

Treatment injury case study

Sharing information to enhance patient safety

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EVENT: Delay in diagnosis

INJURY: Progression of slipped capital femoral epiphysis (SCFE)

Case Study

Marcus, a 12-year-old boy, came with his mum to see his GP because of a flare up of his eczema.

Marcus was generally well apart from requiring periodic steroid creams. He had previously used inhalers for asthma, but this had improved in the previous year. He was also being encouraged to lose weight through diet and exercise.

Marcus mentioned that he had experienced left knee pain over the last six weeks. He described the pain as “coming and going” and said that it sometimes improved with movement. He couldn’t give any other details. His mother wondered whether he had been limping. Marcus couldn’t recall any injury to account for the knee pain, but did say that he had been doing more running lately.

On examination, the knee had a full range of motion, no swelling or effusion, and was non-tender. The McMurray test (for meniscal tears) was negative and Marcus’s gait appeared normal. The GP reassured Marcus and his mother that no specific treatment was warranted. Marcus could take paracetamol for the pain and return if the problem did not resolve.

Two weeks later Marcus came to see his GP again, as the knee pain had worsened. On examination there was some tenderness of the knee on direct patellar pressure and lateral to the joint. The GP suspected soft tissue injury, so prescribed

ibuprofen and arranged to follow up with Marcus the following week.

When Marcus returned, the pain was continuing to be a nuisance and he had developed a limp. His GP decided to get an X-ray of the knee to exclude a bony lesion. This showed no abnormalities, so the GP continued to manage the pain as a possible sprain or as “query growth plate pain”. Marcus was seen twice more in the following five weeks, but his knee pain continued to worsen and was progressively restricting his activities.

One day while walking to school, Marcus’s left leg suddenly gave way under him. It was extremely painful and he was unable to bear weight, so he was taken to hospital. When he was seen in the Emergency Department the doctor noted that his left leg was externally rotated. The results of an examination of the knee were normal, but his left hip was found to have a marked limitation of flexion and internal rotation. X-rays of his hip were taken and he was diagnosed with slipped capital femoral epiphysis (SCFE), with approximately 50% displacement. Marcus was operated on urgently, but had a poor outcome with bony deformity.

A treatment injury claim was lodged for progression of SCFE due to delayed diagnosis. ACC sought general practice external advice, which reported that his hip should have been examined and that this would likely have led to earlier diagnosis. ACC also received orthopaedic advice stating that if the diagnosis had been made prior to his acute deterioration, the SCFE would likely have been less severe and would likely have led to a better result, without bony deformity. The claim for progression was accepted, so ACC was able to assist with treatment related to Marcus’s worsened outcome.

Key points

- Slipped capital femoral epiphysis (SCFE) is an acute orthopaedic problem
- Although rare, it occurs most commonly in adolescent males, and obesity is an important risk factor
- Patients at risk of SCFE who present with unexplained knee pain must have their hip examined owing to the possibility of referred pain, particularly assessing internal and external rotation
- If SCFE is suspected, the patient should be non-weight bearing and an orthopaedic opinion should be sought immediately.

Expert Commentary

Elizabeth Williams FRNZCGP

This history shows some of the features of the well known syndrome “Wile-um-ere, doctor” (trans. “While I am here, doctor...”). Marcus and his problems fit an uncommon but worrying profile: he has eczema and asthma, probably needs his inhalers again, needs to lose weight and (“while we’re here”) has had pain in his left knee for six weeks.

Marcus offers no history of trauma and an examination of the knee shows no problem so, under pressure, one may question whether he is trying to avoid phys ed at school or to reach out with somatised symptoms. Also, he may have pain owing to mechanical problems from another area or, as in this case, referred pain from the hip.

SCFE is a structural failure through the proximal femoral physis (growth plate). It affects approximately one to three out of 100,000 people. It should be suspected in adolescents and more frequently occurs in boys (male 2:1 female). It is strongly linked to obesity, and other risk factors include family history, Maori and Pacific ethnicity, endocrine disorders, radiation and chemotherapy, African heritage and mild trauma (1,2). The almost exclusive incidence of SCFE during the adolescent growth spurt indicates an intrinsic weakness in the physal cartilage owing to hormonal influences.

A study of 120 children with SCFE found that most patients (76%) presented initially to their general practitioners and experienced delays of up to 731 days from initial presentation to hospital admission (3). Sixty percent of the children with stable SCFE (a mild slip) were not diagnosed at the initial consultation and experienced a delay of up to 11 days between X-ray and diagnosis. There were no delays in patients with unstable (severe) SCFE.

The fracture occurs at the hypertrophic zone of the physal cartilage. This is unlike traumatic fractures where the failure is through the zone of provisional calcification. Stress on the hip causes the epiphysis to move posteriorly and medially. Position and alignment in SCFE are described by referring to the position of the proximal fragment (capital femoral epiphysis) to the normal distal fragment (femoral neck).

Because the physis has yet to close, the blood supply to the epiphysis is still derived from the femoral neck. However, late in childhood the supply is tenuous and often lost after the fracture occurs. Manipulation of the slip frequently results in osteonecrosis and chondrolysis.

Typical findings on examination include external rotation of the hip (which may be observed on gentle passive hip flexion), reduced internal rotation and an antalgic gait with out-toeing (4).

Once SCFE is suspected, the patient should be non-weight bearing and remain so. Hip X-rays should be obtained immediately; a slip is best seen on a lateral view. The condition should be regarded as an acute orthopaedic problem owing to the risk of further slippage resulting in occlusion of the blood supply and avascular necrosis (risk 25%). Treatment requires surgery to place a pin into the femoral head. This is usually done without reduction, as reduction poses a further risk to the blood supply. Any resultant deformity can be addressed with less risk using an osteotomy at a later point.

Follow-up is important, as the chance of a slippage occurring in the other hip is 20% within 18 months of first diagnosis and, consequently, the opposite unaffected femur may also require pinning. In addition, there is a risk of the screw being left behind as the patient grows, so regular reviews should occur until the physis closes.

In summary, SCFE is rare, but rarities are the spice of family medicine and it is important to look out for them, especially when one's potential candidate fits a well known profile. Patients with unexplained knee pain who fit the risk profile for SCFE must have the hip examined owing to the possibility of referred pain. In Marcus's case, there was no documentation that this had been done, which was a significant omission.

References

1. Adler B. Imaging in slipped capital femoral epiphysis. Updated 27 May 2011. Medscape Reference [internet]. Accessed from: <http://emedicine.medscape.com/article/413810-overview>.
2. Stott NS, Bidwell TA. Epidemiology of slipped capital femoral epiphysis in a population with a high proportion of New Zealand Maori and Pacific children. *NZMJ* 2003; 116(1184):1-8.
3. Weigall P, Vladusic S, Torode I. Slipped upper femoral epiphysis in children – delays to diagnosis. *Aust Fam Physician*. 2010 Mar; 39(3):151-153.
4. Walter, KD. Slipped capital femoral epiphysis. Updated 11 August 2011. Medscape Reference [internet]. Accessed from: <http://emedicine.medscape.com/article/91596-overview>.

Claims information

Between 1 July 2005 and 31 October 2011, ACC received 233 claims for delays in diagnosis by general practitioners. Of these, 78 (33.5%) were accepted, including three for SCFE and seven for other orthopaedic conditions.

The most common reason for declining a claim was that there was no causal link between the injury and treatment from a registered health professional. The next most common reason was that there was no injury caused by treatment, as earlier detection and treatment would have made no difference to the outcome.

How ACC can help your patients following treatment injury

Many patients may not require assistance following their treatment injury. However, for those who need help and have an accepted ACC claim, a range of assistance is available, depending on the specific nature of the injury and the person's circumstances. Help may include things like:

- contributions towards treatment costs
- weekly compensation for lost income (if there's an inability to work because of the injury)
- help at home, with things like housekeeping and childcare.

No help can be given until a claim is accepted, so it's important to lodge a claim for a treatment injury as soon as possible after the incident, with relevant clinical information attached. This will ensure ACC is able to investigate, make a decision and, if covered, help your patient with their recovery.

About this case study

This case study is based on information amalgamated from a number of claims. The name given to the patient is therefore not a real one.

The case studies are produced by ACC's Treatment Injury Centre, to provide health professionals with:

- an overview of the factors leading to treatment injury
- expert commentary on how similar injuries might be avoided in the future.

The case studies are not intended as a guide to treatment injury cover.

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