Pelvic stress fracture in a Dutch U19 cricketer: a case report

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ABSTRACT

We report a case of a non-traumatic right-sided os ischium fracture and ramus inferior fracture in an 18-year-old cricket athlete of the national Dutch team. Occasionally, apophyseal avulsion fractures of the pelvis occur; however, non-traumatic isolated fractures of the os ischium are rare. This case highlights the treatment and result of an unusual cricket injury.

CASE PRESENTATION

An 18-year-old healthy international level spin-bowler was referred to us with a non-traumatic right-sided os ischium and ramus inferior fracture (Fig. 1A and B). As the fracture was large and displaced, we felt surgery was indicated, especially given his athletic activities at the international level.

The patient underwent open reduction and internal fixation of his right ischial fracture. The procedure was performed in lateral position and a standard Kocher-Langenbeck approach was used, protecting the sciatic nerve. The piriformis tendon and the conjoined tendon were released, and care was given to protect the medial circumflex artery. Reduction and fixation were performed using a pelvic and two 3.5 locking pelvic reconstruction plates. The hip was taken through range of motion, showing there was no intra-articular hardware. Fluoroscopic imaging showed good placement of the hardware and excellent reduction of the fracture (Fig. 1C). Given that the ramus inferior fracture was extra-articular with no displacement after fixation of the os ischium fracture, we decided not to fixate the os pubis fracture. Postoperative X-ray and CT-scan confirmed the reduction.

Toe-touch weight bearing crutch ambulation was permitted and the patient was discharged at 5 days. At 6 weeks postoperatively, his weight bearing was increased to partial weight bearing for another 6 weeks. The patient returned for follow-up at 3 months postoperatively and radiographs of his pelvis revealed healing fracture and callus formation (Fig. 1D). Physiotherapy rehabilitation had to consider tight time constraints of U19 World Cup qualifiers and rehabilitation milestones (Supplementary Table S1) were based on increasing loading exposure and building up according to specific game demands. Upon return, there was no pain. Though he still experienced weakness of the right hamstring, he was able to play without impairment. At most recent FU, the patient had a full function without any pain, and the Harris hip score was 100.

CONCLUSION AND DISCUSSION

Apophyses are characteristically located on a bony prominence where they are subjected to traction pull of attached tendons or muscles. Although apophyseal avulsion fractures of the pelvis are common in adolescent athletes, true non-traumatic fractures are rare. Overuse is often a major contributing factor for injuries in cricket fast (pace) bowlers, with high bowling workload being an important indicator for increased injury risk [1, 2].

Ischial fractures proximal to the apophysis are uncommon and are often the result of a stress fracture. While
overuse stress fractures commonly occur in young athletes [3], the location of the stress fracture in our patient was not. It is likely that this particular stress fracture mechanically developed slowly due to the repetitive eccentric tensile load by the hamstrings. Whereas in the young athlete these forces will lead to the apophyseal avulsion pelvic fracture, in more adult bowler this may lead to a true ischial fracture as seen in our patient.

**SUPPLEMENTARY DATA**
Supplementary data are available at Journal of Hip Preservation Surgery online.

**CONFLICT OF INTEREST STATEMENT**
None declared.

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