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Title: Pulmonary non-tuberculous mycobacterial infection (pNTM) with multiple species

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Body: Background: The incidence and relevance of pNTM with >1 species is unknown. Aims: To describe a cohort with respiratory isolates of >1 NTM species. Methods: pNTM cases were identified and recruited from clinic to undergo clinical assessment and lung function testing. Results: Of 57 recruited cases, 44% had >1 NTM species (1 to 6 additional species, table 1). In 11 cases, the isolation of additional species preceded isolation of what would become the predominant organism.

Table 1

	Single species (n=32)	Multiple species (n=25)
Age at diagnosis (y)	63.2	59.9
Female	16 (50%)	21 (84%)
Predominant species		
MAC	19 (59%)	12 (48%)
M. kansasii	4 (13%)	4 (16%)
M. xenopi	4 (13%)	2 (8%)
M. abscessus	3 (9%)	2 (8%)
Other	2 (6%)	5 (20%)
Additional species		
MAC		11 (44%)
M. xenopi		7 (28%)
M. fortuitum		6 (24%)
M. kansasii		4 (16%)
M. abscessus		3 (12%)

Other		9 (36%)
Smear +	9 (28%)	5 (21%)
Ever treated	15 (68%)	7 (32%)
FEV1*	1.54	1.57
FVC*	2.95	2.55
TLCO*	4.78	5.12
SGRQ	46.4	42.1
BMI (kg/m ²)	22.4	21.9

*SI units

Subjects with >1 species were more likely to be female (84% v 50% p=0.01). Isolation of >1 species was not related to disease severity as measured by lung function, SGRQ, smear positivity or decision to treat. Median duration of disease was not significantly greater in those with >1 species (2.8 v 2.0 years p=0.35), but the median number of samples sent was higher (24 v 13 p=0.02). Conclusion: The first isolated species of NTM may not be indicative of the predominant infecting organism, and the isolation of multiple species may make management decisions challenging. A subgroup of patients has an unexplained propensity towards isolation of NTM; further study of this group may lead to insights into disease pathogenesis.