

## Transosseous Repair of Patellar Sleeve Fractures: A Case Report and Surgical Technique Outcome

<sup>1</sup>Hanif C.M ; <sup>2</sup>M.Khalis ; <sup>3</sup>Anas S

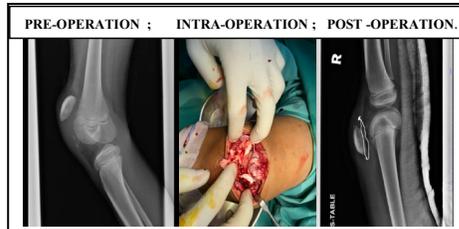
<sup>1</sup>Orthopedic Department Hospital Raja Perempuan Zainab II, Kota Bharu Kelantan.

### INTRODUCTION:

A particular type of patellar fracture occurs in skeletally immature children, called patellar sleeve fracture. Patellar fractures occur approximately at a rate of less than 1% of total paediatric fractures. The optimum treatment of this injury is not defined. We report an illustrative case and its successful surgical treatment using a technique of transosseous suturing. Our patient showed excellent results with no limitation of range of motion.

### REPORT:

11 year-old boy presented to us with severe right knee pain, after sustaining a fall from height on his flexed knee, landing directly on the knee in a kneeling position. Post trauma had marked knee swelling with severe tenderness at patella, with palpable gap at the inferior border of the patella. She was unable to fully extend her knee, with an extension lag around 35-40 degrees. Radiographs showed a patella alta with an Insall-Salvati index >1.4. Surgical treatment was planned on the next day. Intraoperatively showed inferior pole patella fracture with three large osteochondral fragments avulsed from the patella and attached to the ligament, in addition to notable hemarthrosis. We proceed with modified Krakow suture technique to patella tendon with bone tunnels through the patella then augmented with cerclage wire. Postoperatively, the knee was kept in an extension cast and was removed after three weeks. Physiotherapy was started which includes range of motion and quadriceps strengthening exercises. 5 weeks after trauma, the patient could walk normally and it was pain free. He was able to perform a full range of motion with excellent quadriceps function by eight weeks. Treatment of patellar sleeve fractures varies between conservative and non-conservative



treatment, depending on the degree of displacement. Conservative treatment can be achieved with a cylindrical plaster of Paris cast immobilization, when the fracture is minimally displaced, and when the initial displacement is about 1-2 mm. Otherwise, shifting to operative treatment is a must. Various techniques of open reduction are described with the aim to achieve anatomical reduction of the articular surface, including tension band wiring, trans-osseous sutures and intra-osseous anchor sutures. When the osteochondral fragment is small and rigid fixation cannot be attained, intra-osseous and transosseous anchor sutures can be considered.

### CONCLUSION:

There are a lot of treatment options for patella sleeve fractures, such as conservatively with cast, open reduction and the reduction held with either Tension Band Wire (TBW), modified tension band wire or a circumferential cable for comminuted fractures as well as transosseous suture (transcartilagenous) in a case of non-ossified patella. Osteosynthesis with lag screws has also been described. In our case, we opted for transosseous suture with cerclage wiring in view of comminuted fractures and it showed a good outcome.

### REFERENCES:

1. Ray JM, Hendrix J: Incidence, mechanism of injury, and treatment of fractures of the patella in children. *J Trauma*. 1992, 32:464-467. 10.1097/00005373-199204000-00010