ARTHROSCOPIC ASSESSMENT OF INCIDENCE OF BICEPS PULLEY LESIONS ASSOCIATED WITH ROTATOR CUFF TEARS

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INTRODUCTION

Injuries to the biceps reflection pulley (BRP) are mostly reported in patients complaining of anterior shoulder pain and commonly correlated to other shoulder diseases such as rotator cuff injuries, SLAP lesions, biceps instability, and biceps tendon tears. Injuries of the biceps pulley system of the long head biceps tendon (LHBT) are distinct and frequent cause of anterior shoulder pain. Many authors have discussed correlations with rotator cuff injuries, acute trauma, frequent micro trauma, SLAP lesions, and soft tissue degeneration. Additionally, number of studies have documented and hypothesized that a dynamic process of degeneration started with a trauma to the pulley system of the LHB and progressed to partial tears in the surrounding rotator cuff and ultimately to a complete tear.

When there is a rotator cuff injury, the biceps pulley may be strained by the unstable biceps tendon, which may then compromise the subscapularis tendon's stability. It is necessary to differentiate between normal variants and lesions of the biceps pulley that impact anterosuperior injuries in case of rotator cuff tear.

AIM OF THE WORK

The aim of the current study was prospective evaluation of the incidence of biceps pulley lesions associated with rotator cuff tears in patients subjected to arthroscopic repair with correlation to MRI findings.

PATIENTS AND METHODS

Patients: This prospective study included 60 patients aged from 40 to 65 years admitted in Al-Hadra University Hospital then underwent arthroscopic repair of rotator cuff tears. We excluded those associated with ostoarthritis or other shoulder pathologies and, patients managed with open repair of rotator cuff tears.

Methods:

1- Clinical examination: History (Personal history, Complaints, Past History) Examination (General, local and physical examination of shoulder)

2- Radiological examination:

Plain X-ray: antero-posterior view and lateral views were taken for the affected shoulders.

MRI: for assessment of the pathology of rotator cuff tears and biceps pulley lesions in patients who had injured pulley during the arthroscopic evaluation.

3- Arthroscopic procedure:

Surgery was performed with the patient in a beach-chair position. Diagnostic views of the joint were performed through the standard posterior and anterior portals. Visualization of the LHB was performed at the level of the bicipital groove by flexing the elbow, elevating the shoulder and using a probe to pull out the LHB. Internal rotation allowed evaluation of the medial pulley system and the adjacent subscapularis tendon. After intra-articular viewing, the scope was switched into the subacromial space and a bursoscopy was performed to evaluate the presence of subacromial pathologies and to assess the presence and size of rotator cuff tears. In the current study we depended on Habermeyer classification for assessment of biceps pulley lesions.

RESULTS

1) Incidence of biceps pulley lesion: The overall incidence of biceps pulley lesions in cases underwent to arthroscopic repair of rotator cuff tears was 85%. **(Table 1, Figure)**

2) Age of the patients: The age of the patients ranged from 41 to 52 years old with mean of 45.67 ± 4.15 in the cases with intact pulley while injured pulley was found in the patient aged from 40 to 65 years old with the mean of 51.90 ± 6.89. **(Table 2).** Age was found to have a statistical significance with incidence of pulley lesion i.e. the older the patient, the higher incidence of an injured pulley.

Table 1: Incidence of biceps pulley lesions in studied cases (n= 60)

Morphology of pulley	No.	%
INTACT	9	15.0
Injured	51	85.0

Table 2: Relation between morphology of pulley and age (n = 60)

Age (years)	Total (n = 60)	Morphology of pulley		T	P
		Intact (n = 9)	Injured (n = 51)		
Min. – Max.	40.0 – 65.0	41.0 – 52.0	40.0 – 65.0	3.695*	0.002*
Mean ± SD.	50.97 ± 6.90	45.67 ± 4.15	51.90 ± 6.89		
Median	50.0(45.5 – 56.0)	45.0	50.0		

t: **Student -t test**
p: p value for comparing between the two studied categories
*: Statistically significant at p ≤ 0.05

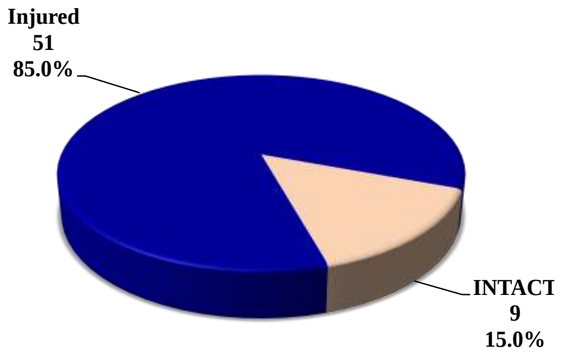

Figure: Incidence of biceps pulley lesions in studied cases (n= 60)

CONCLUSION

1. The overall incidence of biceps pulley lesions in cases that underwent arthroscopic cuff repair is 85%.
2. The older the patient with cuff tear, the more incidence of finding a pulley lesion arthros copically and the liability for surgical management increases.
3. No role for MRI in diagnosis of the biceps pulley lesions.
4. Diagnostic arthroscopy is a gold standard method for diagnosis of biceps pulley lesions.