CASE REPORT

Avulsion fracture of the anterior superior iliac spine following apophysitis

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The case of an avulsion fracture occurring in an 18 year old athlete after repeated running is presented. The fracture involved the tensor fascia lata muscle and the external oblique abdominal muscle. It was treated by open reduction and internal fixation with two screws. The patient returned to full training, including long distance running, only four weeks after the operation.

CASE REPORT

An 18 year old athlete had pain in the right side of his pelvis and back pain during sporting activity and long distance walks. After four months he presented at a hospital where radiographs of the pelvis, the hip, and the lumbar spine were performed. Only open apophyses at the iliac crest could be seen. Apophysitis was diagnosed and the patient was told to stop his sporting activities, but not activities of daily life, for one week; he was treated with oral non-steroidal anti-inflammatory drugs. Within two weeks, he was free of pain

and the treatment was stopped. He immediately returned to his training programme.

Three weeks later he felt a sudden pain in the hip, heard a snapping noise, and was unable to move his right leg. He was taken to hospital by ambulance. A hip luxation was suspected.

On physical examination, pain in the right iliac crest was found, mainly in the anterior superior iliac spine. Movement of the hip was reduced to 0–10–30° in the sagittal plain; rotation was impossible. Peripheral sensibility and circulation were regular at all times.

A radiograph showed a dislocated avulsion fracture of the anterior superior iliac spine (fig 1).

Open reduction and internal fixation with two screws was performed (fig 2). The drain was removed two days after the operation, and the sutures were removed after 10 days. Walking with full weight bearing was allowed immediately after the drain had been removed. The patient returned to full weight bearing training only four weeks after the operation and was free from pain.

DISCUSSION

Avulsion fractures of the anterior superior iliac crest in open apophyses are rare injuries, occurring in younger patients aged 11–23 years.^{1–7} They are more common in boys (a ratio of 13:1).⁶ All patients described in the literature were involved in sport.^{4 6 8–10}

Fractures of the anterior superior iliac spine always occur as an acute onset injury, but chronic stress fractures, which can present as iliac apophysitis,¹¹ can be predisposing factors. Stress injuries are often missed at the time of the initial presentation.⁹ Many patients do not even consult a doctor because these lesions are often self diagnosed as distortions or muscle lesions.⁸

The cause is a sudden and forceful pull on the sartorial and tensor fascia lata muscles to the anterior superior iliac

Figure 1 Avulsion fracture of the anterior superior iliac spine in open apophyses.

Figure 2 Radiograph after open reduction and internal fixation of the avulsion fracture of the anterior superior iliac spine.

Take home message

Pain in the immature pelvis of juvenile athletes should always be considered a serious problem requiring conscientious and careful treatment to avoid secondary damage to the juvenile skeleton.

spine—for example, in sprinters on the starting line^{3 6-8 10}—which dislocates the fragment caudally and laterally.^{4 10} Because of this dislocation, these lesions can be mistaken for a fracture of the anterior inferior iliac spine.⁴

The apophyseal growth centre is a weak point in the skeletal system, but the strong periosteum of the juvenile athlete may prevent the fragment from dislocating.^{5 8} However, repetitive lesions can in the end lead to an acute injury.

Meralgia paraesthetica resulting from traction or compression of the femoral lateral cutaneous nerve by the fragment has been reported.^{1 7} These lesions need surgical intervention.

Avulsion fractures of the anterior superior iliac spine without neurological symptoms can be treated conservatively, because of the benign short run.^{4 8 9} Open reduction and internal fixation can be performed for dislocations of more than 3 cm^{5 6 10 12} or in patients requiring a short convalescence period.^{3 10}

We emphasise the importance of treating “apophysitis” by longer immobilisation to avoid these kinds of avulsion fractures in the immature skeleton. According to the literature,^{5 7} immobilisation with crutches within the first week is absolutely necessary. A two to three week period of limitation of activities and walking with partial weight bearing with the use of crutches should follow.

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