

# Infectious myositis of the iliacus muscle: An important differential in the unwell child with a limp

Alexander Martin, Syed Aftab, Urpinder Grewal, Tom Pampiglione, Thomas Bracewell, Alice Macerola

## ABSTRACT

**Introduction:** Infectious myositis is a rare entity with potential for significant complications. It is most commonly the result of hematogenous infection and develops in areas compromised by trauma, foreign body, ischemia or surgery. Several cases have been reported in equatorial climates, whilst infectious myositis remains rare in temperate climates. Infectious myositis of the iliacus muscle in a child has only been described once previously in British Orthopedic literature. We present a case of infectious myositis of the iliacus muscle in a child, diagnosed clinically and radiologically. **Case Report:** A 13-year-old boy presented to the emergency department with a 24-hour history of feeling generally unwell, fevers and difficulty bearing weight on his right leg. On examination, the patient was pyrexial, appeared systemically unwell, had exquisite tenderness centered over the right anterior superior iliac spine (ASIS) and moderately reduced range of movement of his right hip, with hip extension most affected. Widespread eczematous skin lesions were noted, with a localized area of erythema, crusting and ooze on the dorsal aspect of the patients right foot. Inflammatory markers were raised on admission. Serial blood cultures

were taken in addition to skin 28 swabs from the right foot. Whilst blood cultures were negative, the skin swab grew *Acinetobacter lwoffii*. Urgent MRI scan was performed which revealed changes consistent with infectious myositis of the right iliacus muscle. Parenteral antibiotic therapy was initiated following which prompt symptom resolution occurred. Subsequent MRI scan assessment six weeks following discharge displayed resolution of radiological changes. **Conclusion:** This case represents a rare clinical diagnosis. We have demonstrated the difficulty in differentiating septic hip arthritis from myositis of the pelvic musculature. Furthermore, the importance of timely MRI investigation in delineating foci of soft tissue infections and enabling exclusion of possible differential diagnoses has been reinforced.

**Keywords:** *Acinetobacter lwoffii*, Infectious myositis, Pyomyositis, Paediatric

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## INTRODUCTION

Infectious myositis is a rare diagnosis with potential for severe local and systemic complications [1]. Infectious

myositis is most commonly the result of hematogenous infection and typically develops in areas compromised by trauma, foreign body, ischemia or surgery [2]. Conditions known to increase the risk of infectious myositis include HIV infection, malignancy, diabetes mellitus and systemic sclerosis [2].

Peak incidence is between 20–40 years. Several cases have been reported of children affected in equatorial climates, whilst infectious myositis remains rare in temperate climates [3–8]. Infectious myositis of the iliacus muscle in a child has only been described once previously in British Orthopedic literature [3]. We present a case of infectious myositis of the iliacus muscle in a child, diagnosed clinically and radiologically, treated successfully with empirical antibiotic therapy. Interest in this case lies in the rarity of the condition, diagnostic difficulty and radiological findings.

## CASE REPORT

A 13-year-old boy of South Asian descent presented with a 24-hour history of pyrexia, malaise and reluctance to bear weight on his right lower limb. A working diagnosis of hip joint sepsis was made. On examination the patient appeared systemically unwell, had exquisite tenderness to palpation over the right anterior superior iliac spine (ASIS), mildly limited range of movement of his right hip joint with hip extension most affected and walked with an antalgic gait. Several eczematous skin lesions over his upper and lower limbs, with a localized area of erythema and slight ooze on the dorsal aspect of his right foot were also noted. Abdominal examination was unremarkable and deep palpation of his hip joint did not illicit tenderness. On admission he was noted to be pyrexial with a temperature of 38.1 °C. Initial blood results revealed a white cell count (WCC) of 10.8, C-reactive protein (CRP) of 61, and erythrocyte sedimentation rate (ESR) of 33. The patient was admitted for observation. Serial blood cultures were taken at times of pyrexia and the patient was initially treated symptomatically whilst awaiting an MRI scan of pelvis. Skin swabs were taken from the area of erythema affecting his right foot. MRI findings of signal hyperintensity in the right iliacus on T2 weighted sequences, (Figure 1), and hypointensity on T1 weighted sequences paired with the biochemical changes seen on serial blood tests led to a diagnosis of infectious myositis of the iliacus muscle. Accordingly, empirical IV antibiotic therapy was initiated. Blood culture results did not identify a causative pathogen. However, skin swabs taken from the right foot skin lesion revealed growth of *Staphylococcus aureus* and *Acinetobacter lwoffii*. The patient displayed prompt resolution of symptoms following initiation of parenteral antibiotic therapy guided by sensitivities (Clindamycin and Flucloxacillin) and was discharged home on oral antibiotics for 4 weeks. A serial MRI scan was performed six weeks later and revealed complete resolution of radiological inflammatory changes.



Figure 1: T2 weighted axial MRI pelvis. Arrow demonstrating signal hyperintensity in the right iliacus muscle.

## DISCUSSION

This case represents a rare clinical diagnosis, with only one such case previously described in British Orthopedic literature [3]. Infectious myositis of pelvic musculature is known to present with striking similarities to septic arthritis of the hip joint and indeed often an initial working diagnosis of septic arthritis is erroneously made [2, 9–13]. Subtle features on clinical examination can guide the clinician towards the correct diagnosis. Pelvic pyomyositis may present with pain and limited range of motion of the hip, with symptoms most pronounced in a particular plane of motion, corresponding to stretch of the affected muscle(s), unlike the globally reduced range of motion seen in septic arthritis [2, 10, 11, 14–17]. In this case, the patient complained of more significant pain on passive extension of the hip joint, representing the stretched iliopsoas muscle complex. It is vital for the clinician to be aware that the complexity of pelvic anatomy, including the close association of the iliacus to the femoral nerve, lateral cutaneous nerve of the thigh, intra-abdominal viscera, sacroiliac joint and hip joint, can give rise to a wide range of presenting symptoms [3, 16–20]. Given the inconclusive symptom profile in our patient early MRI scan proved to be essential in determining a definitive diagnosis. Early diagnosis of infectious myositis is essential in order to prevent, or limit, the development of potentially life threatening complications [1, 12, 21]. MRI scan is the imaging modality of choice for identifying pelvic soft tissue infections and has demonstrated high sensitivity for identifying early inflammatory changes [1, 3, 12, 18, 20]. MRI scan has the additional benefit of excluding other hip or pelvic pathology [3]. The combination of signal hyperintensity in the iliacus muscle on the T2 weighted images and signal hypointensity on T1 weighted images, with otherwise normal anatomical appearances enabled a

diagnosis of infectious myositis of the iliacus to be made. It is noteworthy that in our patient there was no evidence of abscess formation which has often been encountered and necessitates aspiration or debridement [2, 4–8, 12, 21, 22]. Infectious myositis is most commonly bacterial in origin and causative pathogens include *Staphylococcus aureus*, Group A streptococci, Gram negative aerobic and facultative bacilli. *Staphylococcus aureus* is the causative pathogen in 90% of cases [1, 2, 3]. Fungal and viral etiologies are also seen, more commonly, in immunocompromised patients [21]. Infection can be a complication of local trauma, foreign body, illicit drug use injection, surgery. Causative pathogens may be indigenous local flora. However, hematogenous infection is most common. Often contiguous sites of infection are identified such as skin infections, infected ulcers or wounds. In our patient, the identification of *Acinetobacter lwoffii* and *Staphylococcus aureus* from a superficial area of eczema suggests a possible source of infection. *Acinetobacter lwoffii* is a normal commensal of skin, oropharynx and perineum.

*Acinetobacter lwoffii* bacteremia has been reported, though this has most often been in immunocompromised patients. [23]. Serial blood cultures failed to identify a blood-borne organism in our patient. The absence of a clear collection meant that aspiration was not possible and we were unable to definitively identify a causative organism. Therefore, we are only able to postulate that the infected skin lesion acted as a possible source of infection which resulted in hematogenous spread to the iliacus muscle. The prompt resolution of both skin lesion and symptoms from the infectious myositis following initiation of parenteral antibiotics lend support to this theory.

## CONCLUSION

This case of infectious myositis of the iliacus muscle in a child represents a rarely seen clinical entity. One such case has previously been reported in British orthopedic literature. This case has demonstrated the diagnostic difficulty in differentiating septic arthritis of the hip from infectious myositis of pelvic musculature. Early MRI investigation is essential to enable early diagnosis and commencement of parenteral antibiotic therapy. Whilst this represents a very rare clinical entity, both orthopedic and pediatric clinicians should consider it as a differential for any unwell child presenting with fever, joint or muscle pain.

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## Author Contributions

Alexander Martin – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final

approval of the version to be published  
Syed Aftab – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published  
Urpinder Grewal – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published  
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## Guarantor

The corresponding author is the guarantor of submission.

## Conflict of Interest

Authors declare no conflict of interest.

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