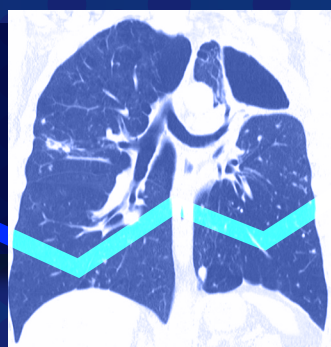


# Diagnosing and Managing Nontuberculous Mycobacteria



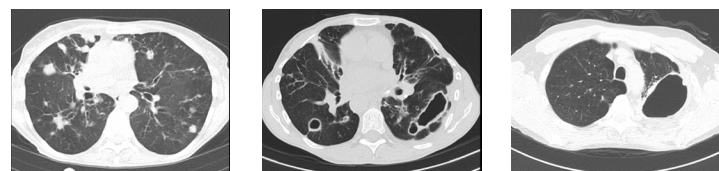
## Clinical symptoms

- Chronic cough
- Fever/chills
- Night sweats
- Weight loss
- Shortness of breath
- Hemoptysis

## Diagnostic criteria

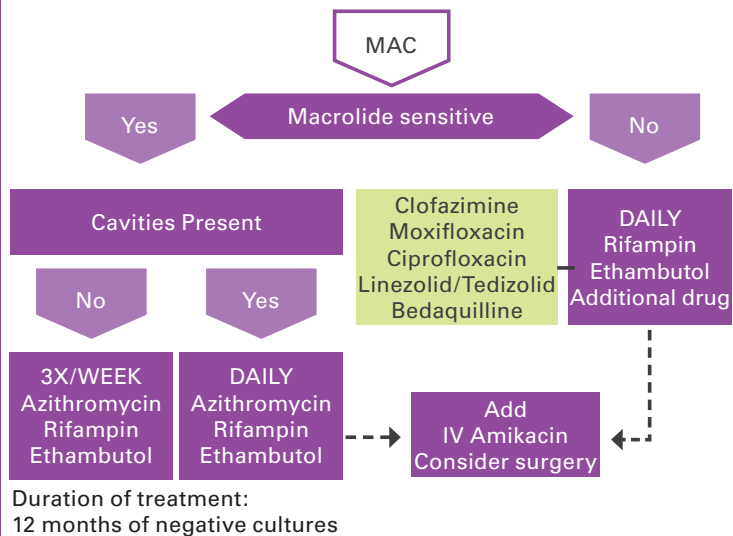
- CLINICAL**
  - Cough, fatigue, weight loss
- RADIOGRAPH**
  - Nodular or cavitary opacities on chest radiograph or
  - High resolution computed tomography showing multifocal bronchiectasis with multiple small nodules
- BACTERIOLOGY**
  - Positive culture results from at least **two** separate expectorated sputum samples
  - Positive culture results from at least one bronchial wash or lavage
  - Transbronchial biopsy or other lung biopsy with mycobacterial histopathologic features and positive culture for NTM or biopsy showing mycobacterial histopathologic features and one or more sputum or bronchial washings that are culture positive for NTM

## Clinical phenotypes



- Bronchiectatic Nodular
- Cavitary
- Fibrocavitary

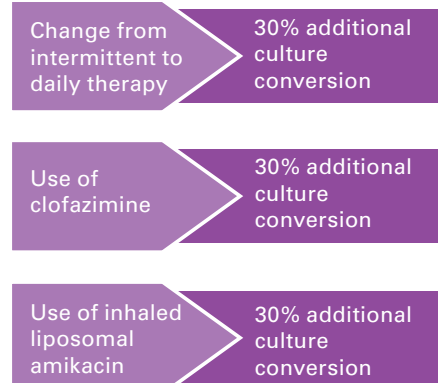
## M. avium Treatment Algorithm



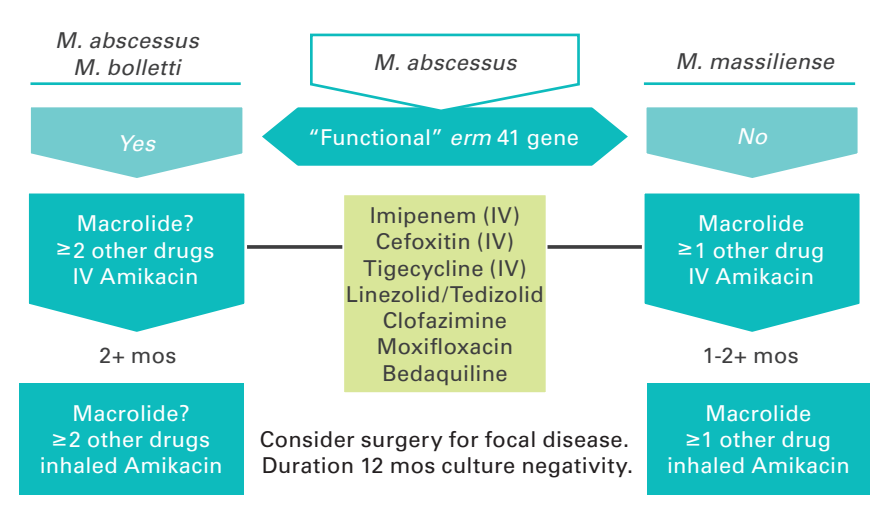
## Treatment of MAC

	Initial Therapy	
	Nodular/bronchiectatic Disease	Cavitary Disease
Macrolide	clarithromycin 1000 mg tiw or azithromycin 500-600 mg tiw	clarithromycin 500-1000 mg/day or azithromycin 250-500 mg/day
Ethambutol	25 mg/kg tiw	15 mg/kg day
Rifamycin	rifampin 600 mg tiw	rifampin 450-600 mg/day
Aminoglycoside	None	strep or amikacin

## Medical treatment options in refractory MAC



## Treatment of M. abscessus

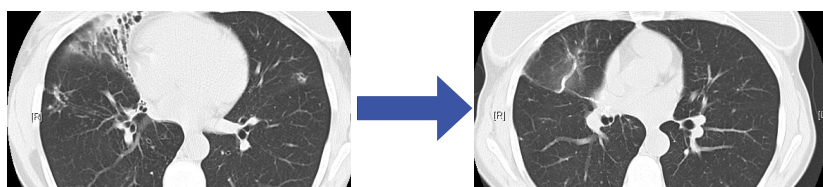


## Interpretation of extended clarithromycin susceptibility results for M. abscessus

M. abscessus subspecies	Clarithromycin susceptibility days 3-5	Clarithromycin susceptibility day 14	Macrolide susceptibility phenotype	Genetic implication	Macrolide Effect
M. massiliense, M. abscessus*	Susceptible	Susceptible	Macrolide susceptible	dysfunctional erm(41) gene	anti-mycobacterial
M. abscessus, M. bollettii	Susceptible	Resistant	Inducible macrolide resistance	functional erm(41) gene	immunomodulatory
Any	Resistant	Resistant	High-level constitutive macrolide resistance	23S ribosomal RNA point mutation	immunomodulatory

\*15-20% of M. abscessus will have a dysfunctional ERM41 gene (c28 sequevar)

## Surgical Treatment of Pulmonary NTM Disease



## Indications to consider surgery

- Massive hemoptysis
- Failure of medical therapy
- Intolerance to medical therapy
- Macrolide resistant MAC infection
- Cavitary lesions
- Focal severe bronchiectasis
- Focal disease with M. abscessus infection