

Mycobacterium fortuitum: Diagnostic and treatment challenges of skin disease in an immunocompetent host – A Case Report

Authors Maria Conradie ^{1,2}, Clarice Egan¹, Siobhán O'Regan¹, Peter Conlon¹, Paul Reidy¹, David Gallagher¹, Eibhlin Higgins ^{1,3}

Affiliations 1. Galway University Hospital, Galway, Ireland 2. University of Edinburgh, Edinburgh, Scotland 3. University of Galway, Galway, Ireland

Introduction

Mycobacterium fortuitum is a rapidly growing non-tuberculous mycobacterium (NTM), known to cause skin and soft tissue disease¹. Immunocompetent patients most often present with isolated lesions whereas disseminated and severe disease is associated with underlying immunocompromise². Diagnosis is made based on microbiological investigations, histology and pathognomonic clinical presentation. Treatment requires combination antibiotics with close monitoring for the possibility of drug side-effects.

Case Presentation

A female patient in her thirties presented after sustaining a suspected insect bite to her lower leg that evolved into multiple, rapidly developing subcutaneous nodules and consequential abscesses.

Admission was required for surgical drainage. Initial cultures isolated bacterial species including drug-resistant organisms for which she received extended courses of antibiotics.

She showed initial recovery but over the following months, continued to have recurring abscesses and spread along the medial, lymphatic distribution of her leg. This prompted skin biopsy with histological and microbiological re-investigation.

Results

Histological evidence of pustular infiltrates and neutrophil microabscess as well as positive isolation supported a diagnosis of *M. fortuitum*. MICs showed sensitivity to moxifloxacin, co-trimoxazole, linezolid and amikacin with inducible macrolide resistance.

The decision was made that, given the laboratory results and clinical course of progressive skin and soft tissue lesions despite multiple courses of antibiotics, *M. fortuitum* was the likely responsible organism.

Treatment was initiated with oral moxifloxacin and co-trimoxazole with intravenous amikacin for 2 weeks. She continues oral treatment with outpatient surveillance and management of minor drug side-effects. Directed anti-mycobacterial therapy has resulted in significant clinical improvement.

Conclusion

M. fortuitum is an atypical organism causing skin and soft tissue disease with poorly understood incidence but rising for several years³. Infections have been associated with surgical interventions⁴⁻⁶ and linked to foreign bodies such as prosthetic valve endocarditis or joint infections^{7,8}. It often poses diagnostic challenges when environmental contamination is likely and multiple, more common organisms are concomitantly detected.

Diagnosis is based on:

- histological appearance of infected tissue,
- microbiological detection of the organism, more commonly with molecular techniques in reference laboratories, and
- a clinical course of persistent deep-seated skin abscess that progressed despite standard antibiotics.

Disease that extends beyond the usually found isolated lesions⁹ should raise concern for severe or disseminated disease and possible undiagnosed immunosuppression^{9,10} including IL-2, IFNG and GATA-2 deficiency.^{11,12}

Treatment of severe/progressive skin disease:

- Initial intravenous treatment, with amikacin preferred, for 2-3 weeks
- And oral treatment for 6 to 12 months¹³ depending on response
- Surgical source control is often also needed¹⁴

Traditionally, mycobacterium drugs, such as rifampicin, are inherently ineffective due to organism resistance and genetic factors.

Timeline of interventions, results and treatments



References

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