those who are not Having Apprehension Positive Following Clinical Examination

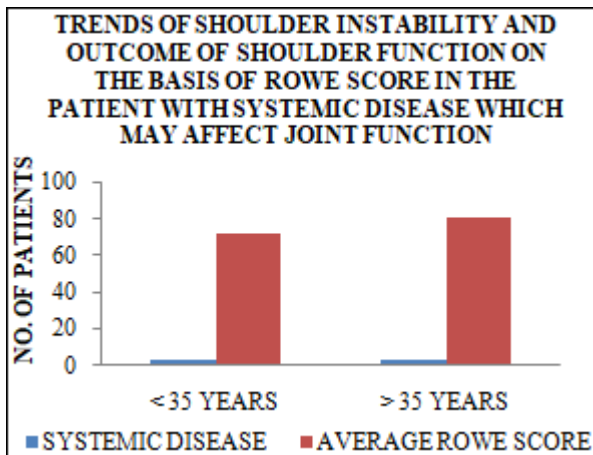
Patient	Apprehension Test	
	Positive	Negative
<35 YEARS	6	9
>35 YEARS	4	4



- Its evident from the data that the more number of patients from the group with age <35 years appears apprehension negative following clinical examination on 6 month follow up .
- The same remains un answerable in case of >35 years age group .

Number of Patients N=23	Systemic Disease (Diabetes Mellitus, Epilepsy)	Average Rowe Score
< 35 Years (N=15)	3	73
>35 Years (N=8)	3	81

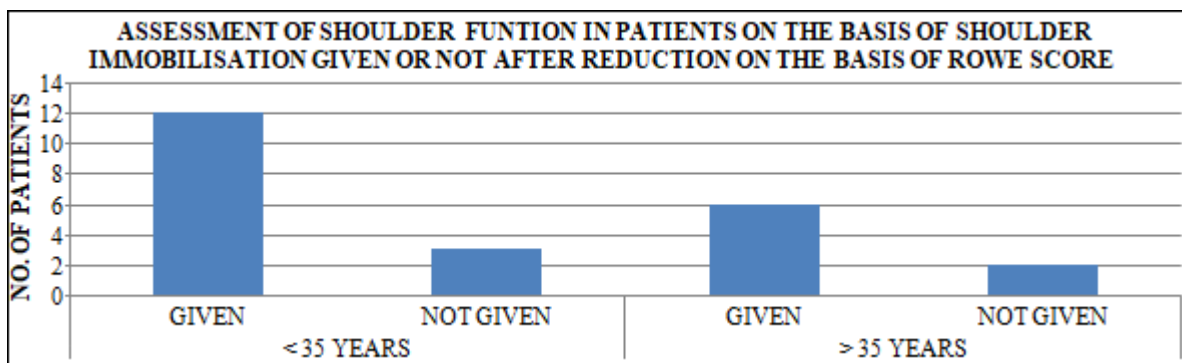
**Table 9:** Trends of Shoulder Instability and Outcome of Shoulder Function on the Basis of Rowe Score in the Patient with Systemic Disease which May Affect Joint Function



- In both the groups we had same number of patients in our study and results moreover suggest that patients shoulder function outcome ranges from fair to good
- Patients with epilepsy who were included in the study were those who had their first dislocation in their on going systemic disease course

**Table 10:** Assessment of Shoulder Function in Patients on the Basis of Shoulder Immobilisation Given or Not After Reduction on the Basis of Rowe Score

Patients, N=23	Immobilisation		Mean Rowe Score	Apprehension
	Given	Not Given		
<35 YEARS (N=15)	12	3	76	5
	6	2	77	1
>35 YEARS (N=8)	6	2	77	3
	2	1	77	1



- Recovered data from our study stress upon the significance of immobilisation following the reduction of an acute dislocation
- Finding suggest that in both the groups <35 year and > 35 years age patient's, patients who were given immobilisation have a better rowe score hence a better functionally competent shoulder
- First time dislocators who approached us following their index dislocation and after taking treatment from local quack, where they were not given any kind of immobilisation ended up with a shoulder with low rowe score . With some degree of functional issues with their shoulder.
- Discrepancy in both the groups, if we look at the data about the apprehension test is probably attributed to the kind of lesion patients had developed following their first dislocation and the kind of activity in which they were indulged routinely .

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