

# Atypical Cutaneous Mycobacteria- A retrospective study of five-year experience in three major reference hospitals in Costa Rica.

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### Introduction & Objectives:

Atypical cutaneous mycobacteria are a group of diseases caused by organisms other than the Mycobacterium tuberculosis complex. The objectives of the study were to describe the epidemiological, clinical, diagnostic methods, and therapeutic profile and determine the risk factors in patients diagnosed with atypical cutaneous mycobacteria at Hospital México, Hospital Rafael Ángel Calderón Guardia, and Hospital San Juan de Dios, during the period 2019-2023.

### Materials & Methods:

We analyzed the cases that met the inclusion criteria by estimating frequencies and percentages and determining the 95% confidence interval (95%CI). All analyses used R 4.2.2 (R Foundation, Vienna, Austria, 2022) through R Studio 2023.12.1. The CCSS Central Scientific Ethics Committee has approved this study under protocol number R023-SABI-00344. NCT06523998.

### Results:

The number of patients included was 20 participants. The median age of patients was 40 years with a range of 21 to 72 years at the time of diagnosis, with 25% male and 75% female representation. For the risk factors found in these twenty participants, the presence of diabetes was determined in four of them, one of them with the presence of pharmacological immunosuppression with azathioprine and prednisolone due to underlying lupus erythematosus, the presence of IgG subclass 3 deficiency and human immunodeficiency virus infection in two patients respectively. In none of the cases was the presence of active neoplasia documented at the file level during collection. A history of trauma was identified in sixteen patients with different trauma mechanisms including tattoos, lipotransfer, abdominoplasty, prophylactic mastectomy, injection of plasma, insulin, and foreign body material. Among the affected sites, 45% had gluteal involvement, 10% abdominal wall, 10% the left upper limb, 5% both lower limbs, 5% combined involvement of the trunk and lower limbs, 5% simultaneous involvement of the abdomen and upper limbs and 5% for each of the following sites: breast, cervical, right upper limb and right lower limb.

TABLE 1. TREATMENT LENGTH AND COMBINATION OF CASES OF NON-TUBERCULOSIS MYCOBACTERIAL CUTANEOUS INFECTIONS.

#	SPECIES	CIP	CLA	CLI	DOX	ETA	IMI	ISO	LEV	LIN	MER	PIR	RIF	AMI	TIG	TMP	VAN	AZI	CEF	CEZ	ANF	CAS	FLU	LENGTH
1	<i>M. abscessus</i>																							37 MONTHS, A
2	<i>M. avium</i>																							1 YEAR
3	<i>M. abscessus</i>																							2 MONTHS, A
4	<i>M. abscessus</i>																							21 MONTHS
5	<i>M. abscessus</i>																							12 MONTHS
6	<i>M. abscessus</i>																							22 MONTHS, A
7	<i>M. chelonae</i>																							6 MONTHS
8	<i>M. abscessus</i>																							10 MONTHS, A
9	<i>M. abscessus</i>																							8 MONTHS
10	<i>M. abscessus</i>																							12 MONTHS
11	<i>M. abscessus</i>																							20 MONTHS
12	<i>M. abscessus</i>																							13 MONTHS
13	<i>M. chelonae</i>																							
14	<i>M. chelonae</i>																							9 MONTHS
15	<i>M. abscessus</i>																							UNK
16	<i>M. abscessus</i> <i>N. farcinica</i>																							9 MONTHS
17	<i>M. abscessus</i>																							11 MONTHS
18	<i>M. marinum</i>																							8 MONTHS, A
19	<i>M. abscessus</i>																							3 MONTHS
20	<i>M. fortuitum</i>																							UNK
<b>ABBREVIATIONS:</b> <b>A</b> (ACTIVE AT THE MOMENT OF DATA COLLECTING). <b>CIP</b> (CIPROFLOXACIN), <b>CLA</b> (CLARITHROMYCIN), <b>CLI</b> (CLINDAMYCIN), <b>DOX</b> (DOXYCYCLINE), <b>ETA</b> (ETAMBUTOLE), <b>IMI</b> (IMIPENEM), <b>ISO</b> (ISONIAZIDE), <b>LEV</b> (LEVOFLOXACIN), <b>LIN</b> (LINEZOLID), <b>MER</b> (MEROPENEM), <b>PIR</b> (PYRAZINAMIDE), <b>RIF</b> (RIFAMPICIN), <b>AMI</b> (AMIKACIN), <b>TIG</b> (TIGECYCLINE), <b>TMP</b> (TRIMETHOPRIM-SULFAMETHOXAZOLE), <b>VAN</b> (VANCOMYCIN), <b>AZI</b> (AZITHROMYCIN), <b>CEF</b> (CEFOTAXIME), <b>CEZ</b> (CEFTAZIDIME), <b>ANF</b> (AMPHOTERICIN), <b>CAS</b> (CASPOFUNGIN), <b>FLU</b> (FLUCONAZOLE), <b>UNK</b> (UNKNOWN).																								

Of the isolated species, the isolation of one M. fortuitum, one M. avium, one M. marinum, three M. chelonae, thirteen M. absessus and a culture where the joint isolation of M. abscessus and Nocardia farcinica was found. Half of the cases had histological studies. The registered drugs received by the participants included ciprofloxacin, clarithromycin, azithromycin, trimetoprim-sulfamethoxazole, clindamycin, doxycycline, ethambutol, imipenem, isoniazid, vancomycin, cefotaxime, ceftazidime, anfotericine B, caspofungin, and fluconazole; this finding in relation to empirical coverage prior to definitive bacterial isolation. Regarding the duration of treatment by analysis, they were 9-12 months in 25%, 6-9 months in 20%, 1-2 years in 20%, 10% of unknown duration and 5% without treatment.

### Conclusion:

It is essential to take into consideration a history of trauma as a significant risk factor. The subgroup of atypical mycobacteria showed a predominance of infection at the buttocks level, with the species M. abscessus being the most commonly isolated. The mycobacteria group received multiple drug regimens, among the most commonly used drugs were clarithromycin, doxycycline, and azithromycin. These patients had exposure to combination regimens, and some required up to eight antibiotic treatments. Some of them also needed prolonged treatments and additional surgical management.