# SUMMARY AND CONCLUSION

The shoulder is the second most common joint in the body recommended by physicians for MRI after the knee joint.

It is a ball and socket joint enjoying a wide range of motion in an unlimited multi-axial direction, yet unfortunately reducing its stability.

Shoulder stability is offered by its complex anatomical structures including osseous, muscles and tendons components acting as dynamic stabilizers as well as the labroligamentous complex mechanism providing static stability and preventing the joint from exceeding the optimized range of motion.

Glenohumeral instability is an important clinical entity and common pathological disorder where traumatic anterior instability represents 1.7% of the general population **(Cole and Warner, 1999)**.

Therefore, proper evaluation and accurate diagnosis of the instability pathological lesions is crucial, as upon which adequate management of the patient will be determined.

Both radiologists and orthopaedics agree that there is a role for different imaging techniques in the assessment of various shoulder disorders.

The aim of our work was to identify and demonstrate the role of MRI in glenohumeral instabilities cases.

Other various imaging tools were also used as an adjuvant method to more clearly elucidate the role of MRI. They were not used as a comparative imaging techniques.

This study included 60 patients that were chosen according to their clinical history or by their referral physicians that they suffered from glenohumeral instability.

All 60 patients undergone conventional MR study, 28 patients had direct MR arthrography, one patient had indirect MR arthrography, three patients had plain CT scan, four patients had CT arthrotomography and six of four patients undergone arthroscopic study.

Traumatic shoulder instability which is the dominant cause of dislocation representing 85% of all cases, often resulted in labroligamentous complex lesions yet other ancillary findings affecting the rotator cuff muscles or adjacent osseous structures were depicted.

Degenerative shoulder instability represented 15% of all cases and they were sequelae of degenerative labral tears, additional degeneration of glenohumeral and acromioclavicular articulations as well as partial tears of the rotator cuff were also observed.

Conventional MRI has proved to be highly successful and reliable non invasive method for the evaluation of shoulder instability disorder, there is consensus with regard to its high accuracy in the evaluation of rotator cuff tears and labral lesions. The difficulty pertains to imaging of capsulolabral tears when there is no joint effusion and is compounded by the anatomic complexity and normal variants of the capsular elements

Certain indication has evolved for contrast enhanced MR imaging providing adequate capsular distension, separating and thus clarifying various labroligamentous complex structures.

Direct MR arthrography has proved to be undoubtedly the modality of choice and often indispensable in the diagnosis of shoulder instability. Indirect MR arthrography is much less valuable than direct MR arthrography especially in the absence of joint effusion.

Beside the value of MR arthrography in detection of labroligamentous lesions, it has also proved to add to the sensitivity in diagnosing for small full thickness and partial tears of the synovial surface of the rotator cuff tendons.

The addition of fat saturation pulse sequence was valuable in increasing the MR arthrography sensitivity and specificity for partial rotator cuff tendon tears.

From the results of this work both radiologists and orthopaedics may agree that the considered disadvantages of MR

arthrography are rather minor, compared to the major benefits provided by this technique, and that direct MR arthrography is almostly mandatory and should be implemented in young individuals with chronic instability especially when the non contrast MR failed to clarify any pathologic lesions.

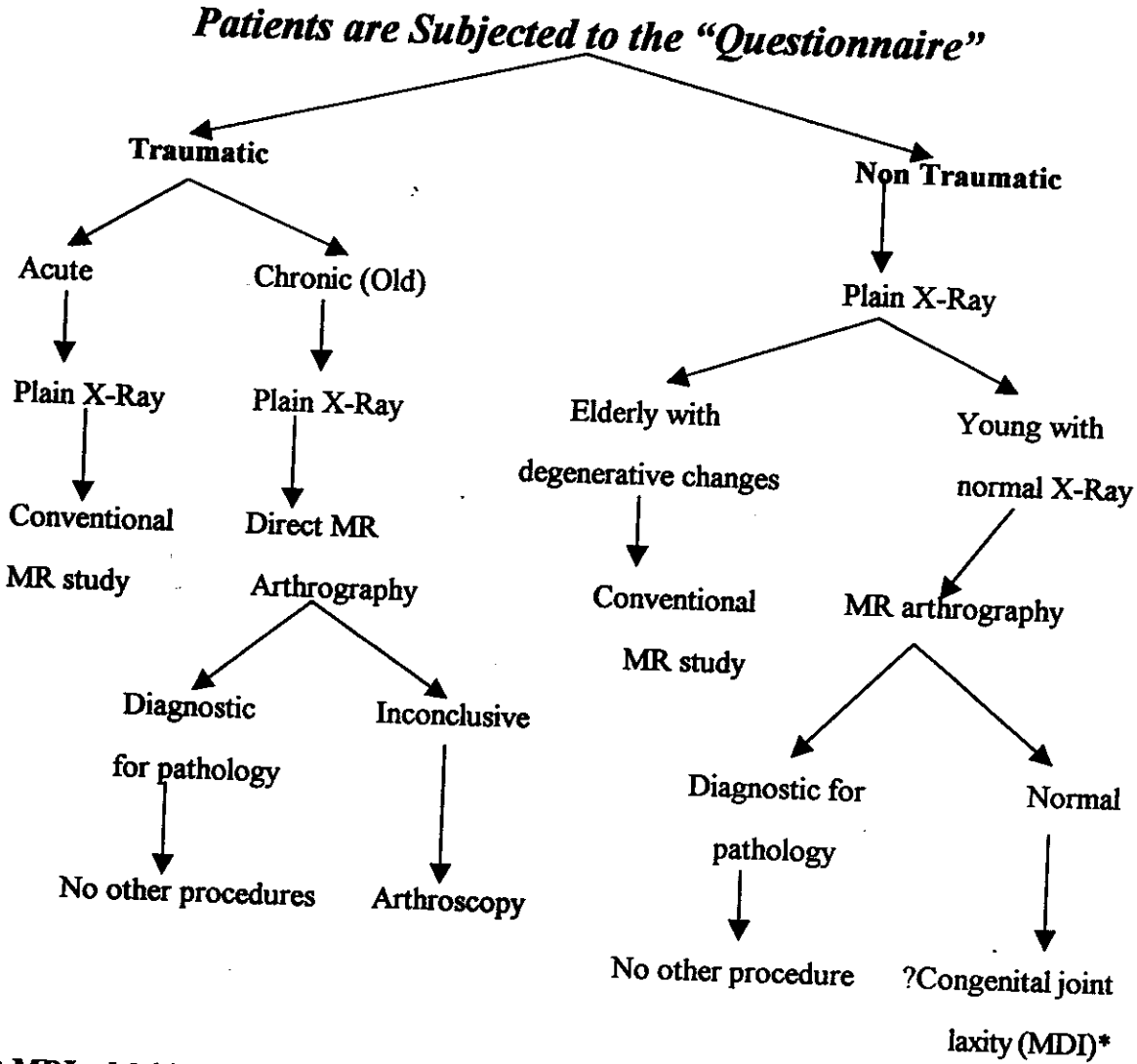
*Suggested indications for conventional MR imaging*:-

- Insidious onset of shoulder pain, especially in patients aged more than 40 years.
- Acute trauma, with shoulder dislocation.
- Acromioclavicular or glenohumeral joint evaluation.

*Suggested indications for MR arthrography*:-

- Chronic recurring instability.
- Further imaging evaluation of suspected instability after conventional MR imaging.
- Labral lesions and variants.
- Post-operative patients (better indirect MR arthrography).

## Suggested Algorithm For Radiological Assessment In Patients With Glenohumeral Instability




* **MDI** = Multidirectional Instability.