CASE REPORT

Sequential bilateral lesser trochanter avulsion fractures in an adolescent patient

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SUMMARY

We report the rare case of a 15-year-old boy who sustained sequential bilateral lesser trochanter avulsion fractures over a 6-month period while playing football. No malignancy or associated metabolic bone disease was found. He subsequently made a full recovery with non-operative treatment.

BACKGROUND

Although reported in the early 1900s,¹ avulsion fractures of the lesser trochanter in adolescent patients remain a rare clinical entity. In adults this injury is often associated with malignancy, but this is not the case for adolescents. Nevertheless, the bony anatomy should still be carefully evaluated for any underlying pathological cause. To date, we can find no reported case of sequential bilateral lesser trochanter fractures in an adolescent patient.

CASE PRESENTATION

A 15-year-old boy presented to the emergency department, following an acute onset of right groin pain while playing football. While side-stepping to get around an opposition player during a competitive game, he felt immediate pain in his right groin and was unable to continue playing. On examination the patient was haemodynamically stable. There was no obvious clinical deformation or rotational abnormality of the limb. He was tender in his right groin and on resisted flexion of the hip. He was able to weight bear with some discomfort.

Six months following this initial episode, the patient sustained an almost identical injury to the contralateral side, also while playing football.

INVESTIGATIONS

Initial plain radiographs of the pelvis showed an avulsion fracture of the right lesser trochanter and radiographs 6 months later confirmed a similar injury on the contralateral side (figures 1 and 2). Blood tests showed bone biochemistry including corrected calcium and vitamin D3 within normal parameters.

DIFFERENTIAL DIAGNOSIS

There are a number of causes of acute groin pain after minor trauma. These include avulsions of other bony apophyses around the pelvis such as the anterior inferior iliac spine and anterior superior iliac spine. One should also consider the possibility of a slipped upper femoral epiphysis. Femoral neck fractures and malignancy are less likely.

Figure 1 September 2013.

TREATMENT

The patient received similar treatment on both occasions with analgesia, initial weight-bearing as tolerated with crutches with progression to full weight-bearing at 6 weeks. Sporting activities were restricted for 3 months to ensure union.

OUTCOME AND FOLLOW-UP

The patient was followed up for 3 months on both occasions and made a full recovery. He was symptom free within 6 weeks of each of these injuries and returned to full sporting activities within 3 months. Six months following the second injury he was completely asymptomatic and plain radiographs showed bilateral solid bony union (figure 3).

DISCUSSION

In 1931, McEachern and Jennings² reported a case of avulsion of the lesser trochanter of the femur

Figure 2 March 2014.

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Figure 3 September 2014.

sustained while running to catch a street-car. At that point in time they believed it was the 48th case reported in the literature, although that also included adult patients. Since then, while this has been reported further, it still remains a rare injury as demonstrated by a retrospective study of 1126 children with fractures of the proximal femur finding an isolated fracture of the lesser trochanter accounting for 0.3% of these fractures.³ There have been no documented cases to date of adolescent bilateral lesser trochanter avulsion fractures. In adults, a high index of suspicion is required for underlying malignancy.^{4 5} In children this normally represents powerful contraction of the iliopsoas muscle complex against sudden resistance. In the immature skeleton failure occurs through the relatively weak growth plate.

Learning points

- ▶ Plain pelvic radiographic imaging of adolescent patients presenting with acute onset groin pain during sports is useful to exclude these pelvic apophyseal injuries.
- ▶ Adolescent lesser trochanter fractures are unlikely to be pathological and can normally be managed expectantly.
- ▶ Adult lesser trochanter fractures should be treated with a high index of suspicion for malignancy.

Contributors The patient was under the care of MDL who prompted the writing of the case report. The report was then written by CA and EM-T who are medical students at Leicester University. The report was then substantially rewritten by NJO who also acquired the imaging and consent.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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