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Original article:

Evaluation of results of open reduction and internal fixation in patellar fracture cases

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Abstract:

Introduction: The patella has been subjected to varying opinions regarding both its importance in knee function and the need to salvage it after fracture. The fractures of patella constitute almost 1% of all skeletal injuries resulting from either direct or indirect trauma.

Material and methods: This was a prospective study conducted at Swasthiyog Hospital Miraj, from May 2005 to May 2007 and total number of cases studied were 34. As soon as the patient was admitted a detailed history was taken with special reference to the mode of injury (direct or indirect) severity of trauma and duration since injury. A thorough clinical examination regarding general condition of the patient was done to rule out systemic diseases and other injuries.

Observations: In our study out of 34 cases of fractures of the patella treated by TBW, the mode of injuries were as above with the commonest being vehicular trauma constituting 70.58% of the case.

Conclusion: We found excellent to good results in 82.34 % of cases treated with TBW. Results were poor to fair in 17.64 % of cases. Normal function was seen in 82.35 % of cases treated with TBW. Function was restricted in 17.64 % of cases.

Keywords: Patellar fracture

Introduction

The patella has been subjected to varying opinions regarding both its importance in knee function and the need to salvage it after fracture. The fractures of patella constitute almost 1% of all skeletal injuries resulting from either direct or indirect trauma [1]. The plane of patella and its anterior subcutaneous location makes it vulnerable to direct trauma. Fractures caused by indirect mechanisms result from a violent contraction of the quadriceps. The goal of treatment is to regain the continuity of extension mechanism and in that way to restore the normal function of the knee. Several techniques have been described for internal fixation of fractures of patella.[2] The ideal fixation for fracture patella is that it should be strong enough to allow early mobilization, reduce post traumatic stiffness and perhaps help in the healing of articular surface. This study was conducted to determine the efficacy of tension band wiring in displaced patellar fractures.[3]

Material and methods:

This was a prospective study conducted at Swasthiyog Hospital Miraj, from May 2005 to May 2007 and total number of cases studied were 34. As soon as the patient was admitted a detailed history was taken with special reference to the mode of injury (direct or indirect) severity of trauma and duration since injury. A thorough clinical examination regarding general condition of the patient was done to rule out systemic diseases and other injuries.

Inclusion criteria:

1. All patients who had a displaced fracture of the patella with no active full extension i.e. inability to extend the knee straight
2. Displacement between the fracture fragments more than 2 mm.
3. Articular surface incongruity of more than 2mm.

Exclusion criteria:

1. Patients with fractures of patella who were treated by conservative methods, cerclage wiring, or with patellectomy.
2. Patients of extreme age groups and those with high operative risk.
3. Patients with severe comminuted fractures with large articular surface damage where restoration of normal articular anatomy was not possible.
4. Patients with fractures of patella with less than 2 mm of displacement.

With the fracture reduced and held firmly with bone holding forceps prior to the drilling of Kirschner wires, alignment of the articular surface was reassessed. Drill two 2 mm K-wires from inferior to superior pole of the patella through each fragment. Place these wires about 5 mm deep to the anterior surface of the patella along lines dividing the patella into medial, central and lateral one thirds. Insert the wires as parallel as possible. Leave the ends of the wires long protruding beyond the proximal pole of the patella.

Observations:

82.34 % of cases treated with TBW had no or minimum knee pain.

Table no. 1

Knee Pain	**Number**	**Percentage**
Severe	2	5.88
Mod	4	11.76
Min	6	17.64
No	22	64.70

There was no extension lag in 82.35 % of cases in TBW.

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Table no. 2

Extension Lag	Number	Percentage
> 10	0	0
< 10	6	17.64
No	28	82.35

Normal function was seen in 82.35 % of cases treated with TBW. Function was restricted in 17.64 % of cases.

Table no. 3

Function	Number	Percentage
Restricted	6	17.64
Normal	28	82.35

Discussion:

The presence of the patella increases the radius from the centre of rotation of the knee, there by increasing the mechanical advantage of patella – quadriceps mechanism and making the knee extension more efficient.

In our study out of 34 cases of fractures of the patella treated by TBW, the mode of injuries were as above with the commonest being vehicular trauma constituting 70.58% of the case. The various types of fractures of patella which were managed by tension band wiring were as follows ; the commonest being transverse fracture with lower fragment comminution, constituting 52.96 % of cases. We found excellent to good results in 82.34 % of cases treated with TBW. Results were poor to fair in 17.64 % of cases. Normal function was seen in 82.35 % of cases treated with TBW. Function was restricted in 17.64 % of cases. [4,5]

Conclusion:

We found excellent to good results in 82.34 % of cases treated with TBW. Results were poor to fair in 17.64 % of cases. Normal function was seen in 82.35 % of cases treated with TBW. Function was restricted in 17.64 % of cases.

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