



POSNA

The Core Curriculum

Fractures of the tibial spine

Objectives

1. Describe (draw) the anatomy of the proximal tibial articular surface, including ligamentous and meniscal attachments.
2. Describe the incidence and mechanism of injury responsible for tibial spine fractures.
3. List the 3 types of tibial spine fractures described by Meyers and McKeever, and describe each type.
4. Discuss management of each type of fracture.
5. Describe results of follow-up studies of tibial spine fractures, and discuss their relevance to selection of treatment.

Discussion points

1. What is the incidence of tibial spine fractures? Why is the incidence different in the child and adult?
2. What physical findings are compatible with tibial spine fracture? What studies are necessary for diagnosis?
3. What is the incidence of anterior cruciate instability following tibial spine fracture? What is the clinical significance of asymptomatic laxity?
4. Describe recommended treatment for type III fractures? What method do you prefer? Why?

Discussion

Fracture of the tibial spine is an unusual injury, with an incidence estimated at 3:100,000 children per year. Bicycling and sports are the usual activities resulting in this fracture. The anterior spine is fractured many times more than the posterior, there is limited information available for the posterior spine. Experimentally, traction on the anterior cruciate ligament displaces the unstable anterior tibial spine, the incompletely ossified child's spine apparently fails before the anterior cruciate ligament; the adult counterpart of this injury. By placing the knee in extension, the displaced fragment can generally be reduced, although the medial meniscus has been found interposed between completely displaced fragments. The classification of Meyers and McKeever has been adopted by authors writing on the subject for almost half a century. Types I and II and nondisplaced or hinged, Type II, completely displaced. The first two types can easily be managed by casting, there are recommendations both for casting in complete extension and in 10-20 degrees of knee flexion, it probably does not matter. Type III fractures are presently managed either arthroscopically or with open reduction, displacement of fractures managed with extension casting has been reported on "second look" arthroscopy. Anterior cruciate ligament laxity has often been

objectively noted on follow-up of Type III injuries, but complaints or subjective instability is infrequent. Whether such knees fare well over the course of a lifetime is not known.

References

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