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= Abstract =

Compartment Syndrome Complicating Avulsion Fractures of the Tibial Tubercle

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Avulsion of the tibial tubercle is an uncommon physal injury. Complications from this fracture have rarely been reported and seldom affect the long-term outcome.

Three adolescent boys who sustained avulsion fracture of the tibial tubercle, were complicated by compartment syndrome and treated at Inje University Sang-Gye Paik Hospital from September 1989 to February 1995. Injury to the soft tissue surrounding the tibial tubercle avulsion may be more extensive than is usually appreciated. The anatomy of the proximal tibia

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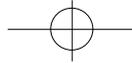
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and the tibial tubercle with nearby branches of the anterior tibial recurrent artery suggest a predisposing factor for the development of compartment syndrome. So, compartment syndrome should be added to the list of possible complications of this type of fracture.

Key Words: Compartment syndrome, Avulsion fracture, Tibial tubercle.

70mmHg

12

가 0.4 17 1 (first web space) (Good+)가

2.7% 1)

가가

Osgood-Schlatter (Fig 1)

가 Osgood-Schlatter 2.

8)

13 9

III A

4 1

가 8)

29mmHg

80mmHg

3 5

(Fig 2)

3.

15 3

II A 9

Ogden III A 6

(cannulated screw) 50mmHg

가 80mmHg

23

가 45mmHg 13



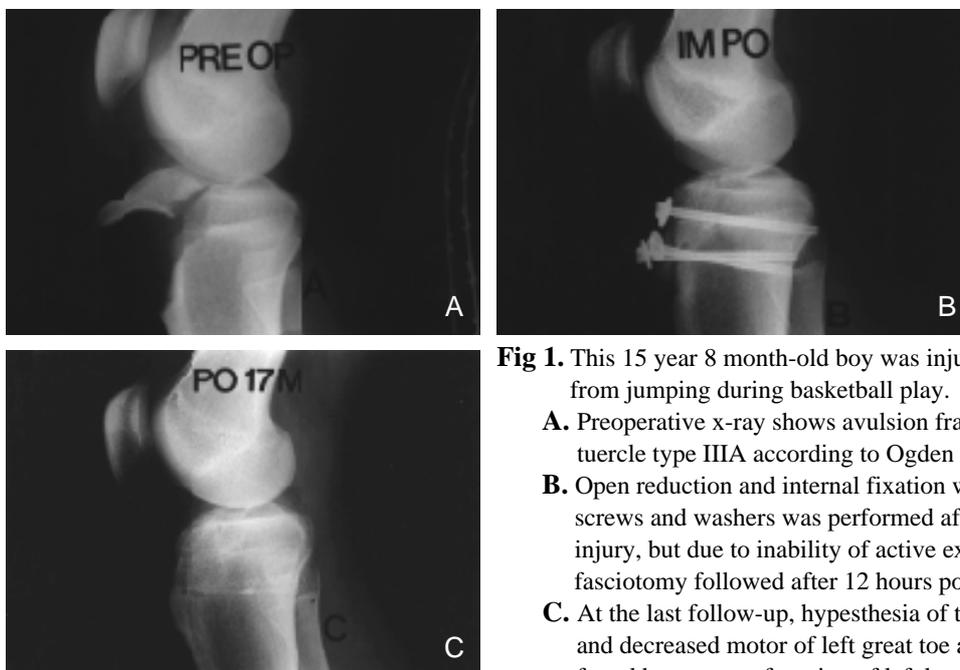
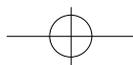


Fig 1. This 15 year 8 month-old boy was injured his left knee from jumping during basketball play.

- A.** Preoperative x-ray shows avulsion fracture of tibial tubercle type IIIA according to Ogden 's classification.
- B.** Open reduction and internal fixation with 3 cannulated screws and washers was performed after 6 hours from injury, but due to inability of active extension of toes, fasciotomy followed after 12 hours postoperatively.
- C.** At the last follow-up, hypesthesia of the first web space and decreased motor of left great toe and ankle was found but, range of motion of left knee was normal and solid union was seen on the radiographs.

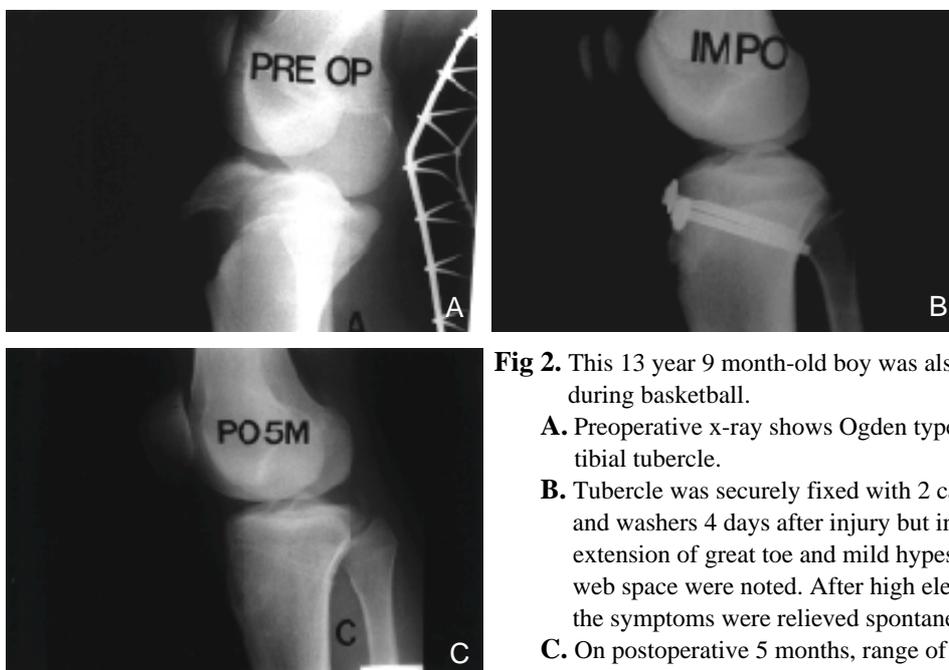
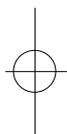


Fig 2. This 13 year 9 month-old boy was also injured left knee during basketball.

- A.** Preoperative x-ray shows Ogden type IIIA fracture of tibial tubercle.
- B.** Tubercle was securely fixed with 2 cannulated screws and washers 4 days after injury but inability of active extension of great toe and mild hypesthesia on the first web space were noted. After high elevation of the leg, the symptoms were relieved spontaneously.
- C.** On postoperative 5 months, range of motion of left knee and motor of great toe extensor were normal and the screws were removed after solid union was confirmed on the radiographs.



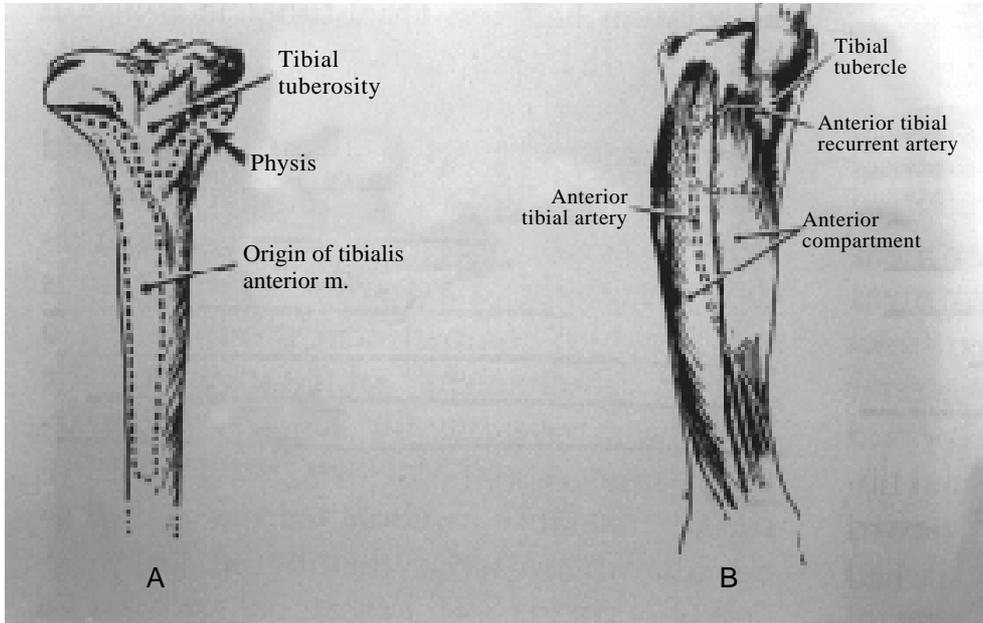
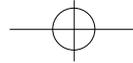
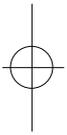


Fig 3-A. Osteology of the immature right tibia illustrates the origin of the tibialis anterior muscles and the position of the proximal tibial physis.

B. Anterolateral view of right tibia illustrates the anterior compartment musculature relationship to the tibial tubercle. The anterior tibial recurrent artery is shown with branches near the tibial tubercle.



가

(staple), (screw),
(tension band wire) .¹⁰⁾

Ogden¹⁰⁾

3 2

(subtype) , Watson-Jones 가

I

A 가 , B 가 가 1986

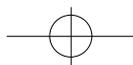
, , II Polakoff¹³⁾가 12 2 6 ,^{11,13)}가

A , B , III 1), 5) Hauser 15)

A, B

가





(血管床 vascular bed) 가
(recurrent branch of anterior tibial artery)

(Fig 3)

Whitesides 가10
30mmHg 가
가
Mubarak 30mmHg
16)

7) Masten 45mmHg
가
가
가 25mmHg
6)

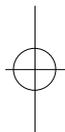
가 30mmHg 가 가

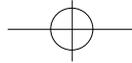
9 15 3 , 13
8 14 10
Ogden IIIA 2 , IIA 1

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