

Atypical Complex Tibia Tuberosity Fracture With Posterior Epiphyseal Plate Involvement

¹Kamasan MH, ¹Suhaizal BJ, ¹Yap K, ¹Shuhup SK, ¹Tan BS, ¹W Arnee, ¹Hudzairy A
¹Orthopedic Department, Hospital Sultanah Noras Ismail, Batu Pahat

INTRODUCTION:

Tibial tuberosity fracture in adolescent is uncommon, what makes this case fascinating, the fracture pattern was atypical and have not been described in any available classification.

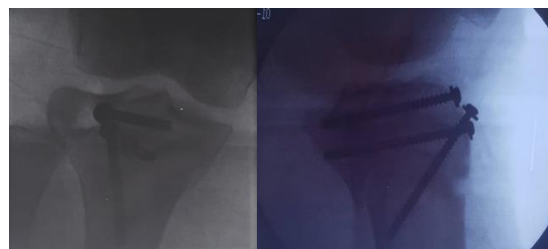
Materials

We present an unusual case of Ogden type IIIA avulsion fracture complicated with posterior proximal tibia epiphyseal plate fracture (Salter-Harris IV). Our patient was a 13 years old girl, alleged fall with a flexed right knee in sitting position, post trauma patient unable to ambulate, complained of pain, and deformity over the right knee. On examination patient had pain, tenderness, swelling over the right knee, and was unable to actively extend the right knee. AP and lateral radiographical examination revealed tibial tuberosity fracture with posterior proximal tibia epiphyseal plate involvement. CT – reconstruction of the right knee was performed and revealed its complexity.



RESULT:

Subsequently patient underwent operation. Intra-operatively fracture was anatomically reduced, and a fully threaded cannulated screw 4.0mm was inserted to fix the fracture site under fluoroscopic guidance (trans-epiphyseal screw). Postoperatively patient was comfortable, her right knee was immobilized with cylinder cast and was subsequently removed. Patient progressing well with evidence of bone healing on xray and good range of movement over the affected knee joint.



DISCUSSION:

Tibial tuberosity fracture was initially classified according to Watson-Jones(1), and it divides the fracture into 3 fracture patterns. Type I – avulsion fracture distal most portion of ossification center, type II upward angulation entire tuberosity and type II continuation of fracture line into tibial epiphysis (large anterior single fragment). Ogden et al(2) later describe subtypes of Watson-Jones classification depending on displacement and comminution. Type IV includes avulsion fracture of the entire proximal tibia growth plate and lastly type V involved combination of type IIB with type IV resulting in Y-shaped fracture pattern(3). Our patient had a combination Type IIIa and with posterior proximal tibia epiphyseal involvement which was difficult to classify and was only reported twice in literature.(4)(5)

CONCLUSION:

Avulsion fracture tibial tuberosity (Ogden IIIa) with posterior proximal tibia epiphysis fracture (Salter-Harris IV) is rare and under reported, with lack of proper classification to address them. Modern imaging modalities such as CT reconstructions will provide good perspective on approaching the injury and essential in preoperative planning. Anatomical reduction and stabilization of both anterior and posterior fragment is vital in achieving good fixation.

REFERENCE:

1. Watson-Jones R. Fracture and Joint Injuries 5th Edition Baltimore: Williams and Wilkins 1976
2. Ogden JA, Troos RB, Murphy MJ, Fracture of tibial tuberosity in adolescents. J Bone Joints Surg Am 1980 ;62 (2):205-215

ABSTRACT TRUNCATED