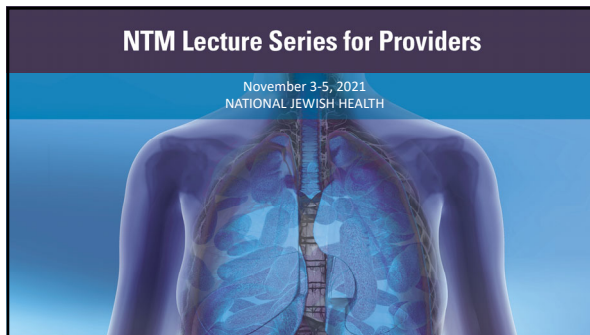
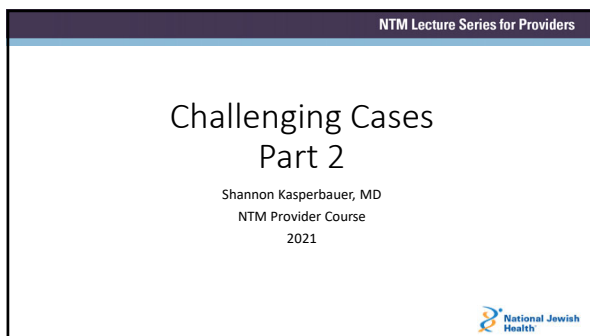
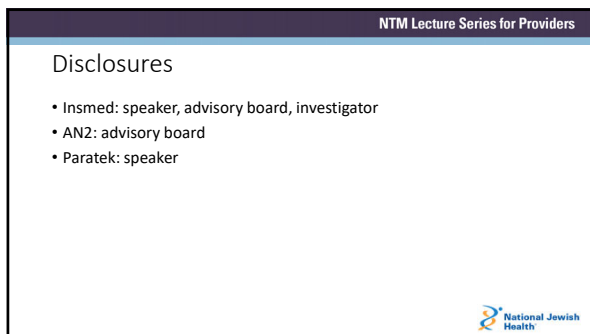


Challenging Cases (Part 2)








Challenging Cases (Part 2)

NTM Lecture Series for Providers

Objectives


- Introduce management of MAC
 - Treatment naïve
 - Treatment refractory
 - Cavitary disease
- Review management of *M. abscessus*
- Consider utility of surgery as an adjunct to medical therapy



NTM Lecture Series for Providers

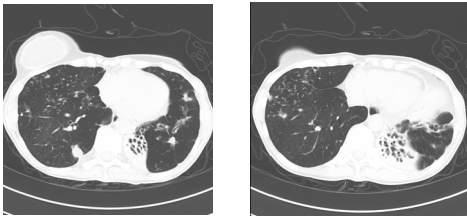
Case One


- 65 year old female, lifelong non-smoker
- Chief complaint, cough and fatigue
- PMH: 10 years ago BAL + MAC
- Treated with Azithromycin/ethambutol/rifampin daily x 2 years
- culture clearance, unknown
- 3/3 Sputum cultures + MAC, macrolide sensitive
- Started back on azithromycin + ethambutol + rifampin daily
- Instructed to begin PEP device with 7% hypertonic saline twice daily
- Drug levels were obtained at 1 month, all within target concentration



NTM Lecture Series for Providers

CT scan






Challenging Cases (Part 2)

NTM Lecture Series for Providers

Cultures are still positive at 6 months. What is the recommendation from the 2020 Guidelines at this milestone?

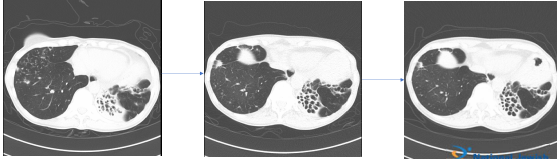
1. Intensify airway clearance with a vest
2. Repeat drug levels on her three oral medications and optimize the dose if the levels are low
3. Resend drug susceptibility testing, assess adherence and add amikacin liposomal inhalation suspension (ALIS) to her oral therapy
4. Discontinue therapy because she is a treatment failure




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After beginning ALIS, patient was able to achieve 12 months of negative cultures
She ended treatment in 10/2019.
Cultures remain negative 18 months off treatment (submits every 3 months)

2016: beginning of treatment 2019: end of treatment 2021: 18 months off treatment






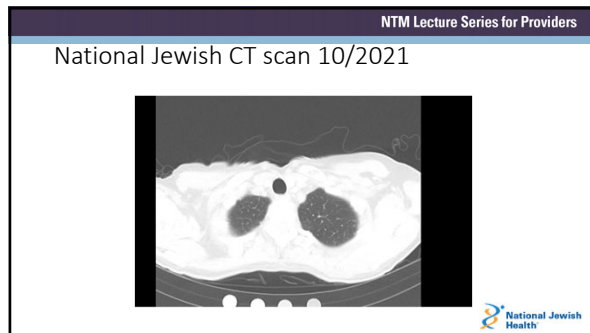
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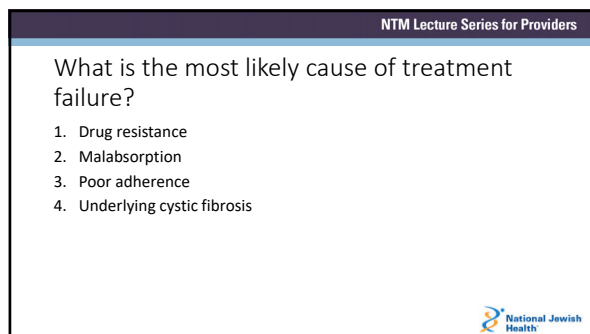
Case Two

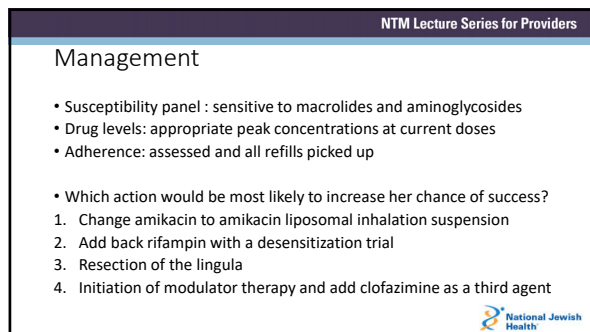
- 63 year old female with a chronic cough
- Cystic fibrosis diagnosed in 2017
- Sputum cultures (3/3) in 2019 + for MAC
- Started on azithromycin, ethambutol and rifampin daily 8/2019
 - rash related to rifampin at 12 months
 - Inhaled parenteral amikacin 500 mg daily (3/2021)
- Chief complaint tongue burning, weight loss due to loss of appetite
- Cultures persistently + for MAC 24 months into treatment



Challenging Cases (Part 2)








Challenging Cases (Part 2)

NTM Lecture Series for Providers

Modulator therapy and NTM


- Modulators first approved in 2012
- Currently Trikafta (elexacaftor/tezacaftor/ivacaftor) is approved for patients >6 meeting CF diagnosis with one of 177 mutations
- Rifampin significantly reduces the serum concentration of the modulators, therefore you must find an alternative agent
- Our experience supports patients are more likely to clear their NTM or note disease stabilization once they initiate modulator therapy


<https://www.cff.org/Life-With-CF/Treatments-and-Therapies/Medications/Trikafta-Approved-Mutations.pdf>

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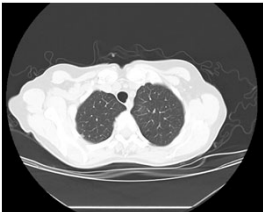
Case three


- 65 year old Caucasian female with pleurisy in her anterior chest for 15 years
- Recurrent bronchitis, 1-2x /year
- 2017 first CT scan of her chest



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CT scan 2017






Challenging Cases (Part 2)

NTM Lecture Series for Providers

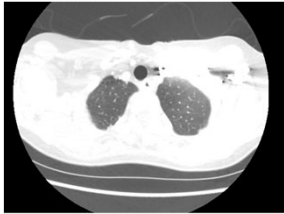
- No sputum production
- BAL in 2017 complicated by pneumothorax, chest tube, pain management, severe constipation, readmission for impaction
- 2017 BAL smear + culture + for MAC
 - No treatment pursued



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CT scan 2021



National Jewish Health

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What would be the most appropriate management at this time?

1. Begin airway clearance without antibiotics
2. Begin azithromycin, ethambutol, rifampin thrice weekly
3. Begin azithromycin, ethambutol, rifampin and inhaled liposomal amikacin daily
4. Begin azithromycin, ethambutol, rifampin daily, IV amikacin thrice weekly and consider right middle lobectomy

National Jewish Health

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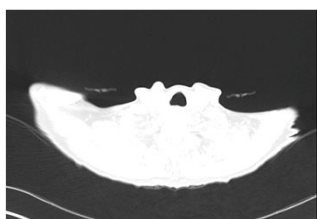
Case four

- 57 year old female
- Past Medical History:
 - History of spontaneous pneumothorax (x3)
 - Last occasion underwent right sided pleurodesis (2005)
 - Multiple sclerosis , on interferon beta-1a injection weekly
 - Active smoker (30 pack years)
- 1/2020 noted increasing cough, fatigue and weight loss



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January 2020 CT scan



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- BAL 11/2020 smear -, culture +
- Sputum 12/2020 (3/3) smear +, culture +
- Evidence of resistance to the macrolides

[illegible]

Challenging Cases (Part 2)

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- What is the recommended treatment for *M. abscessus* subspecies *abscessus*?
- 1. IV imipenem, amikacin, tigecycline and oral clofazimine daily
- 2. Oral azithromycin, ethambutol and rifampin daily
- 3. IV tobramycin, ceftriaxone and oral minocycline daily
- 4. IV imipenem, amikacin and oral azithromycin daily

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Treatment course

- 1/2021-3/2021
 - IV imipenem
 - IV amikacin
 - PO linezolid
- March 2021 sputum cultures are negative for AFB and therapy is stopped.

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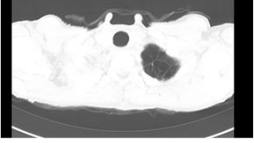
- 2 months after stopping her therapy the cough returned
- Between 3/2021 and 10/2021 she has lost 20 pounds (115→95lb)
- Additional symptoms include fatigue, sputum production, dyspnea

 National Jewish Health

Challenging Cases (Part 2)

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National Jewish imaging 7 months after d/c therapy



- Patient smoking occasionally
- Sputum smear +, culture +
- BMI 16.3, prealbumin 14
- DLCO 40% predicted

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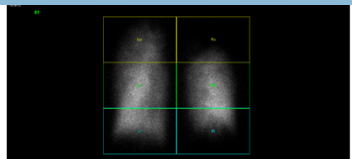
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• What is the expected cure rate of *M. abscessus* subspecies *abscessus*?

1. 25% ← Meta-analysis of *M. abscessus* (R macrolide)
2. 50% ← Outcomes in patients with *M. abscessus* who underwent surgery + medical management
3. 90% ← Meta-analysis of *M. abscessus* (S macrolide)

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	Left Lung	Right Lung
Upper Zone	10.7 100.00	8.3 83.80
Middle Zone	10.1 100.00	10.0 100.00
Lower Zone	10.9 100.00	12.3 123.71
Total Lung	10.6 100.00	11.4 114.06

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Challenging Cases (Part 2)

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Our goals

1. Begin IV imipenem, amikacin, omadacycline and clofazimine
2. Quit smoking
3. Goal prealbumin 20
4. Airway clearance

} Right upper lobectomy

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