



Presented by: Peter L. Mattei, MD
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Epidemiological Patterns in Cutaneous Non-Tuberculous Mycobacterial Infections

Peter Mattei¹, Sean Chen¹, Seema Nayak², Ginette A. Hinds¹

¹ Department of Dermatology, Johns Hopkins School of Medicine, Baltimore, MD

²Department of Infectious Disease, Johns Hopkins School of Medicine, Baltimore, MD

Disclosures

- None

Overview

- Brief Review of Cutaneous Non-Tuberculous Mycobacterial (NTM) Infections
- Review of Our Study
- Conclusions and Future Directions for Investigation

Patterns of Cutaneous Infection

- Species Specific
 - *Mycobacterium ulcerans*
 - *Mycobacterium marinum*
- Lymphocutaneous/sporotrichoid
- Cervical Lymphadenitis
- Folliculitis/Furunculosis
- Wound/Surgery/Procedure related
- Dissemination to cutaneous and/or mucosal sites

Mycobacterium ulcerans



(Johnson PD, Stinear T, Small PL, Pluschke G, Merritt RW, Portaels F, Huygen K, Hayman JA, Asiedu K. Buruli ulcer (*M. ulcerans* infection): new insights, new hope for disease control. PLoS Med. 2005 Apr;2(4):e108.)

Mycobacterium marinum



(Giordano CN, Kalb RE, Brass C, Lin L, Helm TN. Nodular lymphangitis: Report of a case with presentation of a diagnostic paradigm. *Dermatol Online J.* 2010 Sep 15;16(9):1.)

Cervical Lymphadenitis



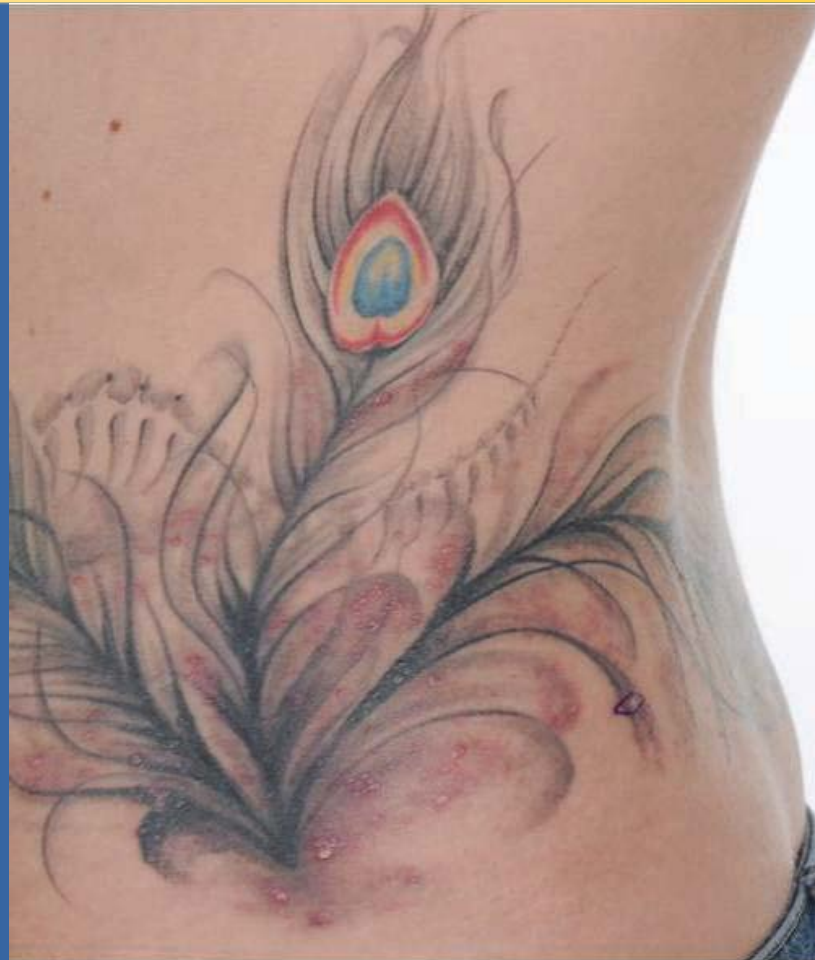
(Penn R, Steehler MK, Sokohl A, Harley EH. Nontuberculous mycobacterial cervicofacial lymphadenitis--a review and proposed classification system. *Int J Pediatr Otorhinolaryngol*. 2011 Dec;75(12):1599-603.)

Folliculitis/Furunculosis



(Redbord KP, Shearer DA, Gloster H, Younger B, Connelly BL, Kindel SE, Lucky AW. Atypical *Mycobacterium furunculosis* occurring after pedicures. *J Am Acad Dermatol.* 2006 Mar;54(3):520-4.)

Wound/Surgery/Procedure



(Conaglen PD, Laurensen IF, Sergeant A, Thorn SN, Rayner A, Stevenson J. Systematic review of tattoo-associated skin infection with rapidly growing mycobacteria and public health investigation of a cluster in Scotland, 2010. *Euro Surveill.* 2013 Aug 8;18(32):20553.)

Disseminated



(Pigem R, Cairó M, Martínez-Lacasa X, Irigoyen D, Miró JM, Acevedo J, Fernández J, Alsina-Gibert M. Disseminated infection with cutaneous involvement caused by *Mycobacterium mageritense* in an immunocompromised patient. *J Am Acad Dermatol.* 2013 Oct;69(4):e192-3.)

Objective

- Determine NTM species and as well as epidemiologically related risk factors
- Retrospective chart review of patients with cutaneous NTM infections seen at JHH dermatology and infectious disease clinics from 2011-2013.

Methods

- The Johns Hopkins Microbiology mycobacteria lab positive culture log book was reviewed for NTM infections
- Data was available from January 2011 through November 2013.
- Medical records correlating with the positive culture log were reviewed retrospectively

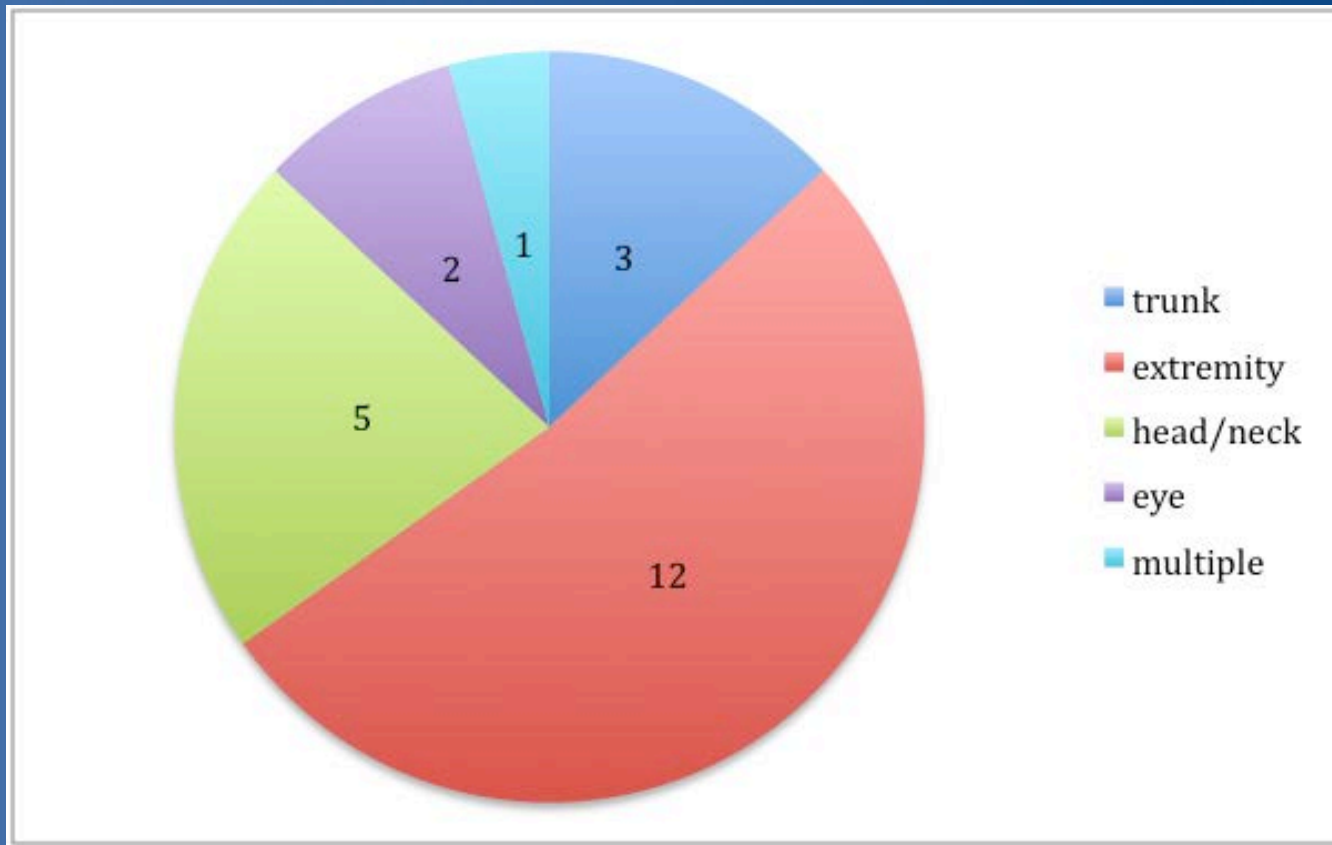
Results

- 23 positive NTM infections which involved the skin or subcutaneous tissues/lymphatics were identified
- The mean age of infected individuals was 45 and the median age was 50.
- 15 of 23 of the infected patients were male.
- In addition, 17 of 23 patients were white, 3 of 23 were black, 1 of 23 was Hispanic and 2 of 23 were listed as “other.”

Results

- 6 of the 23 patients were on chronic immunosuppressive therapy and 2 of 23 were HIV-positive.
- 10 of 23 cases presented as cellulitis, 1 of 23 as panniculitis, 6 of 23 as abscess, 4 of 23 as lymphadenitis, and 2 of 23 as ophthalmic infection.

Results



Infection Sites

Results

- Exposure history was elicited from 18 of 23 records
- 10 of 18 involved history of a surgical procedure; 2 involved plastic surgery in a foreign country (DR and Peru)
- 4 of 18 involved exposure to salt water

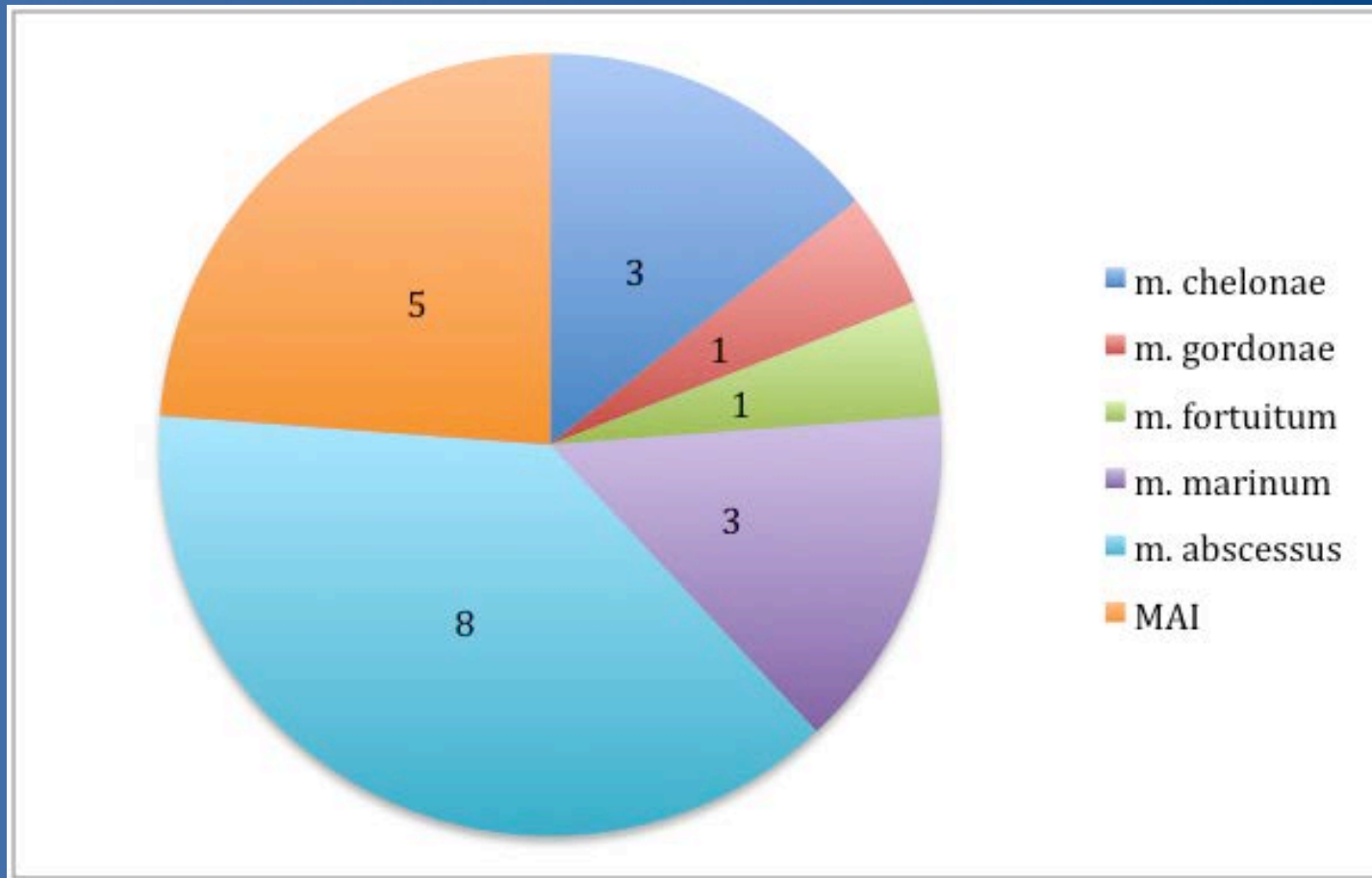
Results



Results



Results



Species

Results

- All 3 cases of *M. marinum*, were associated with salt water exposure
- 4 of 5 cases of MAI presented as lymphadenitis
- 3 pediatric cases identified, all 3 MAI lymphadenitis presenting at 2 years of age.

Limitations

- Data obtained from a single medical center and may not be representative of other geographic locations.
- Relatively few cases were identified.

Conclusions

- NTM infections are relatively rare.
- Surgical procedures and salt water exposure are important risk factors for infection.
- Extremities were most frequently affected in this series.
- Pediatric infections identified in this series, involved MAI lymphadenitis.

Future Directions

- Currently working to obtain data from 10 years prior to this study
- Antimicrobial resistance patterns
- Compare and contrast infections by species and temporally