

A rare case of low-grade osteomyelitis of the ischium in a child with an unusual mix of *Staphylococcus* bacteria

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ABSTRACT

Osteomyelitis in the pediatric population is a very disabling illness and prompts diagnosis and treatment is of paramount importance. This is, however, difficult in this age group. We report a case of post-traumatic pediatric atypical osteomyelitis of the ischium. Prompt diagnosis and treatment led to a good outcome.

Key words: Infection, Ischium, Osteomyelitis, Pediatric

In the case of osteomyelitis of the pelvis, there are usually subtle signs of infection which are often difficult to spot by the treating clinician. The absence of fever and severe pain and the ability to bear weight can give a false sense of assurance to the clinician that no major concern exists. In children, non-specific pain often is interpreted as growing pains, and investigations may be delayed until such time when the infection is severe enough to trigger the obvious sign and symptoms. This delay can cause the infection to progress, requiring surgical intervention, and possibly inducing long-term damage to neighboring structures, including the hip joint [1-3]. We present a case of osteomyelitis of the ischium in a child, which could have been missed if we have relied on normal parameters and we did not have high index of suspicion which led to further investigation, prompt diagnosis, and successful treatment.

CASE REPORT

We report the case of a 13-year-old boy who was kicked in the left buttock area during a game of football. He presented to our Accident and Emergency (A and E) department with pain in his left buttock and left hip on the same day of injury. He reported an episode of sore throat a few days before his injury. He had no fever, was able to fully bear weight; the only finding was slightly restricted left hip rotation. The white cell count was $10.4 \times 10^9/L$, C-reactive protein (CRP) was 30, and blood cultures yielded no growth. His pelvic X-ray was normal and ultrasound scans of both hips showed no effusion or collection and normal groin muscle. His pain was attributed to a muscle bruise and he was sent home with planned clinic follow-up.

At follow-up, he was seen by a general orthopedic consultant. During this visit, the child still complained of left hip pain and could not engage in sport, with no history of fever

and still able to fully bear weight unaided. On examination, there was further restriction of left hip rotation with mild pain and he also looked slightly pale. He had an outpatient magnetic resonance imaging (MRI) scan of his pelvis within 1 week of his clinical visit. The MRI scan confirmed signs of an intrapelvic collection overlying the ischium with evidence of osteomyelitis of the ischium (Figs. 1 and 2). The scan could not exclude a malignancy at this stage. This prompted urgent referral to the pediatric orthopedic services at a tertiary referral center.

He underwent minimally invasive surgery performed by the pediatric orthopedic consultant as a percutaneous technique using fluoroscopy-guided needle to drain the collection and take several bone biopsies of the ischium. Bacteriology showed three types of *Staphylococcus* upon enrichment, namely, *Staphylococcus epidermidis*, *Staphylococcus xylosum*, and *Staphylococcus lugdunensis*. The bone biopsy excluded a malignancy and confirmed features of an inflammatory reaction.

The patient was put on a 6-week course of a targeted oral antibiotic. He has had a remarkable recovery. A repeat MRI scan of the pelvis at 6 months showed complete resolution of the pelvic collection with only minor changes in the ischium, suggestive of ongoing healing of the bone (Figs. 3 and 4).

DISCUSSION

Osteomyelitis can occur in the pediatric age group; however, acute pediatric pelvis osteomyelitis is a rare disease [1] and osteomyelitis of the ischium is extremely rare in the pediatric population [2]. Acute pediatric pelvic osteomyelitis may lack general or local infectious signs, leading to severe complications, and including death [2]. It presents with a limp, fever, elevated erythrocyte sedimentation rate, and CRP. This presents such

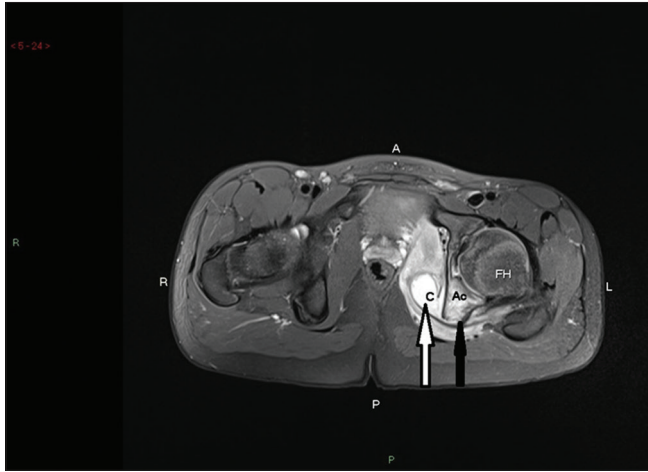


Figure 1: Axial T-2 weighted magnetic resonance imaging at the level of hip joint showing left intra-pelvic collection (white arrow) and increased signal in the ischium (black arrow) (FH: Femoral head, Ac: Acetabulum, C: Collection, A: Anterior, P: Posterior, L: Left, R: Right)

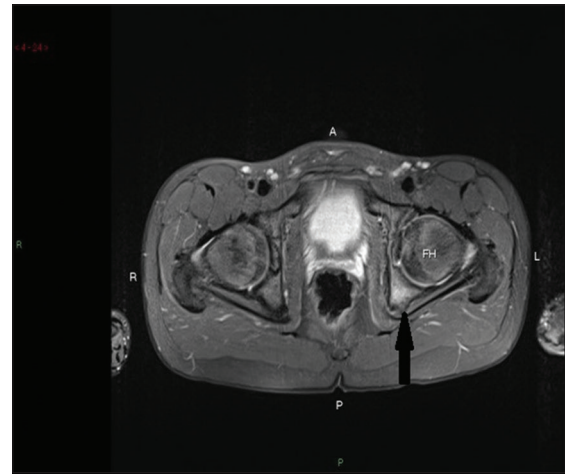


Figure 3: Axial T-2 weighted magnetic resonance imaging at the level of hip joint showing resolution of left intra-pelvic collection. Ischium in indicated by black arrow

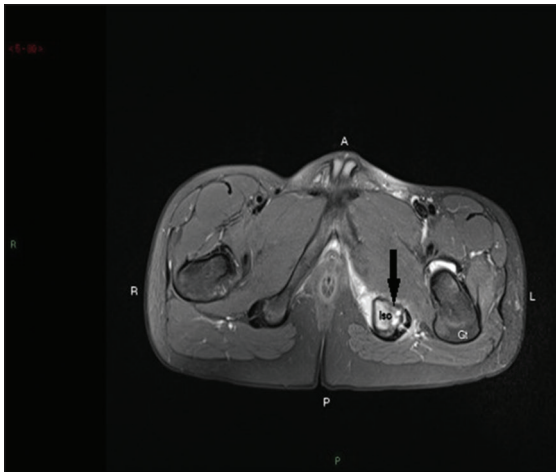


Figure 2: Axial T-2 weighted magnetic resonance imaging at the level of the ischium showing increased signal at the left ischium (black arrow) (Gt: Greater trochanter, Isc: Ischium)

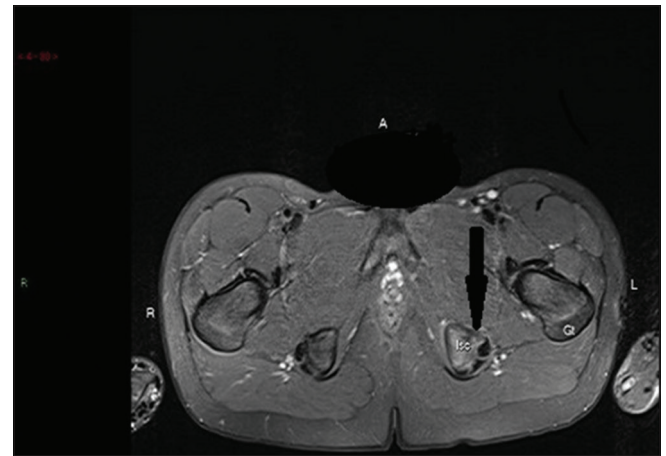


Figure 4: Axial T-2 weighted magnetic resonance imaging at the level of the ischium (black arrow) showing improvement at the left ischium

as many common pediatric orthopedic conditions; hence, the difficulty and delay in the diagnosis of acute pediatric pelvic osteomyelitis.

Other areas in the pelvis that can be affected are the ilium and pubis [3]. Acute hematogenous osteomyelitis is the most common form of osteomyelitis [4]. Trauma as a precipitating factor for pelvic osteomyelitis is uncommon [3]; however, there is some evidence that post-traumatic osteomyelitis is an important precipitating factor of hematogenous osteomyelitis [5].

A literature review indicates that *Staphylococcus aureus* account for 90% of the isolated organisms, whereas *Haemophilus influenza*, *Pseudomonas aeruginosa*, streptococci group A, *Escherichia coli*, and mixed infections occur less frequently [4]. On the contrary, our patient grew *S. epidermidis*, *S. xylosoles* and *S. lugdunensis*, which have not been documented in the literature as a cause of pediatric pelvic osteomyelitis.

MRI is a sensitive technique for the evaluation of pyogenic pelvic infection and should be considered early when the routine

investigation is negative and clinical suspicion still raised. The definitive diagnosis is made by needle biopsy, which allows for isolating the causative organism and instituting targeted antibiotic therapy.

CONCLUSION

In a child with possible pelvic osteomyelitis, reading subtle signs, including the inability to engage in sport at a previous level, tiredness, loss of appetite, and marginally raised CRP, as well as a subtle reduction in ipsilateral hip joint movement with or without associated pain should raise suspicion of the possibility of a deep infection including osteomyelitis of the ischium and neighbouring tissue. Normal X-ray and no sign of effusion in the hip joint on ultrasound scan cannot rule out osteomyelitis or a deep collection. In these cases, with a high index of suspicion, regular follow-up and serial CRP levels in addition to an early request for an MRI scan are the key to an early diagnosis and successful treatment. In addition, seeking early pediatric orthopedic consultation is vital in such cases.

REFERENCES

1. Kumar J, Ramachandran M, Little D, Zanies M. Pelvic osteomyelitis in children. *J Podiatr Orthop B*. 2010;19(1):38-41.
2. Burnei GI, Georgescu I, Gavrilu S, Vlad C, Hodorozea D, Dan D, Hurmuz L. Acute osteomyelitis--special cases with particularities related to specific locations. *Rom J Intern Med*. 2007;45(4):321-5.
3. Zvulunov A, Gal N, Segev Z. Acute haematogenous osteomyelitis of the pelvis in childhood: Diagnostic clues and pitfalls. *Podiatr Emerg Care*. 2003;19(1):29-31.
4. Cohen E, Lifshitz K, Fruchtman Y, Edelman M, Leibovitz E. Current data on acute haematogenous osteomyelitis in children in Southern Israel: Epidemiology, microbiology, clinics and therapeutic consequences. *Int Orthop*. 2016;40(9):1987-94.
5. Böhm E, Josten C. Whats new in exogenous osteomyelitis?. *Pathol Res Pract*. 1992;188(1-2):254-8.

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