

COMPOUND PATELLAR FRACTURE IN A 2 YEAR OLD CHILD: A RARE CASE REPORT

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ABSTRACT

We present a case of this unusual fracture in order to stress the importance of being aware of the existence of compound fractures of the patella in the less than 3 year age group. Fractures of the patella are rare in children, as the patella is largely cartilaginous and has great mobility. Normally in this age, closed patellar fractures may not be diagnosed radiologically as the ossification starts only after 3 years of age. Our case is a compound transverse patellar fracture in a two year old girl which is not found reported in the literature.

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INTRODUCTION

In our clinical practice, we rarely come across patella fractures in children. Being the largest sesamoid bone in the body¹, patellar fractures occur approximately at a rate of less than 1% of total paediatric fractures². Patellar fractures are common in adults, but in children are rare^{3,4}.

The flexible stabilizing soft tissue structures around patella decrease the mechanical stress peaks in case of traumas. Furthermore, the thick cartilage layer acts as a buffer in case of direct impact⁴. Compound transverse fracture of patella as in our case, especially in this age group, is very rarely seen.

CASE REPORT

A two year old girl was brought to the hospital by the parents with a history of accidental injury with a sickle falling directly on her knee from about 7 to 8 feet height, one hour before presenting to us in the casualty.

On examination, there was an incised wound on the anterior aspect of the knee measuring about 8 cm.

Patella was split transversely into almost two equal halves (figure 1(a) and (b)). So diagnosis of fracture was made in the casualty itself.

Radiograph taken did not reveal any sign of ossification. Patella was not seen in the xray. Surgery was performed immediately after admission. Patella was fixed by transcartilaginous sutures with 1.0 vicryl (figure 2). Post-operatively, the knee was kept in an extension cast for three weeks. After removal of the cast, physiotherapy was started. Five weeks after trauma, the patient could walk normally and it was pain free. She was able to perform a full range of motion with excellent quadriceps function by eight weeks (figure 3(a), (b) and (c)).

Fractures of the patella are rare injuries in children because of anatomic and biomechanical reasons^{3,4}. Ligaments, tendons, capsule, cartilage and other soft tissues are more flexible in children so joint laxity increases. Furthermore, the thick cartilage layer acts as a buffer in case of direct impact and this also protects the patella^{4,5}.

Most patellar fractures in children are sleeve fractures and occur because





(a)



(b)

FIGURE 1. (a) Incised wound on the anterior aspect of the knee measuring about 8 cm. (b) Patella was split transversely into almost two equal halves.



FIGURE 2. Patella after fixation with vicryl.

of indirect traumas. Grogan *et al.*⁶ sub classified avulsion fractures as superior (most rarely seen), inferior, medial and lateral^{2,6,7}. Sleeve fractures¹⁰ are 57% of all patellar fractures in children and mostly located at the distal pole⁸. It is usually between 8–12 years of age.

Transverse fractures of the patella are rarer than avulsion fractures. It is a result of compression of patella against the distal femur because of direct blows⁴. 3 mm separation between the bone fragments is defined as a displaced fracture¹. In our case the fragments were grossly displaced.

There is no such case reported to the best of our literature search. The main reason for reporting this



(a)



(b)



(c)

FIGURE 3. (a) ROM after 6 weeks. (b) ROM after 6 weeks. (c) ROM after 6 weeks.

is to alert the discerning surgeon towards the rare possibility of patella fractures in this age group as it is not commonly seen and therefore may be overlooked.

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