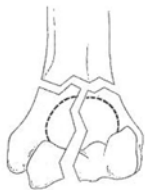


Fig. E-1

The AO/ASIF Comprehensive Classification of Distal Humeral Fractures¹³. (Reproduced, with modification, from Müller ME, Narian S, Koch P, Schaftzker J. The comprehensive classification of fractures of long bones. New York: Springer, 1990. Reprinted with permission.)

I. INTRA-ARTICULAR FRACTURES

B. Bicolumn



1a. High T pattern



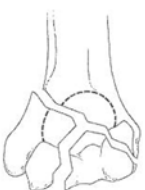
1b. Low T pattern



2. Y pattern



3. H pattern

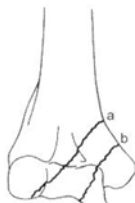


4a. Lambda pattern
(medial)



4b. Lambda pattern
(lateral)

A. Single column

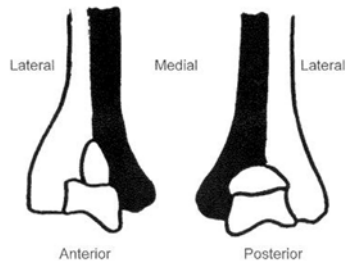


1. Medial
a) high b) low



2. Lateral
a) high b) low

Jupiter and Mehne's classification



Anterior

Posterior

C. Capitellum



Type I

Type II

Type III

D. Trochlear



II. EXTRA-ARTICULAR INTRACAPSULAR FRACTURES

A. Transcolumn

1. High



1a. Extension



1b. Flexion



1c. Abduction



1d. Adduction

2. Low



a. Extension



b. Flexion

III. EXTRA-CAPSULAR FRACTURES



A. Medial epicondyle



B. Lateral epicondyle

Fig. E-2

The Mehne and Matta Classification of Distal Humeral Fractures¹⁴. (Reprinted, with permission, from Jupiter JB, Mehne DK. Fracture of the distal humerus. In: Browner BD, Jupiter JB, Levine AM, Trafton PG, eds. Skeletal Trauma. Vol 2. Philadelphia: W.B. Saunders; 1992. p 1146-76.)

TABLE E-1 Intraobserver and Interobserver Reliability for Fracture Characteristics								
Intraobserver Reliability (Kappa)	Average All Observers				Average All Observers			
	2D				3D			
Fracture Characteristics	Min	Max	Average	Category	Min	Max	Average	Category
1) Coronal Fracture Line	0.130	0.862	0.570	Moderate	0.593	1.000	0.852	Almost Perfect
2) Articular Comminution	0.634	0.802	0.723	Substantial	0.724	0.933	0.838	Almost Perfect
3) Metaphyseal Comminution	0.187	1.000	0.586	Moderate	0.661	0.911	0.823	Almost Perfect
4) Separate Entirely Articular Fragment	0.400	0.857	0.636	Substantial	0.539	0.933	0.744	Substantial
5) Impaction Articular Surface	−0.610	0.933	0.257	Fair	0.380	0.902	0.708	Substantial
MIN	−0.610	0.802	0.257		0.380	0.902	0.708	
MAX	0.634	1.000	0.723		0.724	1.000	0.852	
Average	0.148	0.891	0.554		0.579	0.936	0.793	

Interobserver Reliability (Multirater Kappa)	All Observers			All Observers			Significance ΔKappa‡ 2D versus 3D
Fx Characteristics	2D	P	Category	3D	P	Category	
1) Coronal Fracture Line	0.363	0.000	Fair	0.544	0.000	Moderate	ns
2) Articular Comminution	0.599	0.000	Moderate	0.491	0.000	Moderate	ns
3) Metaphyseal Comminution	0.450	0.000	Moderate	0.572	0.000	Moderate	ns
4) Separate Entirely Articular Fragment	0.465	0.000	Moderate	0.454	0.000	Moderate	ns
5) Impaction Articular Surface	0.136	0.200	ns	0.125	0.210	ns	NA
MIN	0.136			0.125			
MAX	0.599			0.572			
Average	0.403		Fair	0.437		Moderate	

‡ΔKappa 2D versus 3D was considered significant when there was no overlap between Confidence Intervals of Kappa 2D and Kappa 3D. NS = Not significant, and NA = not available.

Table E-2 Sensitivity and Specificity of 2D versus 3D								
Fracture Characteristics	2D			3D			Significance 2D vs. 3D†	
	Sensitivity	Specificity	Accuracy	Sensitivity	Specificity	Accuracy	Sensitivity	Specificity
1) Coronal Fracture Line	58.7%	82.5%	67.0%	63.0%	77.5%	68.1%	0.664	0.727
2) Articular Comminution	72.9%	80.0%	75.6%	67.6%	80.0%	72.6%	0.581	1.000
3) Metaphyseal Comminution	68.0%	71.1%	70.5%	58.3%	84.3%	78.8%	0.737	0.013
4) Separate Entirely Articular Fragment	67.8%	84.0%	71.3%	72.7%	84.0%	75.2%	0.454	1.000
5) Impaction Articular Surface	38.2%	85.0%	62.6%	47.2%	86.7%	68.1%	0.332	1.000
MIN	38.2%	71.1%	62.6%	47.2%	77.5%	68.1%		
MAX	72.9%	85.0%	75.6%	72.7%	86.7%	78.8%		
Average	61.1%	80.5%	69.4%	61.8%	82.5%	72.6%		

†McNemar test of significance of disagreement.

Table E-3 Intraobserver and Interobserver Reliability for Proposed Treatment					
Intraobserver Reliability Proposed Treatment					
Observer	2D Round 1		3D Round 1		Significance ΔKappa‡ 2D versus 3D
	Multirater kappa	Category	Multirater kappa	Category	
Observer I	0.578	Moderate	0.769	Substantial	ns
Observer II	0.779	Substantial	0.564	Moderate	ns
Observer III	0.486	Moderate	0.617	Substantial	ns
Observer IV	0.393	Fair	0.845	Almost Perfect	ns
Observer V	0.858	Almost Perfect	0.951	Almost Perfect	ns

Average Intraobserver Reliability on Treatment				
Average	2D	Category	3D	Category
	0.619	Substantial	0.749	Substantial

Interobserver Reliability (All observers)					
2D Round 1		3D Round 1		Significance ΔKappa‡	
Multirater kappa	Category	Multirater kappa	Category	2D versus 3D	
0.235	Fair	0.277	Fair	ns	

‡ ΔKappa 2D versus 3D was considered significant when there was no overlap between Confidence Intervals of Kappa 2D and Kappa 3D. NS = not significant.