

## **Patella Fracture Fixation with Jess- A Case Series**

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### **I. Introduction**

Patella fractures account for about 1% of all skeletal injuries and leads to functional impairment in the extensor mechanism of the knee<sup>1</sup>. Diagnosis is made on the basis of mechanism of injury, clinical examination and radiological findings. The goal is to restore extensor mechanism, articular congruity and early mobilization. Fracture with intact extensor mechanism can be treated conservatively, whereas the indication<sup>2</sup> for the surgery are -

- Extensor mechanism disruption
- More than 2-3mm of articular step off
- More than 3mm of displacement

Type of surgery depends on- fracture type, associated soft tissue damage and patient factors.

In patients with two part fractures, Tension Band Wiring (TBW) is the treatment of choice. However, in certain situations, TBW is not ideal. The conditions are as follows:-

- Gustillo Anderson's Type II/III compound Fractures
- Uncontrolled Diabetes Mellitus
- Hemophiliac Patients
- Poor local skin condition contraindicating open reduction and internal fixation
- Patients with medical contraindication for anesthesia like CKD.

In such cases alternate methods of fixation can be used. In our series, we have used Joshi's External Stabilization system (JESS) with a percutaneous fixation technique. 5 patients were treated with the above mentioned technique. 2 cases were of Haemophiliacs, 1 case was a patient suffering from Chronic Kidney disease with high Creatinine level, 1 case was Gustillo Anderson's Type IIIA compound Fracture, 1 case was of uncontrolled Diabetes Mellitus.

#### **Case 1**

A 37 year old male patient, known case of Hemophilia A comes with complaints of swelling and bruise over right knee for past 1 week, following trauma and inability to walk.

#### **Case 2**

A 55 year old male patient, a known case of Hemophilia A, came with the complaints of pain and swelling over the right knee following a fall 5days back with inability to walk.

#### **Case 3**

A 58 year old male patient, came with history of RTA and complaints of pain and swelling over left knee, following dash board injury the same day. Pre-op investigation showed severe hypertension and CKD.

#### **Case 4**

A 48 year old male patient, with Gustillo Anderson's Type IIIA compound patella fracture following RTA.

#### **Case 5**

A 62 year old female patient, a known case of uncontrolled Type 2 DM, came with the complaints of pain and swelling over left knee and inability to bear weight, following self fall 3 days back.

#### **Method for fixation:-**

Both AP and lateral view X-rays were taken and they showed simple Transverse patella fracture.

Two 1.8 mm K wires were placed in the upper fracture fragment horizontal to the Fracture and two 1.8 mm K wires were inserted in the lower fragment horizontally under fluoroscopic guidance.

All the 4 k wires are fixed with compressive rods, both medially and laterally, giving a compression and aligning the fracture fragment in line with quick reduction.

Procedure time was around 15- 20 minutes approximately. Post operatively Static Quadriceps and knee bending was started from the evening of surgery and weight bearing was started on POD 1.

**Post operative protocol:**

Follow up was done on the first week , third week and sixth week post operatively.

Post operative X-ray was taken at immediate post operative period,

X-ray was repeated at 1 week post operative period for any loss of compression and adjustment done accordingly.

X-ray was then repeated at 6 weeks post operatively and on evidence of union the JESS was removed for cases 1-4.

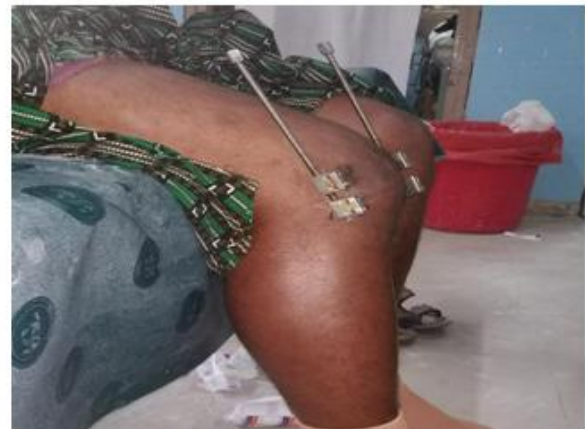
For case 5, JESS was kept for a period of 8 weeks as union was not satisfactory at 6 weeks.



PRE OPERATIVE



POST OPERATIVE



POST OPERATIVE

**II. Discussion**

From our case series, JESS fixation for patella fracture proved to be an efficient technique in patients not ideal for open fixation. It is especially useful in conditions which are not ideal for open reduction and internal fixation for various reasons as enumerated earlier.

Our findings are consistent with other studies as follows-

**Luna-Pizzaro D et al.**<sup>3</sup> studied percutaneous osteosynthesis VS open reduction in a group of 53 patients and found shortened surgical time, less pain, better range of movements, fewer complications with percutaneous osteosynthesis.

**Wardack et al**<sup>4</sup>- used compressive external fixation for 3 weeks and have shown to give good results too.

**References**

- [1]. Pg 429, 5<sup>th</sup> Edition ,Handbook of Fractures- Kenneth A. Egol, Kenneth J. Koval, Joseph D. Zuckerman.
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- [3]. Luna-Pizarro D, Amato D, Arellano F, Hernández A, López-Rojas P. Comparison of a technique using a new percutaneous osteosynthesis device with conventional open surgery for displaced patella fractures in a randomized controlled trial. J Orthop Trauma. 2006 Sep;20(8):529-35.
- [4]. Wardak MI, Siawash AR, Hayda R. Fixation of patella fractures with a minimally invasive tensioned wire method: compressive external fixation. J Trauma Acute Care Surg. 2012; 72(5):1393-1398.

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