



Complex Elbow Trauma – Ten Year Retrospective Analysis

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ABSTRACT:

INTRODUCTION: Complex injuries of the elbow consists of a constellation of skeletal trauma which includes floating elbow injuries, side-swipe injuries and elbow fracture dislocations. The term floating elbow includes ipsilateral fractures of the humerus and radius and ulna. Side-swipe injuries are high energy open injuries of the elbow joint.

OBJECTIVES: To analyse the morphology of the different types of Complex Elbow injuries (which includes Floating Elbows, Side swipe Injury and Elbow Fracture Dislocations) and to project a Treatment Algorithm.

METHODS: Patients who sustained complex open or closed injuries to the elbow following a road traffic accident between the years 2004 to 2014 were called back for review. They were assessed clinically and radiologically. The final functional outcome was assessed by reviewing the patients in OPD.

DISCUSSION: Based on the analyses of the past 10 years' patients and the treatment method followed for them. The successful outcomes were analysed in detail and the treatment method followed for such cases have been taken note and a preferred Treatment Algorithm has been projected.

KEYWORDS: Floating Elbows, Side swipe Injury and Elbow Fracture Dislocations.

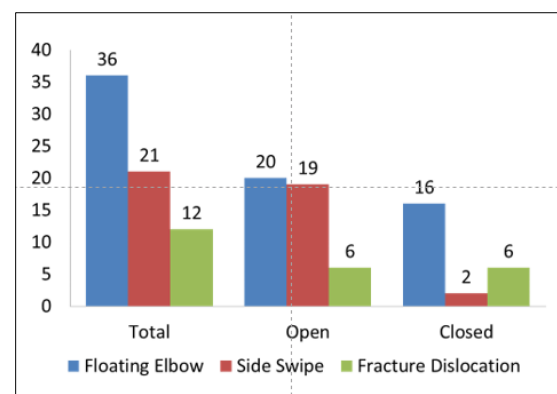
I. INTRODUCTION

Complex elbow injuries include Floating Elbows, Side swipe Injury and Elbow Fracture Dislocations. They are a result of high energy trauma, mostly related to road traffic accidents and occasionally due to fall from height. A huge number of these patients suffer multiple injuries. These are challenging injuries as far as treatment is concerned especially the prioritisation and staging of the definitive treatment. These are the group of injuries where guaranteeing a good functional outcome is a

challenge. In view of the need for more clarity in the treatment protocol to achieve best functional outcome, we decided to analyse our own past patients and analyse the treatment given and the results achieved.

II. MATERIALS & METHODS

Patients who sustained complex open or closed injuries to upper limb around the elbow region following a high energy trauma like road traffic accidents or fall from height, between the years 2004 to 2014, treated in a single unit of the Department were included in the study. There were a total of 69 patients of whom 36 were Floating Elbows, 21 were Side Swipe Injuries and 12 were Elbow Fracture Dislocations. Among the 36 Floating Elbows 20 were open injuries and 16 were closed injuries. Among the 21 Side swipe injuries 19 were open and 2 were closed. Among the 12 Elbow Fracture Dislocation case 6 were open and 6 closed injuries.



Distribution of Open and Closed Fractures within the type of Complex Elbow injuries

There were 17 patients with Neurological deficits and 5 patients with vascular injuries pre-operatively of which the Ulnar Nerve injury was the commonest and Floating Elbow patients had the maximum isolated or combined neurovascular compromise.



Types	Ulnar Nerve	Radial Nerve	Median Nerve	Brachial Plexus	Brachial Artery
Floating Elbow	3	3	1	1	3
Side-Swipe	3	3	1		0
Fracture Dislocation	2	0	0		2

Distribution of Neurovascular injuries

Complications wise post-operatively 13 patients had wound infections and 1 patient had non-union of both bones forearm.

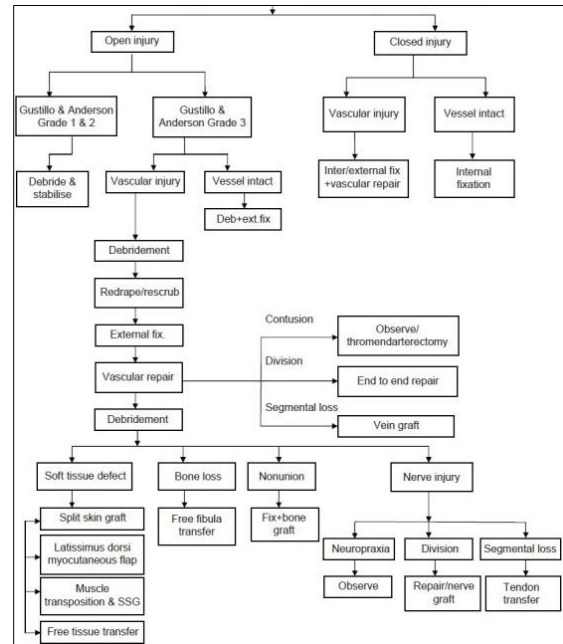
Types	INFECTION	NONUNION
Floating Elbow	4	1
Side-Swipe	4	0
Fracture Dislocation	5	0

Distribution of Complications

A total of 50 patients were followed up either in person or by telephonic conversation and a functional assessment were done. For the remaining 19 patients' data were analysed only by retrieving old medical records.

III. DISCUSSION

From the follow-up of 69 patients, their injury pattern and results were analysed in detail and the treatment method followed for such cases has been taken note and the following preferred treatment algorithm has been projected.



Preferred Treatment Algorithm



Patient 1: Floating Elbow : Preop X-Ray



Patient 1: Floating Elbow : Postop X-Ray



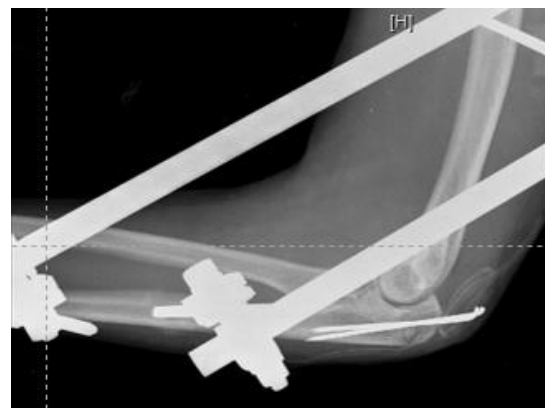
Patient 2: Side-Swipe Injury: Postop X-Ray



Patient 2: Side-Swipe Injury: Preop X-Ray



Patient 3: Fracture Dislocation: Preop X-Ray



Patient 3: Fracture Dislocation: Postop X-Ray



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