

# When A Systemic Issue Leads To Disseminated Disease: A Case of Disseminated *Mycobacterium Avium*-Complex

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## Introduction

- Highly active antiretroviral therapy (HAART) has improved prevention of AIDS-defining illness in the developed world, including disseminated *Mycobacterium avium*-complex (DMAC) infection<sup>1</sup>
- Nontuberculous mycobacterium (NTM) infection rate has risen in parts of North America<sup>2</sup>
- Social determinants of health impact the efficacy of HAART and development of AIDS-defining illness<sup>3</sup>

## Case Description

- 34-year-old Hispanic HIV-positive man who has sex with men presented with chronic abdominal pain, weight loss and bloody diarrhea
- Endorsed inconsistent follow up with primary care physician (PCP), adherence with HAART and disownment by family since diagnosis in 2018
- Was previously evaluated at outside institution, found to have profound pancytopenia, CD4 count of <50 cells/mm<sup>3</sup>, indeterminate QuantiFERON, and diffuse abdominal lymphadenopathy on imaging (Fig. 1) before leaving against medical advice
- Cachectic and ill-appearing on exam with abdominal tenderness and scattered petechiae
- Labs showed severe pancytopenia, with transfusion dependent thrombocytopenia refractory to IVIG used to treat possible immune thrombocytopenia
- Bone marrow biopsy revealed hypocellularity and decreased megakaryocytes
- Marrow culture grew MAC for which azithromycin, ethambutol and rifabutin were initiated
- Course was complicated by shock from *Clostridium difficile* colitis and *Streptococcus mitis* bacteremia
- Despite treatment, the patient developed worsening shock causing multi-organ failure before ultimately expiring



**Figure 1** – Abdominal CT with contrast showing nodal masses in the left mid abdominal mesentery measuring 4.5 x 2.6 cm (A) and left lower quadrant mesentery measuring 3.9 cm x 2.3 cm (B)

## References

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## Discussion

- DMAC occurs most commonly in the immunocompromised host, such as those with HIV<sup>1</sup>
- Isolated pulmonary infections typically occur in the immunocompetent<sup>4</sup>
- DMAC commonly manifests as constitutional symptoms<sup>1</sup>, though an immunocompromised state can create a diagnostic puzzle
- Diagnosis can be made by identification of the organism in blood culture, lymph node or bone marrow, or liver biopsy culture<sup>5</sup>
- Response to antibiotics is variable, ranging from two to four weeks when added to HAART therapy<sup>6</sup>
- Patients may succumb to comorbidities or complications in an extreme immunocompromised state before an adequate response to antibiotics can be appreciated
- Adherence with HAART greatly reduces the risk of developing disseminated disease
- Factors including race, socioeconomic class and early disease stage have been found to be associated with delays in establishing HIV care in developed countries<sup>3</sup>
- Identification of vulnerable populations and establishment of therapeutic communication by engagement with PCPs can allow for early intervention and prevention of disease progression

## Conclusion

This case serves as a cautionary tale, highlighting the role of a therapeutic alliance in addressing treatable complications of treatable illnesses. Establishing and maintaining a regular relationship with a primary care doctor can be the difference between early intervention, medication adherence and minimal morbidity, and as this case illustrates, mortality. The dearth of primary care resources across the country sets an ominous tone for similar, preventable complications in advanced disease.