

Paper #20**INTERNAL FIXATION OF INFERIOR ILIAC SPINE AVULSION IN ADOLESCENTS: DESCRIPTION OF TWO DIFFERENT SURGICAL PROCEDURES**

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Summary: Internal fixation of Inferior Iliac Spine Avulsion In Adolescent: Arthroscopic assisted percutaneous osteosynthesis is feasible and could lead to optimal results while being minimally invasive.

Introduction: Avulsion fractures of Anterior Inferior Iliac Spine (AIIS) are not uncommon. Such injuries in adolescent patients are caused by sudden strong contraction of rectus muscle attached to pelvic apophysis next to growth cartilage: the direct head of rectus femoris. These injuries are usually related to violent muscle activation when going from hip hyperextension and combined knee flexion to hip flexion and knee extension, which place maximum exertion on the rectus femoris tendon. The majority of these fractures are related to sports activities and heal adequately with conservative treatment. Potential indications for surgery are: significant displacement of the avulsed fragment (more than 2 cm), high level sports patients, non-union and cases where rapid return to activities are necessary or requested.

Objectives: Report and describe two different surgical procedures for displaced avulsion fracture, in adolescent patients. Follow up was also analyzed by an assessment of range of motion (ROM) and pain disability (VAS) as well to return to previous sports level.

Methods: The study includes 2 different selected cases (2 males, aged 13 and 14); the first case presented 2 cm fragment displacement and was treated by endoscopic assisted percutaneous osteosynthesis, the avulsed fragment was reattached using 2 different cannulated screws (6,5 x 40 mm and 4 x 34 mm), surgical technique is showed. The second one presented a hypertrophic nonunion causing femoroacetabular impingement, it was treated using a mini open anterior surgical approach, with osteosynthesis of avulsion fragment by 2 cannulated screws (6,5 x 55 and 60 mm),

remodeling osteoplasty including pincer, cam deformity and labral repair. In both cases ROM and VAS have been analyzed before and after surgery (1, 3, 6 months). Return to sports was measured as: complete, partial or no return to previous level of activity.

Results: At follow-up, the two patients showed relief from their pain and mechanical Symptoms (mean VAS score: 8pt before surgery, 4pt at 1 month FU, 1pt at 3 month FU, 0pt at 6 month FU) and regained full range of motion. Both patients returned to their previous levels of sport activity.

Conclusions: Avulsion fracture of the AIIS are not uncommon on pediatric population. Although most patients are well treated using conservative measures, still some place for surgical treatment based on fracture and patient factors. Arthroscopic assisted percutaneous osteosynthesis is feasible and could lead to optimal results while being minimally invasive. Nonunion or malunion may cause symptoms related to extraarticular impingement and can coexist with femoroacetbular impingement of the hip. Surgical treatment of AIIS avulsion especially on the setting of moderate or severe displacement could have the potential to lower chances of extraarticular impingement at long term.