Introduction Of Grading System For Acromioclavicular Joint Arthrosis Post Clavicle Fracture

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INTRODUCTION:
Clavicle fractures have traditionally been treated conservatively. Recent literature shows that these patients have poorer patient-oriented outcome scores. Data is still lacking on the incidence of post traumatic acromioclavicular joint (ACJ) arthrosis following clavicle fracture, and we postulate that it could be one of the reasons for poor functional outcomes.

METHODS:
This is a retrospective study on 61 adults' age < 50 (mean 30.4±9.8) with clavicle fractures for average of 20.9 (±11) months. Patient orientated outcomes used were Disabilities of the Arm, Shoulder and Hand (DASH) and Constant shoulder (CS) scores. Diagnosis of ACJ arthrosis was based on clinical assessment and radiography. The site of the fracture and amount of clavicle shortening was noted.

RESULTS:
The mean DASH Score was 30.8 (±18) points (normal: 10.1 points). CS score was higher in unaffected shoulder (90.18 ± 10 points) compared to affected shoulder (62.31 ± 15.7 points). Only 27% were asymptomatic. There was no statistical correlation between ACJ arthrosis and gender, occupation, smoking, dominant limb, location of fractures and shortening. We are proposing a classification of ACJ arthrosis based on history, clinical examination and the Zanca X-ray view.

Table 1 Showing Proposed Classification

Grade 1	Pain over ACJ with overhead activities
Grade 2	Pain and clinical tenderness over ACJ
Grade 3	Grade 2 with two or more positive special tests
Grade 4	Grade 3 with positive radiographic changes

*Special test: Cross arm adduction stress test, Acromioclavicular resisted extension test, O'Brien test and Paxinos test

*Radiographic changes: Joint-space narrowing, presence of subchondral cysts, bone sclerosis or osteophytes

Table 2: Correlations of Grading and Functional Shoulder Score

ACJ Grading	N (%)	Average DASH score	CS score Difference between shoulders	p-value
Normal	16 (27)	15.8±15.7	17.2±8.57	<0.05
Grade 1	10 (17)	28.5±9.1	30.3±8.8	<0.05
Grade 2	5 (8)	22±20.4	21±13.5	<0.05
Grade 3	9(15)	40.6±14.4	36.6±13.8	<0.05
Grade 4	18 (31)	42±14.5	37.6±14.2	<0.05

DISCUSSIONS:
Up to 44.3 percent (Grade 3 and 4) of patients treated conservatively had ACJ arthrosis which correlates to poorer functional outcome. This is reflected in the new grading system.

CONCLUSION:
The new grading system for ACJ arthrosis is valid and can be used to reflect the severity of ACJ arthrosis.

REFERENCES:
1. Robinson CM et al., Primary non-operative treat- ment of displaced lateral fractures of the clavicle. J Bone. Joint Surg 2004 ; 86-A : 778-782.