

Introduction

- Solid organ transplant (SOT) recipients are at increased risk of fungal and mycobacterial infections.
- SOT recipients present with unusual difficult to treat skin and soft tissue infection (SSTI) can be related to fungal or mycobacterial infection, or non-infectious conditions such as malignancy.
- This case presents an interesting clinical scenario of disseminated *Mycobacterium haemophilum* infection with SSTI, as well as necrotizing lymphadenopathy, and Brodie's abscess.

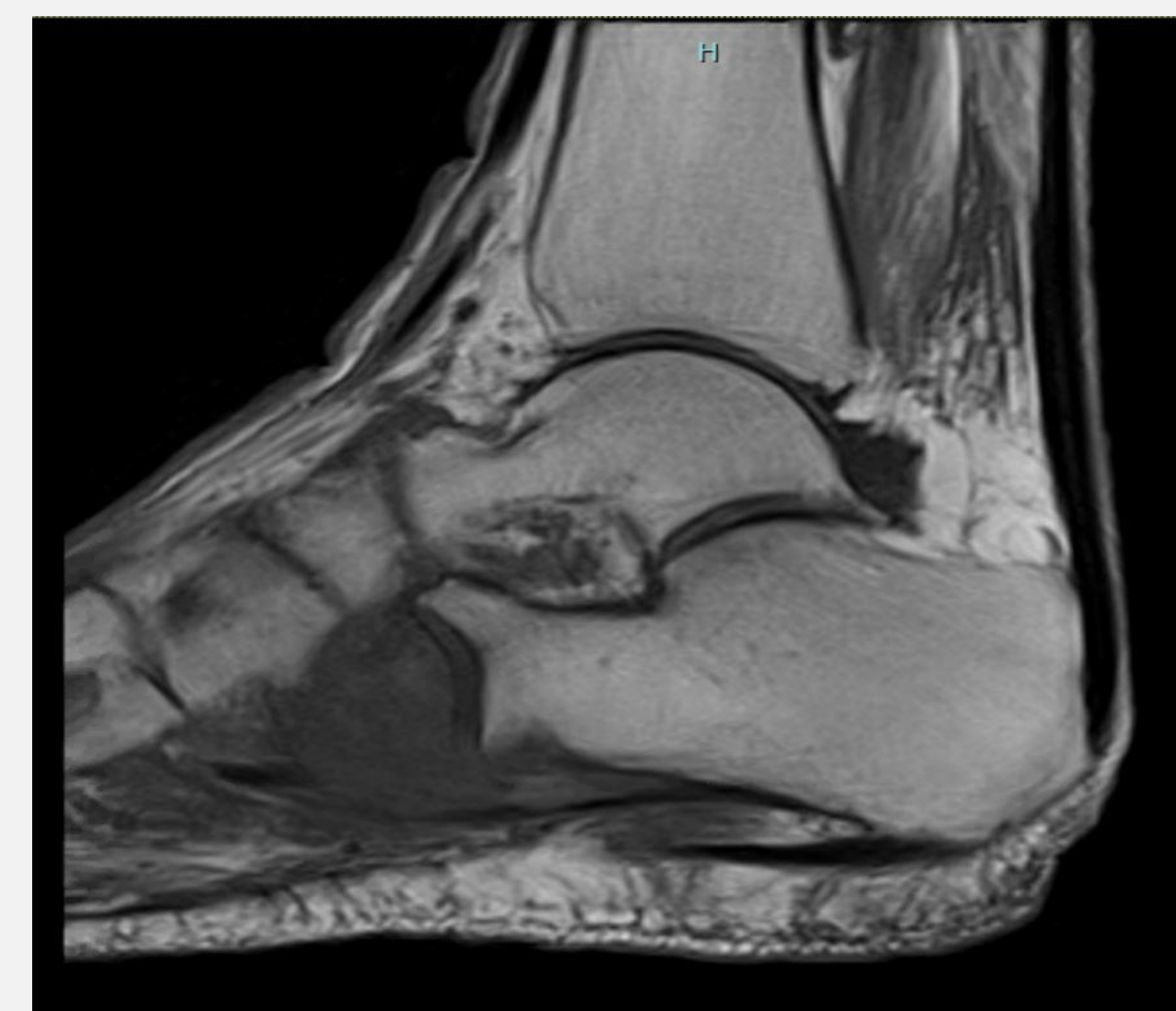
Case Presentation

- A 77-year-old woman initially presented with fever (39.2 DegC) and chills of 3 days duration. A few weeks prior, she had complained of an indurated, tender lesion in the right groin that was treated with 5 days of cephalexin. The lesion resolved; however, 2 weeks later she developed a similar lesion on her left neck.
- **PMH:** Deceased-donor Kidney transplant 12 years prior for membranous nephropathy (**Key Medications:** Tacrolimus, Prednisone, Fluconazole (for coccidioidomycosis prophylaxis))
- **Epidemiological history:** Born in Alabama and living in Tucson, AZ for over 10 years. No significant outdoor exposures.
- **Physical Examination:** Remarkable only for small tender erythematous open lesions on the left side of her neck, draining scant amount of serous fluid, and a 2 cm erythematous open lesion in the right groin without drainage or tenderness. Vital signs within normal limits.
- **Workup:** extensive initial non-invasive workup was done (Table 1). Ultrasound of the left neck and right groin showed small size abscesses, respectively. Initial MRI of the chest, abdomen and pelvis with contrast reported no acute findings.
- **Clinical course:** After initial workup patient was discharged with oral antibiotics for 2 weeks with complete resolution of the lesions. However, 3 months later, she reported several new raised, pink, ulcerated papules on her upper extremities. Also reported new right foot pain without prior trauma/triggers. Since symptoms progressed, she was admitted and underwent MRI of the right foot (Figure 1), as well as CT chest/abdomen/pelvis with contrast (Figure 2).
- A shave biopsy of the lesion reported a dermal abscess with hemorrhage with numerous acid-fast bacilli identified. A punch biopsy was performed as well and sent for broad range tissue PCR, which identified *Mycobacterium haemophilum* with 16s rRNA gene primer set and hsp65 amplified probe. The microbiology lab, with this information, cultured in iron-supplemented media and confirmed the organism and performed susceptibilities. Podiatry team evaluated her foot, no surgical intervention was recommended.
- **Treatment/Follow-up:** treated with several regimens but due to drug interactions and toxicities. The plan was for long course of combination antibiotic therapy based on available susceptibilities with oral doxycycline, moxifloxacin and azithromycin. The patient tolerated the regimen well, with plan to complete a year course of treatment. She has continued to improve clinically and is able to ambulate without assistance, and no new cutaneous lesions.

Table 1: Serum and Blood Studies

Serum/Blood Studies	Result
HIV Ag/Ab 4 th generation	Negative
Hepatitis B surface Ab, surface Ag, core Ab	Negative
Toxoplasma IgG	<0.05 IU/ml (negative)
Coccidioides EIA IgM and IgG	Negative
Cytomegalovirus Quantitative PCR	Negative
Epstein Barr Virus Quantitative PCR	Negative
Serum galactomannan	Negative
Serum B-D-glucan	<31 pg/ml
Cryptococcus Antigen	Negative
Histoplasma Antibody IMDF	Negative
RPR and Syphilis Antibody	Detected
TB Quantiferon	Negative
Bacterial, fungal and AFB blood cultures	No growth

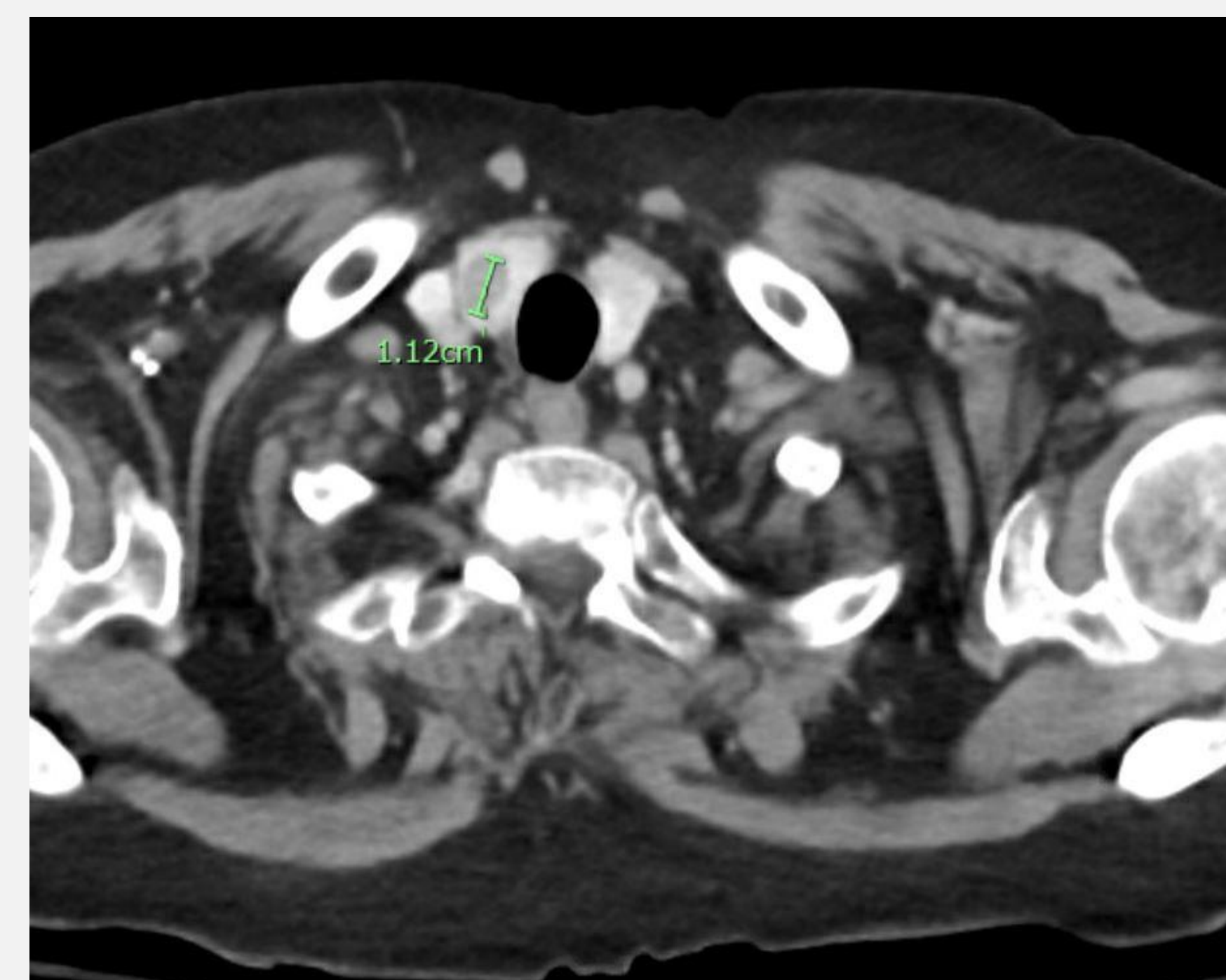
Figure 1: MRI with contrast of R foot



Impression

Brodie's abscess of the right cuboid bone draining to the lateral plantar soft tissues adjacent to the cuboid with complex fluid/soft tissue abscess at the superficial soft tissues

Figure 2: CT chest/abdomen and pelvis with contrast



Impression

Centrally necrotic right paratracheal lymphadenopathy (measuring approximately 4.2 x 2.6 cm) and adjacent tracheoesophageal lymphadenopathy

Discussion/Major teaching points

This case presents an interesting clinical scenario and several major teaching points:

1. Recurrent SSTI in SOT recipients should raise concern for disseminated infections, including fungal and non-tuberculous mycobacterial infections.
2. *M. haemophilum* is a slow growing fastidious organism, that is difficult to grow and identify. This case also illustrates the clinical application of broad range PCR in tissue². When rare, atypical infections are suspected, there is a wide and more relevant use for this type of testing, as most of these organisms are difficult to culture or require special media that are not routinely used, such as the case of *Mycobacterium haemophilum*. This is due to the fastidious nature of this organism which requires specific temperatures between 28°C–32°C and iron-supplemented media for growth^{1,2}.
3. *M haemophilum* infections usually present with involvement of the extremities and isolates are susceptible to most first-line antimycobacterial agents (except ethambutol), clarithromycin, and the sulfonamides.
4. Timely diagnosis and treatment of early manifestations are likely to improve outcomes^{4,5}.

Final diagnosis

Mycobacterium haemophilum disseminated infection with Brodie's abscess of the cuboid bone and paratracheal lymphadenopathy masquerading as post-transplant lymphoproliferative disorder (PTLD)

References

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