International Surgery Journal
Green RJ et al. Int Surg J. 2024 Aug;11(8):1334-1337
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20241956

Case Report

Retroperitoneal soft tissue sarcoma, a rare mimic and important differential of iliopsoas abscess

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Received: 20 June 2024
Revised: 04 July 2024
Accepted: 05 July 2024

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ABSTRACT

This case report highlights the diagnostic challenges posed by retroperitoneal soft tissue sarcoma (STS) presenting as an iliopsoas abscess, mimicking common symptoms and radiological findings. This patients' symptoms recurred despite multiple percutaneous drains and revisions over a period of months. Further investigation revealed a partly solid, partly cystic mass consistent with sarcoma. Surgical excision confirmed the diagnosis, but recurrence necessitated palliation. This case emphasizes the importance of differential diagnoses of iliopsoas collection and the need for research into alternative imaging modalities to aid clinicians and radiologists in differentiating benign retroperitoneal collections from malignancy.

Keywords: STS, Iliopsoas abscess, Interventional radiology

INTRODUCTION

Soft tissue sarcomas (STSs) are a heterogenous group of tumours arising from various tissue subtypes, including muscle, blood vessels, nerves and fat. Treatment may involve surgery, radiotherapy and systemic therapy depending on the histopathological subtype and disease staging, among other factors.[1] Iliopsoas abscess often present with non-specific signs and symptoms that rely on cross-sectional imaging for diagnosis.[2] Treatment typically involves percutaneous drainage, antibiotics and addressing the underlying cause. Retroperitoneal STS is a rare mimic of iliopsoas abscess that presents a diagnostic challenge for radiologists and clinicians alike.

CASE REPORT

An 82-year-old woman living in the UK presented to the emergency department with low back pain and urinary frequency.

Seen initially in the community, she was suspected to have a urinary tract infection and was treated with empirical oral antibiotics. Despite this initial course she developed tachycardia and pyrexia. Additionally, she experienced abdominal pain localising to the right iliac fossa. Contrast enhanced CT Abdomen and pelvis demonstrated a complex iliopsoas collection (Figure 1). A percutaneous drain was inserted into the collection under CT guidance and treatment was escalated to IV antibiotic therapy, after which the patient's subjective condition initially improved. Due to a worsening of symptoms the patient underwent open drainage of the abscess. Enterococcus faecium was cultured from microbiology samples. The patient was discharged after a reduction in drain output was observed (Figure 2). Over the following five months, the patient re-presented to hospital three times and was managed with two further drain insertions and revisions of the drain, with an eventual upsizing of the drain to 28Fr. Despite these treatments, the symptoms and collection recurred

(Figure 3). MR imaging conducted during a later presentation demonstrated a partly solid, partly cystic mass originating in the right psoas with associated hydronephrosis as well as extension into the T12 vertebral body and neural exit foramina (Figure 4). These appearances raised suspicion for malignancy, and a further open operation for an evacuation discovered a large mucinous or lipomatous debris. Biopsy confirmed the diagnosis of high-grade STS. Unfortunately, the patient experienced recurrence of the malignancy and proceeded with palliative management involving radiotherapy. This case highlights the importance of recognising sarcoma as a potential cause of cystic collections. Awareness of cystic sarcomas may allow more prompt appropriate management, including referral to a national sarcoma centre.

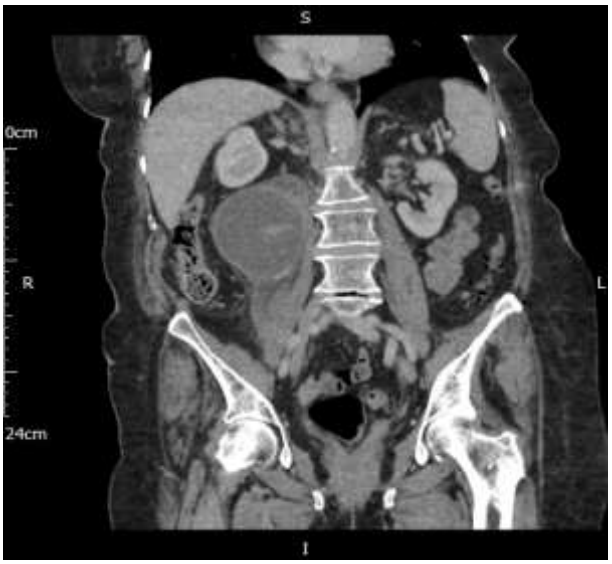

Figure 1: Coronal reformat showing a complex, enhancing right sided psoas collection.

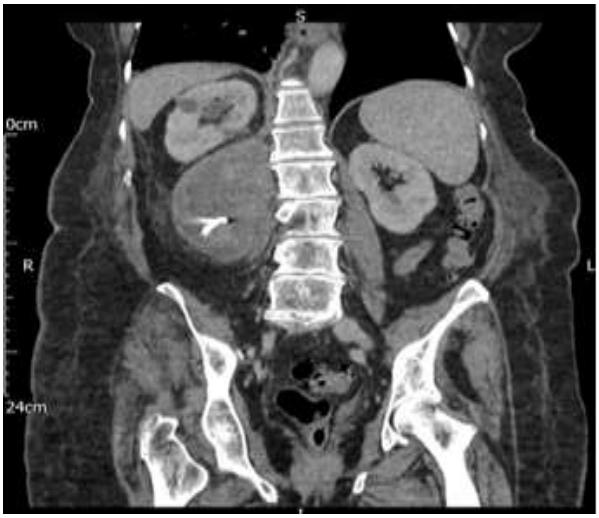

Figure 2: Subsequent insertion of a 14Fr drain. Associated mass effect causing mild right sided hydronephrosis.

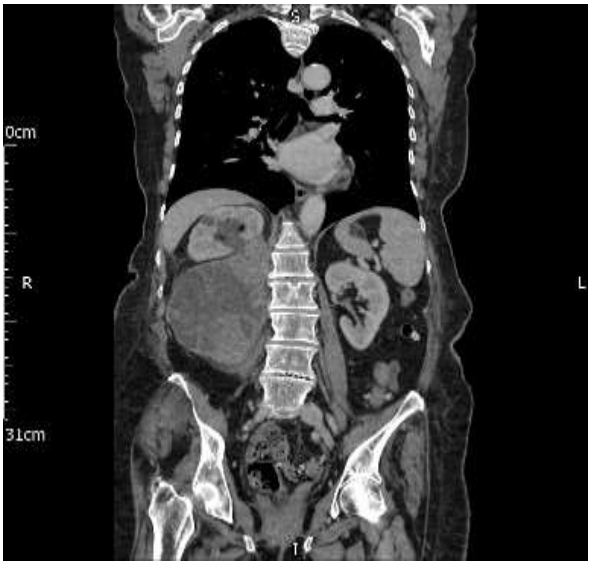

Figure 2: Coronal reformat demonstrating an increase in size of the retroperitoneal mass with worsening right sided hydronephrosis.

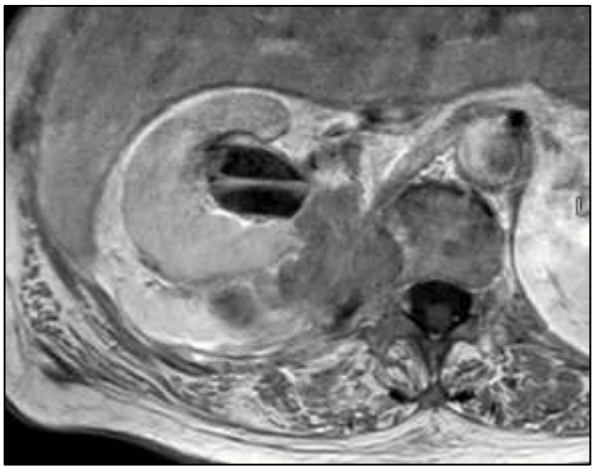

Figure 4: MRI post contrast T1 demonstrating; a part solid, part cystic mass centred in the right psoas with hydronephrosis and extension into the T12 vertebral body and exit foramina.

DISCUSSION

Sarcomas occur in 1.8-5 people per 100,000 per year and can be divided into STS and osteosarcoma.[3,4] STS are a heterogenous group of tumours arising from various tissue subtypes, including muscle, blood vessels, nerves and fat. There are over 50 different types of STS with an approximate 5-year survival rate of 81% for localised STS. When considering all tumour grades, the average 5-year survival rate is 65%.[5] Retroperitoneal STS make up approximately 1% of all STS, which in total account for less than 1% of all adult malignancies.[6] Given the anatomical location, with surrounding high-risk structures and difficulty of access, retroperitoneal tumours are inherently high-risk regardless of the underlying pathology. Surgical intervention remains the gold

standard and the only curative treatment for localised disease, despite the intraoperative anatomical challenges and the difficulty of obtaining clear margins.[1] Multimodal treatment may involve surgery, radiotherapy and systemic therapy depending on the histopathological subtype and disease staging, among other factors.[7,8]

Iliopsoas abscess is considered a rare condition, but it is relatively more common than retroperitoneal STS with an estimated incidence of 0.4 per 100,000 per year.[9] There is a mortality of 2.4% associated with primary psoas abscess and 18.9% in secondary psoas abscess.[10] However, the true prevalence and incidence remains unknown, as many asymptomatic patients do not present for treatment. The source of the infection may be primary or secondary, with causative agents including haematogenous gastrointestinal sources. Literature suggests that in developed countries haematogenous spread from gastrointestinal sources are the most common cause, however in developing countries tuberculosis is often suspected as it is frequently cultured.[11] In terms of risk factors, immunosuppression, Crohn's disease, diabetes and systemic infection all predispose patients to developing an iliopsoas abscess.

Symptoms of iliopsoas abscess may be non-specific, with the commonly referenced triad of fever, back pain and limp only seen in 30% of patients.[2] Diagnosis is typically confirmed using cross sectional imaging such as CT and MRI. Despite MRI demonstrating superior sensitivity, CT remains the more common initial imaging modality in the emergency setting.[11,12] Initial management of uncomplicated iliopsoas abscess typically involves percutaneous drainage and systemic antibiotic therapy. Further management depends on the underlying source of infection; patients with inflammatory bowel disease commonly require surgical management.[11] Resolution of iliopsoas abscess with percutaneous drainage and antibiotics alone is estimated at 40-50%.[11,13]

Retroperitoneal STS may present with lumbar or flank pain or referred pain along the hip or leg. Other symptoms may be related to mass effect, including femoral nerve compression symptoms. The aforementioned classical triad of iliopsoas abscess symptoms (fever, limp and back pain) are notoriously nonspecific, with imaging often playing a definitive diagnostic role.

The patient in this case presented with fever and tachycardia, along with low back pain, dysuria and abdominal pain. This constellation of symptoms would suggest an infective cause to many clinicians and indeed, the initial imaging was consistent with iliopsoas collection. Despite multiple admissions for percutaneous drainage and antibiotics over multiple admissions to hospital over a span of five months this patient did not improve, hinting at an alternative underlying diagnosis. Differentiation of pyogenic retroperitoneal collections, such as iliopsoas abscess, from malignant pathology solely based on imaging remains challenging and clinical correlation remains integral. The use of alternative imaging modalities, including MRI, may be of benefit to further characterise a given collection but their role in differentiating benign from malignant iliopsoas soft tissue masses remains challenging for radiologists.[14] MR may be useful in differentiating between abscesses and malignancy, particularly the use of DWI and ADC sequences. Restricted diffusion would suggest infection over tumour, however highly cellular tumour may in fact mimic abscess.

Routine histopathology analysis of fluid aspirated from collections is not beneficial given cost and the rarity of cystic tumours mimicking abscess.

Limited studies have found variable success with the use of ^{18}F-FDG PET-CT to distinguish STS from benign soft tissue masses.[15-18] Further studies are warranted to establish the role of this technique regarding its diagnostic power.

CONCLUSION

STS of the iliopsoas is a rare diagnostic differential for non-resolving iliopsoas abscess with overlapping signs and symptoms. Differentiation of benign pyogenic retroperitoneal collections from malignant processes remains a challenge. Clinicians would be prudent to consider alternative diagnoses after initial management proves unfruitful. The role of alternative imaging modalities is not well evaluated, but they may prove useful.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Green RJ, Vennam S, Kirkham C, Aylward C, Caufield W, Andraloj L, et al. Retroperitoneal soft tissue sarcoma, a rare mimic and important differential of iliopsoas abscess. Int Surg J 2024;11:1334-7.