Online Resource 1 (Electronic Supplementary Material, ESM 1)

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Disease extent and outcomes in HIV-associated NTM disease: A Retrospective Cohort Study, 2004-2025

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Supplementary tables

Supplementary Table S1. Time from HIV diagnosis to NTM diagnosis

Time from HIV to NTM diagnosis	Localized (n=16)*	Disseminated (n=31)	Overall (n=47)*
Concurrent (<3 months), n (%)	6 (37.5%)	16 (51.6%)	22 (46.8%)
Recent (3-12 months), n (%)	4 (25.0%)	1 (3.2%)	5 (10.6%)
Established (>12 months), n (%)	6 (37.5%)	14 (45.2%)	20 (42.6%)
Median months (IQR)	4.0 (1.7-38.5)	2 (0.5-79.9)	3.9 (1.0-64.5)

** Time from HIV to NTM diagnosis was missing in 3 patients (all in the localized group). The two prominent timing groups - with 47% of patients diagnosed with HIV and NTM within 3 months of one another and 43% having established HIV (>12 months) before NTM diagnosis - are compatible with late HIV diagnosis with concurrent NTM and chronic HIV with later NTM development. Mann-Whitney comparison of time from HIV to NTM between localized and disseminated groups: p=0.991.*

Supplementary Table S2. Diagnostic sampling and constitutional symptoms by disease extent

Variable	Localized (n=19)	Disseminated (n=31)
Diagnostic evidence (patients with ≥1 positive sample), n		
Bone marrow positive	0	16
Blood cultures positive	0	11
BAL positive	7	5
Sputum / tracheal secretion positive	5	3
Stool positive	1	6
Gastric juice positive	0	5
Small bowel / duodenal biopsy positive	1	9
Liver biopsy positive	0	2
Lymph node biopsy positive	1	2

(culture)		
Constitutional symptoms documented, n		
Fever	1	5
Night sweats	0	1
Diarrhea	0	3
Wasting / weight loss	2	4
Abdominal pain	1	1

Values are numbers of patients with the listed diagnostic evidence or documented symptoms. Multiple sample types per patient were possible. Symptom frequencies may be underestimated due to retrospective routine documentation. Localized disease denotes single-site NTM disease without sterile-site evidence or multifocal anatomical involvement. Three localized-group cases warrant note: (i) M. avium in stool only with diarrhea, with BAL and all other specimens NTM-negative; (ii) M. avium from a single duodenal biopsy with localized gastrointestinal symptoms and no other involvement; and (iii) a culture-negative, clinically diagnosed case with fever and atypical pulmonary infiltrates, without evidence of multifocal disease; alternative diagnoses were excluded, and clinical and radiological improvement was documented during NTM-directed treatment.

Supplementary Table S3. Baseline characteristics and outcomes stratified by survival status

Characteristic	Survivors (n=39)	Non-survivors (n=11)
Age, median (range), years	42 (26-73)	41 (26-52)
Sex, n		
Female	14	2
Male	25	9
Disease extent, n		
Localized	18	1
Disseminated	21	10
CD4 count at diagnosis, median, cells/µL	32	26.5
HIV-1 RNA at diagnosis, median, copies/mL	8,313	7,844
On ART at NTM diagnosis, n	20	6
Recurrence, n	6	2
NTM species, n		
M. avium complex	19	8
M. genavense	5	2
M. kansasii	4	0
Other / clinically diagnosed	11	1
Time from NTM diagnosis to death, median (range), months	-	3 (0-97)
Deaths within 3 months of NTM diagnosis, n	-	6 (55%)

Descriptive comparison of survivors vs non-survivors. Ten of 11 deaths (91%) occurred in patients with disseminated disease. Six of 11 deaths (55%) occurred within 3 months of NTM diagnosis. Among the 11 non-survivors, 9 (82%) were male (vs 64% of survivors; Fisher's exact p=0.466), median age was 41 years (range 26-52; Mann-Whitney p=0.534). NTM species among non-survivors: M. avium (n=8), M. genavense (n=2), and one clinically diagnosed case.

Supplementary Table S4. Exploratory multivariable models for mortality and recurrence

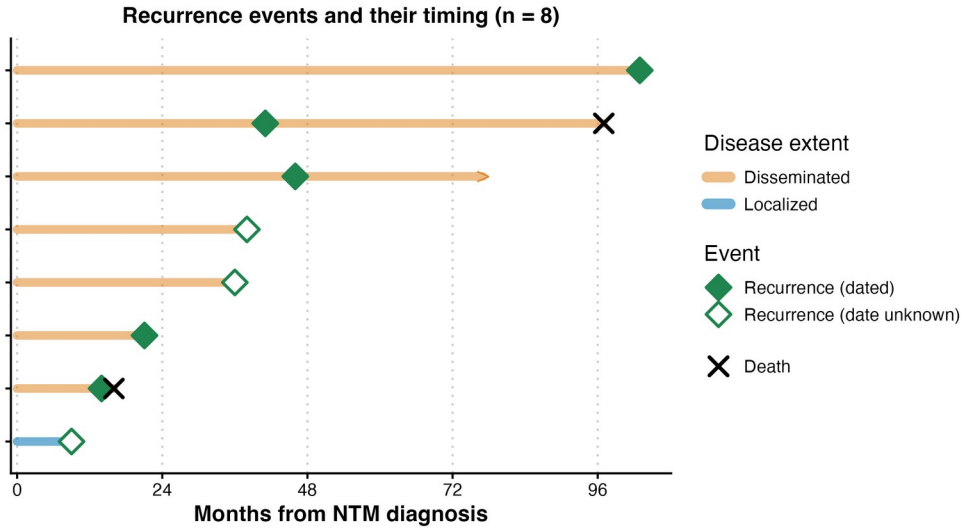
Outcome / model	N / events	Predictor	Estimate	95% CI	p-value
All-cause mortality (Cox proportional hazards)	N=47 events=10	CD4 (per 10 cells/μL)	HR 0.93	0.74-1.16	0.510
		Disseminated disease (yes vs no)	HR 4.63	0.54-39.54	0.162
Recurrence (Logistic regression)	N=47 events=5	CD4 (per 10 cells/μL)	OR 0.91	0.68-1.21	0.506
		ART at diagnosis (yes vs no)	OR 0.20	0.02-2.00	0.172

Cox proportional hazards regression was used for mortality and standard logistic regression for recurrence. CD4 count was modeled per 10 cells/μL. The mortality model includes dissemination status as a covariate; the recurrence model uses ART status at NTM diagnosis instead, because, of the eight recurrence events in the full cohort, the five included in the complete-case analysis all occurred in patients with disseminated disease, which prevents standard logistic regression from estimating an adjusted odds ratio for dissemination. The unadjusted association between dissemination and recurrence is reported in the main text (7/31 [22.6%] disseminated vs 1/19 [5.3%] localized; Fisher's exact p=0.134).

Supplementary figures

Supplementary Figure S1. Timing of NTM recurrence events relative to NTM diagnosis (swimmer plot).

Each row represents one patient with NTM recurrence (n=8). Horizontal bars show follow-up from the date of NTM diagnosis, colored by disease extent (orange, disseminated; blue, localized). Green diamonds mark recurrence events: filled diamonds indicate a datable recurrence onset, and open diamonds indicate recurrences for which the date could not be determined; these are displayed at the end of the follow-up bar for visualization only, and their horizontal position is not informative. Black crosses denote death, and arrowheads denote patients alive at last follow-up. Among recurrences with a documented date, the earliest occurred 14 months after NTM diagnosis; recurrences were predominantly in disseminated disease (7 of 8).



Arrowhead = alive at last follow-up. A hollow diamond at a bar end marks a recurrence with an undocumented date; its position is not informative.