

Avulsion fracture of the ischial tuberosity: A surgical dilemma

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Abstract

The clinician should make the treatment choice considering the patient's requirements. Thus, surgical treatment can successfully achieve long-lasting satisfactory results and provide the best chance for a rapid return to sports.

KEYWORDS

avulsion fracture, conservative treatment, diagnosis, ischial tuberosity, surgical treatment

1 | CASE PRESENTATION

A 13-year-old boy (body mass index: 22.3 kg/m²) suddenly felt a severe "pop" in his right buttock in an attempt to kick a ball in a football game. Physical examination revealed swelling of the right buttock accompanied by tenderness, and discomfort when sitting and walking abnormality. Subsequent radiograph, computed tomography (CT), and magnetic resonance imaging (MRI) of the pelvis demonstrated an avulsion fracture of the ischial tuberosity (AFIT) with a large free fragment (2.2 cm of displacement) and a fluid field cavity within the space (Figure 1). Due to the degree of displacement and the high demands of the patient, he was taken to the operation theater the following day. After general anesthesia, the patient was placed in a prone position. A longitudinal incision and subgluteal approach was made in order to provide sufficient surgical field for fracture reduction and internal fixation with two screws. The postoperative radiograph revealed successful reduction in the fracture (Figure 2).

After the operative treatment, a lower limb orthosis in a non-weight-bearing position was used for the first 3 weeks, in order to restrict hip and knee movement. Thereafter, partial weight-bearing was permitted, until it was fully allowed at 6 weeks postoperatively. Physical therapy was composed of exercises focused on active range of motion and core stability.

At 2 months postoperatively, the patient was feeling comfortable, apart from some pain in the buttock, especially when jogging for a long period of time (over 15 minutes) and sitting on hard surfaces, such as classroom chairs. After 6 months, he returned to running and school physical activities, without any pain. At 9 months postoperatively, he had fully returned to resistance exercise training and competitive football.

2 | DISCUSSION

Currently, there is no clear consensus on the treatment of AFIT. The general rule is to choose the treatment method based on the degree of fracture displacement (DFD). Conservative treatment is suggested for AFIT with a small DFD, with potential complications of nonunion, fibrosis, chronic pain, and leg-muscle weakness.¹ Meanwhile, the majority of the authors advocate that AFIT with DFD over 20 mm should be treated surgically. Operative treatment is also indicated for acute injuries, patients with neurologic symptoms, and after the failure of a conservative treatment. It is crucial to take into consideration the patient's requirements and promote a safe and rapid functional recovery, especially in active and highly demanding individuals, who require individualized treatment options. Based on the available data, it should be mentioned that early

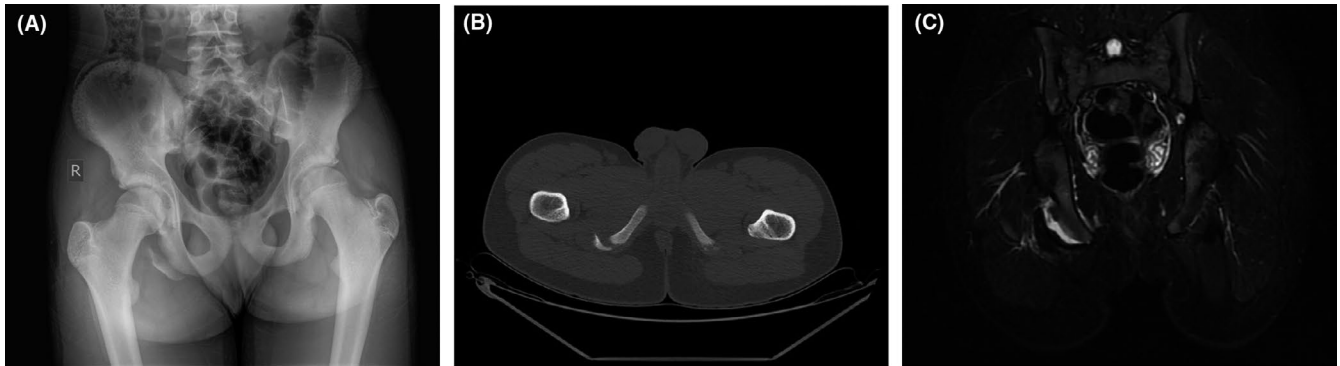


FIGURE 1 Preoperative radiograph reveals the avulsion fracture of the right ischial tuberosity (A). CT scan demonstrates the degree of displacement of the avulsed fracture fragment by approximately 2.2 cm (B). Magnetic resonance imaging of the pelvis/thigh detects a large semilunar fragment, which has been detached from the ischial tuberosity with fluid cavity within the spaces (hyperintense signal) in the coronal view (C)

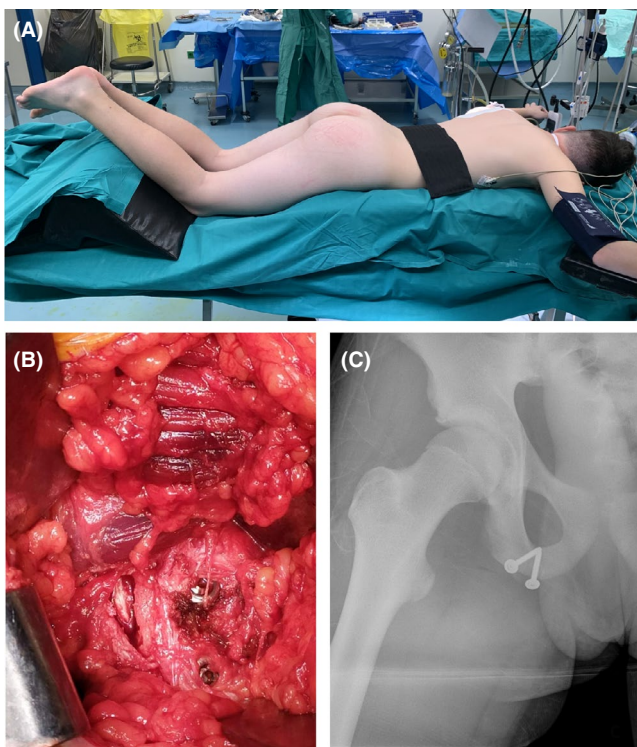


FIGURE 2 Prone position of the patient prior surgery, with the hip and knee joints slightly flexed (A). Intraoperative image shows that the fragment is reduced and fixed using two bicortical screws and corresponding washers to aid with compression of the screws (B). Postoperative anteroposterior pelvic radiograph shows that the bone fragment is firmly fixed to the ischium (C)

diagnosis and surgical treatment of the AFIT are often preferred in order to achieve successful anatomic reduction, alleviate symptoms, and help athletes to return to full activity.^{1,2}

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Published with written consent of the patient.

CONFLICT OF INTEREST

No potential conflict of interest was reported by the authors.

AUTHOR CONTRIBUTIONS

AVV, PT, DA, and AM: designed the study, wrote the draft, and approved the manuscript for submission.

ETHICAL APPROVAL

Written informed consent was obtained from the patient for the publication of this clinical image.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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