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Fracture-Avulsion Of Tibial Spine With Anterior Cruciate Ligament Instability - What To Do?

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INTRODUCTION

Tibial spine fractures are fractures at the level of Anterior Cruciate Ligament (ACL) insertion at the tibia. The most commonly used classification is the Meyers McKeever classification in 4 types (modified by Zaricznyj). They are infrequent fractures with a peak incidence in children and adolescents. It usually occurs in sports like cycling or skiing. In adults it occurs more frequently after high energy injuries such as traffic accidents and there is a risk of associated injuries. Clinically the patient presents with antero-posterior ligament instability usually with associated joint effusion.

OBJECTIVES

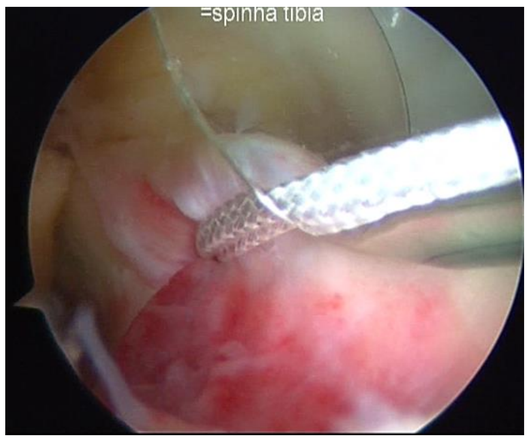
We intend to present this case not only by its rarity but also by the treatment chosen and the good clinical and functional results.
Although various fixation devices have been introduced for Arthroscopic Reduction and Internal Fixation of Anterior Cruciate Ligament (ACL) tibial avulsion fractures such as cannulated screws, staples, Kirschner wires, wires and non-absorbable sutures till now, no equivocally accepted technique is available that can be applied regardless of skeletal maturity, fragment size or comminution.

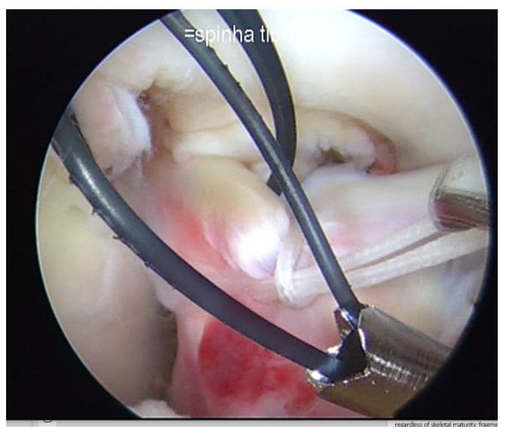
METHODS

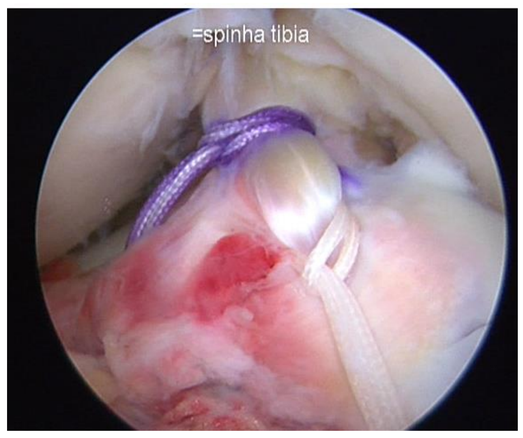
The authors present a case of an 18-year-old boy who suffered a motorcycle accident and was immediately brought to our Emergency Service (ES).
The pain was referred to his right knee. There was joint effusion with tension, so it was decided to perform arthrocentesis with drainage of 70cc of hematic liquid. Further examination of the affected knee showed an anterior instability. There was no lateral instability. The mobilization of the affected knee was painful.
A displaced tibial avulsion fracture was diagnosed with an X-ray of the affected knee, and a CT scan was done for better characterization and classification of this injury. The exams showed the presence of an avulsion fracture of the ACL with a displaced fracture of the tibial spine (Meyers McKeever type IIIA). Associated injuries were excluded.

RESULTS

A knee arthroscopy was performed 5 days after trauma, which detected an ACL ligament instability and an avulsion fracture of the tibial spine. An arthroscopic assisted ACL tibial avulsion fracture fixation with fibre wire and Endobutton was decided. Postoperatively, the knee was maintained with a cast for 2 weeks. Partial weight bearing and range of motion exercises from 0° to 90° were allowed at 2 weeks. Full weight bearing was allowed at 6 weeks.







CONCLUSIONS

The treatment of this type of lesion depends on the degree of displacement and comminution of the fragment. In case of displaced or multifragmentary fractures one can try to perform closed reduction and conservative treatment, but the gold standard treatment consists of surgical reduction and fixation of the fragment (with K-wire, harpoon or screw). If this is not possible, ligamentoplasty is chosen. The operative technique presented here has many potential qualitative advantages with good result.