Pulmonary Fascinomas with a Tuberculous Attitude

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Disclaimers

- I am from Iowa…More Hogs than people…
- My clinical focus: chronic lung infections (eg, CF, bronchiectasis)
- TB has remained a hobby since medical school
- The cases I will share have been painstakingly researched, but have the answers?
- Purpose: share cases I found educational & get your feedback…Learn from each other

Ponder These Cases…

- [Proactive vs. Passive TB diagnosis…University TB](#)
- [Thanks Dad…](#)
- [Challenging…](#)
- [TB or Not TB](#)
- [Old Friend](#)
- [It’s back…](#)
- [Paradox](#)
What’s This?

This 75 yo man comes in to ER w/ dyspnea. From the CXR what is the diagnosis?

1. Aspergillosis
2. Active TB
3. Plombage
4. Squamous cell carcinoma
5. Wegener’s granulomatosis

Image Challenge. NEJM May 2009

Case

• 41 yo WF, rural Iowa, NH aid, HIV-, no IVDA, no travel
• 1995 PPD+, CXR normal, INH x6 mos
• 1999, 2000 Chest X-ray: bilateral UL infiltrates
• First Episode 12/01
  – Hemoptysis, smear/culture positive, CXR bilateral UL infiltrates
  – No contact conversions outside of immediate family (no NH contacts)
  – Rx (?DOT) x 6 months:
    • INH 300, Rif 600, PZA 500 daily x 4 weeks
    • INH 750, Rif 600, PZA 3000 twice/week x4 weeks
    • 12 weeks smear & cultures negative
    • INH 750, Rif 600 twice/week x16 weeks
• Relapse 8/02
  – Smear/culture positive
  – Pansusceptible TB, No new cases in contacts & NH
  – CXR bilateral UL infiltrates…
Asymptomatic 6 months after Rx completion
Sputum smear/culture negative

Received standard ATS/IDSA/CDC Rx
DOT x9 months
Smear & Culture by 4 mos

It’s Back…

12/05 (~3 years later) Relapse 2
- Pan susceptible TB; DNA fingerprinting: all isolates identical
- No new cases in contacts & NH
- CXR bilateral UL infiltrates, RUL more dense & cavitary

Analogous case: 31 yo Bosnian male, relapse 2
- Well documented DOT for prior 2 Rx courses
- From a county w/ experience & good track record for DOT
- Complete immunodeficiency w/u → nothing useful
- DNA fingerprinting: all isolates identical

Do you see this?
What would you do in these cases?
Both patients received daily DOT x 12 mos (+PZA)
After r/o drug resistant TB, Other Suggestions…

- Add PZA to regimen for increased intracellular therapeutic activity
- Check serum drug levels…increased doses required
  - Peloquin lab, National Jewish
- Check isolates against database…strains which are prone to relapse (not d/t drug resistance, not necessarily related to virulence/contagion)
  - Steve Holland lab, NIAID
  - Patrick Moonan lab, CDC

Thanks Dad…

17 yo WF asymptomatic, HIV-, nonsmoker with positive TST
SHx: Born raised in Iowa; No travel
Household: Father with active extensively cavitary pulmonary, pan-susceptible TB undiagnosed for at least 3 months
PMH: Unremarkable; No Medications
Exam & Lab unremarkable
Chest x-ray…
Initial Chest X-Ray

- Neg. sputum smear x3
- Other Diagnoses?
  - Infection: Fungi, NTM
  - Inflam.: Sarcoid, Wegener’s
  - Malignant...
- What now?
- 4 Drugs DOT

Two Month F/u Visit

- Lesion smaller; Tolerating Rx
- Negative AFB cultures x3
- What now?
- INH, Rifampin DOT x2 mos?
- Yes: Smear-/Culture- TB
Smear/Culture Negative Pulmonary TB

- Do not exclude TB diagnosis in highly suspect case
- 15-20% active TB cases in US culture negative
- Factors contributing to culture negative:
  - Low # organisms in expectorated specimen (this case)
  - Specimen processing error
- Consider alternative diagnosis
- Collect at least 3 specimens (>8 hrs apart, at least 1 AM); Consider Bronchoscopic sampling
Smear/Culture Negative Pulmonary TB
Treatment Considerations

• Start 4 drugs DOT
• Acceptable: Abbreviate “Continuation phase” by 2 months
• Exception: Drug resistant contact or High risk for Drug Resistance
• Note: NYC Health Dept. recommends all pts continue 4 drugs x 6 months

CDC/ATS/IDSA: TB Rx Rec AJRCCM 2003
Dutt AK et al. ARRD 1989
NYC Bureau of TB Control Website Accessed 9/09

Smear-, Culture- from India

Suggest: NYC Heath Dept Approach—4 Drugs DOT x 6 months
Case

72 yo Algerian, asymptomatic, abnormal CXR…

…More History

• Has lost 8kg over last 6 months
• Denies F/C/S, hemoptysis, chest pain
• PMH: 25 pk yr, quit x 10 yrs; DM; Htn; ↑Chol; HIV neg
• Chest CT…

Not shown: 1-2 cm mediastinal LNs
Differential Diagnosis:
Multiple Pulmonary Nodules

- Malignant: Metastatic Ca, Lymphoma,
- Inflammatory: Sarcoid, Wegener’s, RA
- Infectious: Histo, TB, Cocci, Aspergillus, Worms, [HIV: Rhodococcus equi]

Lab data:
- CRP 3.2
- HIV neg
- Serology neg (RA, ANA, ANCA, Fungal titers

What Now?

Mediastinoscopy LN bx: Caseating Granulomas
Cultures grew TB

TB...Multiple Pulmonary Nodules

- Disseminated TB nodules 1-4 mm = Miliary
- Tuberculomas 0.5-4 cm
  - Multiple = Atypical & rare presentation
  - PET CT likely would not have distinguished TB from malignant cause
  - Concurrent mediastinal adenopathy suggestive of granulomatous disease
  - DM a/w atypical TB presentation as with HIV & other immunocompromising conditions

Active TB?

19 yo student from Indonesia. Healthy, asymptomatic, denies HIV risk factors
PMHx negative; No medications
FH: Brother had active TB 2 years ago
Student Health screen: TST+, IGRA+
Chest x-ray…

Radiologist Report: Scarring RUL…Rule out TB

What now? Chest CT?
Repeat CXR 5 days later after requesting re-do with shirt & neck ornamentation removed

Apical Lordotic view provides further confirmation

...Not TB

- Latent TB Infection: 9 months Rx
- Abnormal X-ray report suggests TB?
  ...Review film yourself (or with trusted clinician)

- Don’t rush to Chest CT in uncertain TB cases
  …Recall Apical Lordotic option
  - Demonstrates Posterior/Apical Lung Segments
  - Easily Done, Less Radiation, Less Costly