

Treatment of Patella fracture with tension band wiring modified technique as a gold standard option & experienced at Tertiary care hospital

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ABSTRACT:

OBJECTIVE: To evaluate functional outcome of Tension Band Wiring modified Technique for treatment of patella fracture. **STUDY DESIGN:** Case series and observational. **SETTING:** This research was done at orthopedic department at PMCH NAWABSHAH SBA, from January 2017 to July 2019. **METHODOLOGY:** This Case Series study consisted of 15 patients treated with Modified tension band wiring technique The outcome of this procedure was assessed by Guar criteria for knee function. **RESULT:** Total 15 patients were evaluated in this study. The mean age was 41+5.23 is mean age, male were 73.3%. Commonly right side is more affected in this study (66.6%) in road traffic accident by direct forces. By using guar criteria 60% was excellent, 20% are good, 13.3% shows fair result and remaining was poor 6.6%. Union time was 6 to 9 weeks in 86.6% cases. Functional outcome was excellent in 60% patient good was seen in 20 % patients, fair in 13.33% patients & poor was in 6.6%. **CONCLUSION:-**Tension Band Wiring modified Techniques a Gold Standard for the patella fracture Treatment

Key words: Patella Fractures, Functional Outcome, Tension Band Wire, Modified Technique

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INTRODUCTION

Patella is one of large sesamoid bone of human skeletal system, which play a important role in knee motion either flexion or extension. Its fracture contributes about 1 % of all human body fracture with high prevalence in younger age group especially in males rather than females, Direct or indirect injuries are the mechanism of Patella fracture. Patella fracture suspected when there is tender less, pain, effusion (Hamertosis) and gap and dip in extensor mechanism of knee joint. Along the history of trauma^{3,4,5} Treatment option for Patella fracture are conservative with splint are cost, which result knee immobilization, surgical by using wires screw in any pattern i.e. horizontal vertical or circulate and patellectomy or complete or partial^{6,7} Tension band wiring approaches are used for commonly transfer fracture but then can be applied for any type of Patella fracture even commutated. Because significant loss of extensor mechanism occurred when partial or complete patellectomy.^{8,9} earliest surgery having good results but limitation of joint moment especially flexion is common¹⁰. By using osteo synthesis of the fracture best results achieved when any one wants surgical interaction with tension band wiring modified technique¹¹. According literature preservation of Patella is seems as preferable approach

compare to the patellectomy. Tension band wiring approaches are used for commonly transfer fracture but then can be applied for any type of Patella fracture even comminuted.

METHODOLOGY: This is a case series study consisted of 15 patients conducted at department of orthopedic surgery PMCHS Nawabshah SBA from Jan 2017 to July 2019, Inclusion criteria was Transfer fracture either displaced of un-displaced according to saunder’s classification of Patella fracture. Age of subject is more than 20 years with any gender. Exclusion criteria were G 3open fracture. Any other associated injury, medically comorbidities patient age less than 20 years. Patients were treated by tension band wiring modified technique followed to ATL protocol, clinically examination and systemic review was also done and prepare patient for operation.

Results:

Total 15 patients were evaluated in this study. 14 + 5.23 years were mean age. Age ranging from 20 to 70 years.11 (73.33) were male patients and 4 (26.66) were females, 2.7:1.9. Right sided are 60 % and left sided were 40 % , mode of injury is road traffic accident resulting direct trauma on interiorly knee joint is 66.6 % while 33.3 % due to forceful flexion which results indirect trauma As in falls from height **table no 1**. (86.6%) cases achieved union at 6 to 9 weeks 7.3 +3.1 weeks was mean healing time **table no 02**. By Guar criteria of knee function excellent results were in 60 % patient 20 % was seems good , fair in 13.3 % patients and poor in 6.66% **figure 1**. Functional outcome was excellent in 60 % patients good was in 20 % , fair in 13.3 % poor in 6.6 % **figure 2**.

Table No II: Time to Achieve Union N = 15

Time Weeks	MTB (n=15)	
	No: of Patients	Percentage
6 to 9 Weeks	13	(86.6%)
10 to 12 Weeks	2	(13.3%)

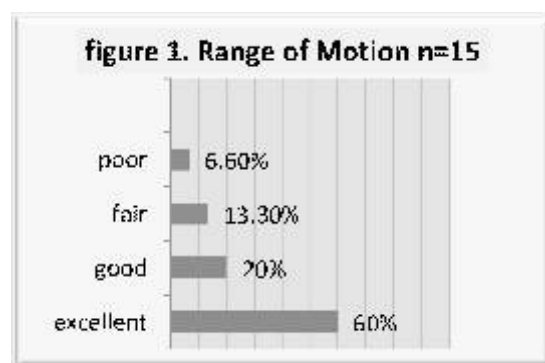
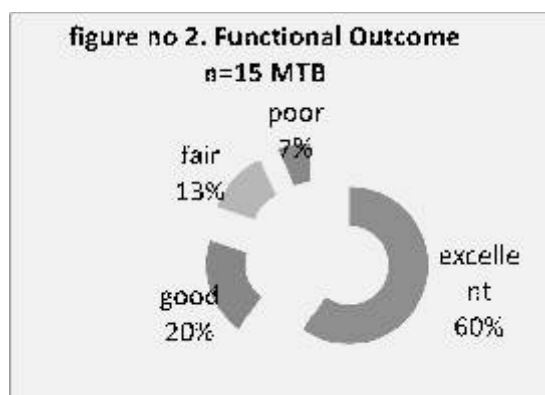


Table No. I: Demographic profile N = 15

Variables		No of Patients	%
Age	Mean (range) years	41+5.23 (20-70)	
	Gender	Male	11 (73.33%)
		Female	4 (26.66%)
Site	Right	9	(60%)
	Left	6	(40%)
Mode of injury	RTA	10	(66.6%)
	Fall	5	(33.3%)



DISCUSSION: Patella is one of large sesamoid bone of human body which play key role in knee joint moment approximately it contributes 1 % of human escalate fracture either due to direct or indirect trauma . It is lying beneath skin so easily injured by direct trauma which results comminuted fracture. Indirect injury due to violence contracture of the Quadriceps muscle in flexed knee ^{12,13} as in fall from height. Males are more than double than in females with ratio 2.7:1. Which directly concerned with our culture and society because male are out door workers and younger age group are more enthusiastic^{14,15}. Lin T ¹⁶ Shows male female ration in his study is 4.6 : 1 and other study of Kenan MA at all ¹⁷ Shows 30 males and 8 females with ratio of 2.3: 1. In our study 60 % patient has right sided fracture 9 patients and 6 patients (40) % had left sided. There was no trace of bilateral fracture. However some international study reported by Agarwal S ¹³ and Hoshino CM ¹⁴ reveals higher ratio of left sided fracture that may be due to the left dominated side which makes more vulnerable for trauma. Quadriceps physiotherapy is essential to re gain function of knee joint after surgical intervention. In this study range of motion assessed by using Guar Criteria of knee function 60 % patients were excellent , good was seen in 20 % patients fair in 13.3 % patients & poor was 6.6 % patients. However Durani MA ¹⁸ reported after quadriceps rehabilitation 66.6% was excellent and 7 patients had good result. Due to other elements but 10 % patients had poor results. In above study excellent results was found in 60 % patients 20 % patients have good results , fair in 13.3 % patients and poor was in 6.6 % patients. The Karim MRU ¹⁹ reported from his study 16.67% patient showed excellent, 55.56% patient good 22.2% fair & 5.56% were poor. Union time was 6 to 9 weeks in 13 patients (86.6)%, 7.3 +3.1 was mean healing time. Union time range 8 to 12 weeks which is comparable with national & international study ^{15,16,17}.

Conclusion It is concluded that Patella fracture is one of common fracture in younger age group with male pre dominance. Dominant right side is more affected than left non dominant. The treatment with tension band wiring modified technique is still better & gold standard option to treat Patella fracture.

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