

Soft tissue abscess masquerading as soft tissue sarcoma: a case report

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1 Background

Deep musculoskeletal infections can closely mimic soft-tissue sarcomas, both clinically and on imaging — each may present as an enlarging, deep, painful mass showing necrosis, rim enhancement and intense FDG uptake. **This overlap is a well-recognised diagnostic pitfall:** misinterpretation risks either an unnecessary oncological resection or a dangerous delay in source control. We report a young woman whose thigh collection was reported as an aggressive sarcoma on both MRI and PET-CT, yet proved to be a methicillin-resistant *Staphylococcus aureus* (MRSA) abscess.

KEY MESSAGE

No clinical, biochemical or imaging feature — including PET-CT — reliably separates soft-tissue infection from sarcoma. **Biopsy sent for both histology and culture is the decisive step**, and is central to every bone & joint infection service.

2 Case presentation

History

- **26-year-old female schoolteacher**
- Right distal-thigh / knee pain for 2 weeks; insidious, progressive
- Worse on walking and at night, with swelling
- No fever, weight loss or anorexia
- Lifelong recurrent respiratory infections; hypothyroid; treated for infertility

Examination

- Afebrile, haemodynamically stable
- Diffuse, warm swelling over the lateral distal thigh
- Painful, restricted range of motion
- Digital clubbing; neurovascularly intact

Investigations	
WBC	16,400 /μL (N 81.5%)
CRP	156.56 mg/L
Temperature	Afebrile (37.0 °C)

Markedly raised inflammatory markers despite being afebrile.

3 Imaging — an aggressive-looking mass

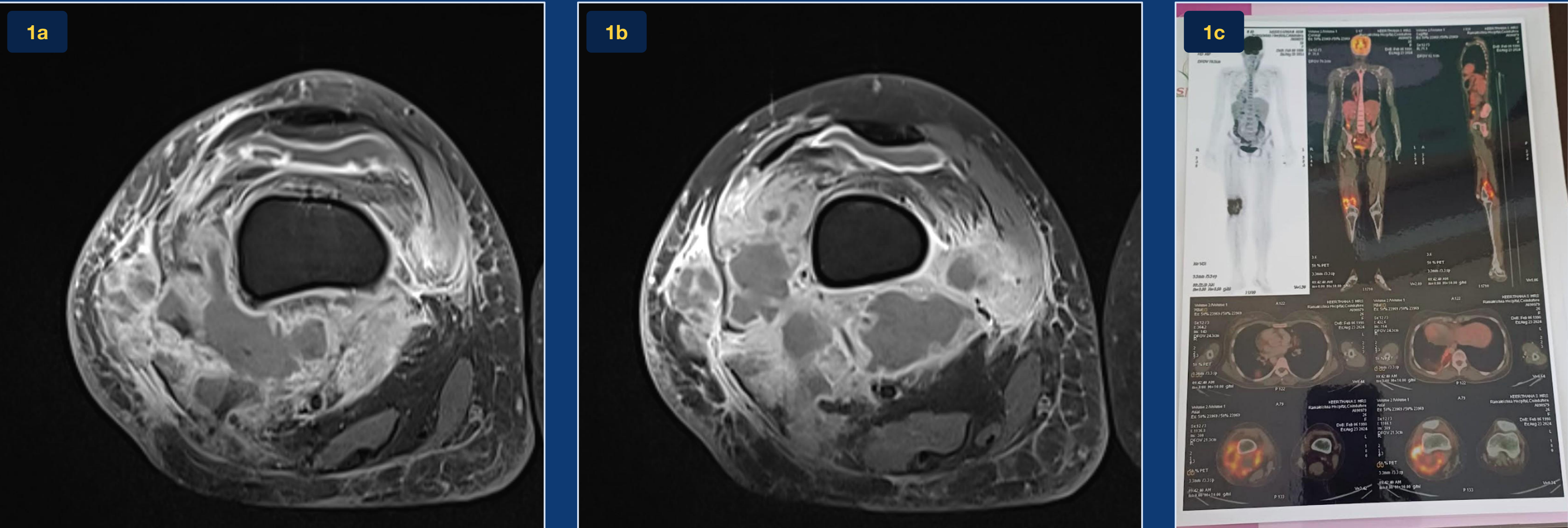


Figure 1. (a) Axial T2 and (b) axial T1 MRI: a well-defined, multilobulated soft-tissue mass in the distal thigh. (c) PET-CT: solitary FDG-avid necrotic lesion.

MRI: multilobulated soft-tissue mass, 10.2 × 7 × 5.4 cm, posterolateral aspect of the distal femur; no intra-articular extension.

PET-CT: FDG-avid necrotic lesion, 7.5 × 4.8 cm; no metabolically active disease elsewhere.

RADIOLOGICAL IMPRESSION
Aggressive soft-tissue sarcoma
(? synovial sarcoma) — on both MRI and PET-CT

4 The turning point — biopsy and culture



Figure 2. (a) Intra-operative view of the thigh; ≈300–400 ml frank pus was drained. (b) Repeat MRI: thick-walled complex collection.

Image-guided biopsy → frank pus aspirated. **Repeat MRI:** large, thick-walled, lobulated complex intra/inter-muscular collection (≈11 × 8.4 cm) with central diffusion restriction — an infective collection.

Specimen	Pus (intra-operative)
Organism	MRSA (S. aureus)
Sensitive	Vancomycin, teicoplanin, linezolid

FINAL DIAGNOSIS **MRSA soft-tissue abscess**

5 Management & outcome

Source control — abscess drainage, debridement and thorough wound lavage.

Culture-directed therapy — guided by organism sensitivities.

Outcome — infection resolved; wound healed and the patient became fully ambulatory.

Underlying cause — primary ciliary dyskinesia confirmed on genomic sequencing; referred for long-term respiratory and fertility care.

6 Underlying diagnosis

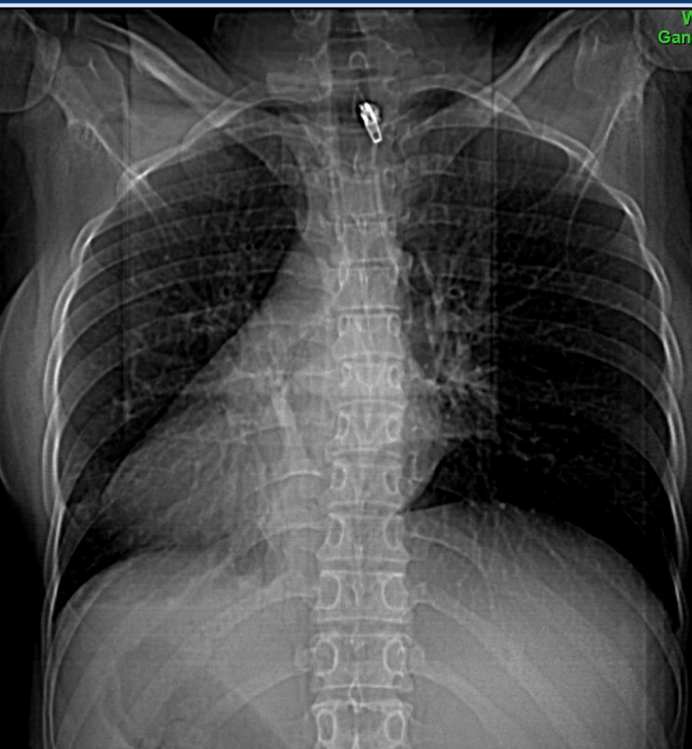


Figure 3. Chest radiograph: dextrocardia (situs inversus).

Situs inversus totalis, chronic sinusitis / bronchiectasis and infertility, with clubbing and lifelong infections, indicated **Kartagener's syndrome (primary ciliary dyskinesia)** — a ciliary defect predisposing to recurrent, deep infection.

7 Discussion

Imaging can't separate them — MSK infection mimics sarcoma clinically, on MRI and on PET-CT; metabolic avidity does not discriminate.

Biopsy is decisive — send tissue for both histology and microbiology; culture yield is lost if it goes to histopathology alone.

Use the MDT — where doubt exists, a combined sarcoma–infection team should review before any definitive resection.

Stay suspicious — marked neutrophilia and CRP with a soft-tissue mass should raise infection even in an afebrile patient.

“Biopsy all your cultures, and culture all your biopsies.”

8 Conclusion

An aggressive-looking thigh mass, reported as sarcoma on MRI and PET-CT, proved to be an MRSA abscess.

Biopsy with culture averted an unnecessary oncological resection.

Keep infection in the differential of every soft-tissue mass, and confirm with tissue for histology and culture.

References

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