TB Nurse Case Study
TB-IRIS

Dawn West, RN

May 6, 2025

TB Nurse Case Management • May 6 – 8, 2025 • San Antonio, Texas

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Has the following disclosures to make:

- No conflict of interests
- No relevant financial relationships with any commercial companies pertaining to this activity

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Objectives

- Complications to monitor for in the immunocompromised patient
- Importance of coordinated care
- Necessity of follow-up monitoring post treatment

Case History

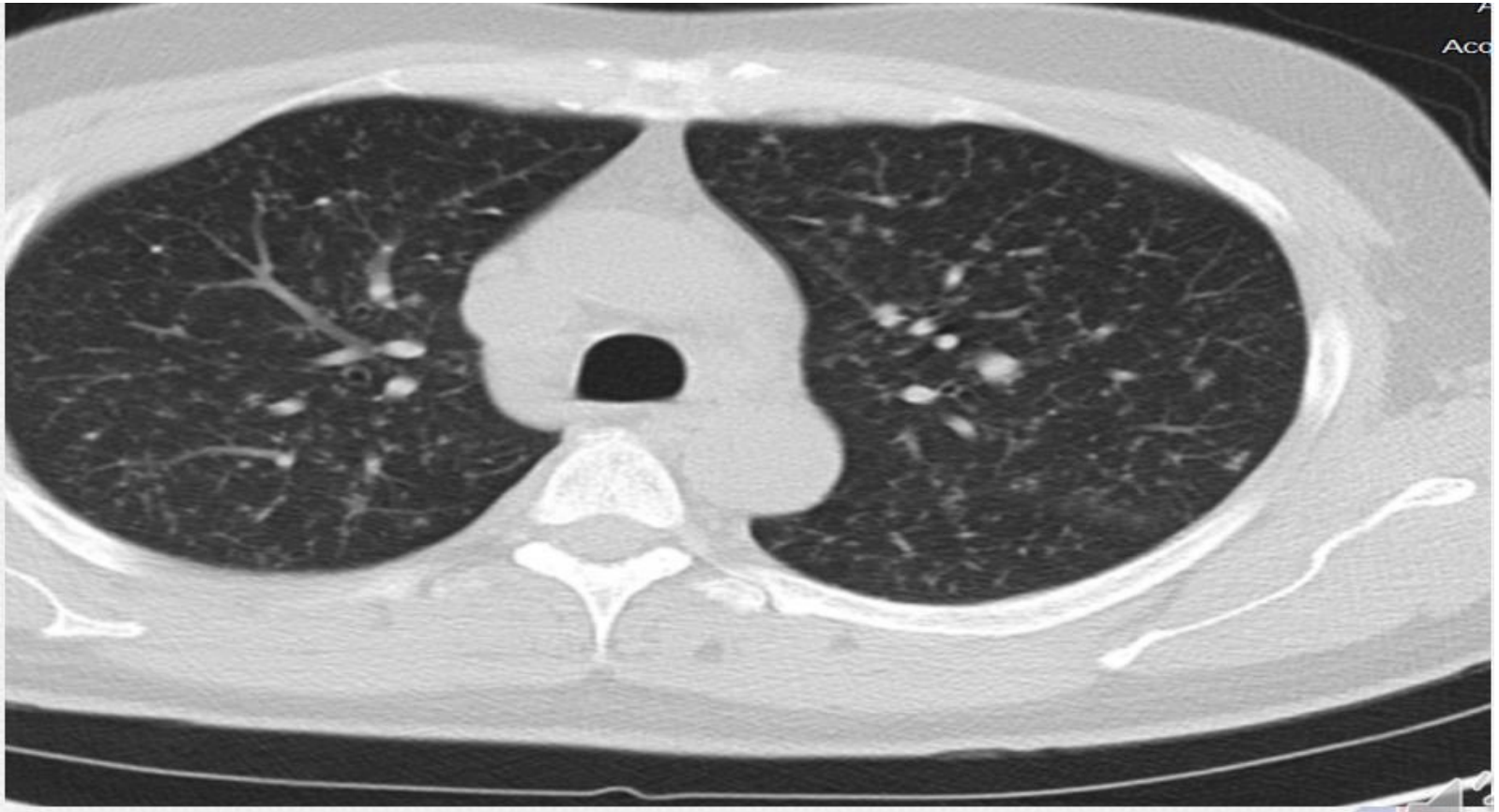
- Patient is a 49 yo male reported from local hospital with suspected disseminated tuberculosis, involving lymph nodes, TB meningitis, as well as miliary pulmonary TB.

- Originally from India. Reports last travel to India was in 2017.

Case History

- Initial Symptom onset was 06/24/2019, with fever/chills, dry cough, fatigue, night sweats, decreased appetite and a 10 lb weight loss. He reported severe pressure headaches that developed 2 weeks after initial symptom onset.
- He was seen by his PCP with an inconclusive workup and normal CXR on 7/2/19. A 2 week follow up appointment revealed right cervical lymphadenopathy. The PCP ordered an ultrasound and CT Chest. Due to high suspicion of miliary and disseminated TB, patient was admitted for further evaluation.

CT Chest showing Miliary Pattern



Past Medical History

- Diagnosed with UC in 2014 and started Remicade.
- 02/24/2017 QFT (+) and referred to ID for LTBI treatment. Patient received 9 months of INH/B6. Denies missing any doses of INH.
- UC was managed with Remicade IV q8 weeks for 3 ½ years prior to developing symptoms of active TB disease.

Hospitalization & Testing

- T-Spot positive on 7/18/19.
- HIV negative on 07/18/19.
- CT head on 7/17/19 showed multiple lesions and edema present. CXR shows small R pneumothorax. Chest tube placed.
- Bronch performed 7/18/19 with BAL and biopsy – smear and culture negative. Spinal Tap performed and showed N: 63% and L: 32%. **TB meningitis: shows predominant lymphocytes. Typically negative on smear (5-20% +) and culture (40% +) as well.** No sputum collected while inpatient.
- Suspicion of disseminated TB with CNS involvement led to initiating RIPE therapy with Levofloxacin and Dexamethasone on 07/21/19. Fluoroquinolone and steroid added due to CNS involvement.
- ID involved in care initiated consult with Heartland National Tuberculosis Center (HNTBC) to guide through the complexities of his case. He was then discharged and referred to the Health Department to continue treatment.
- Disease progression was very rapid: Symptom onset 06/24/19, Normal CXR 7/2/19, **radiographic evidence of disseminated disease by mid-July.**

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- Initial visit to HD on 07/22/19. Sputum collected. AFB smear (-), NAA and Culture (+) with PZA monoresistance.

- Levofloxacin was switched to Moxifloxacin and Rifampin increased to 900mg for improved CNS penetration.

Challenges in Care

Symptoms of headaches, fever, decreased appetite and fatigue persisted for more than 3 weeks after starting TB treatment.

Patient was a high-level executive in a large company and was under pressure to return to work. He was working from home and was under a lot of stress.

Overcoming Challenge

- Drug levels performed after 1 month of treatment.

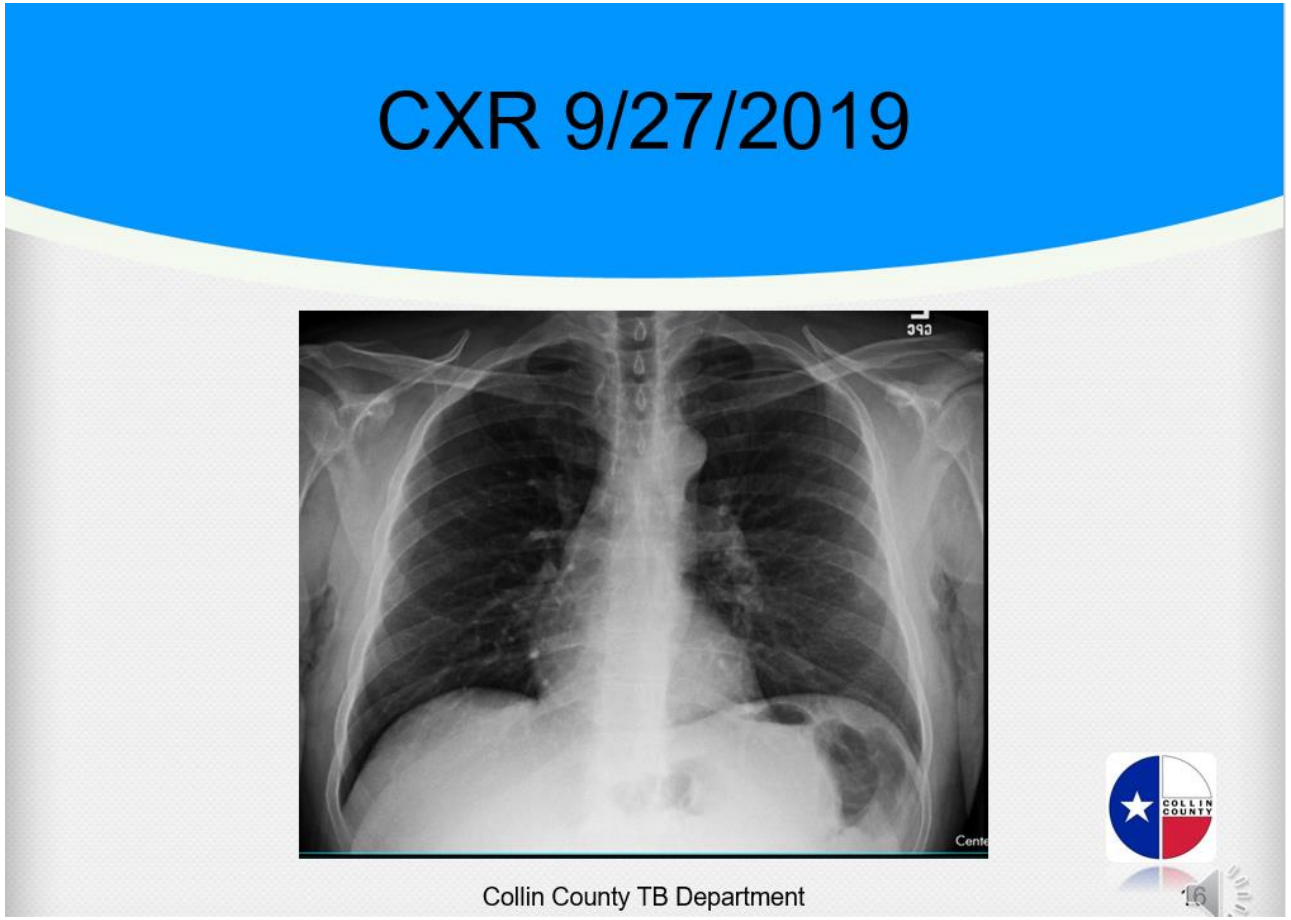
Rifampin 0 mcg/mL (dosage 900mg) Normal range, 8-24mcg/mL 2 hours post dose

INH 0.81 mcg/mL (dosage 300mg) Normal range, 3-6mcg/mL 1-2 hours post dose

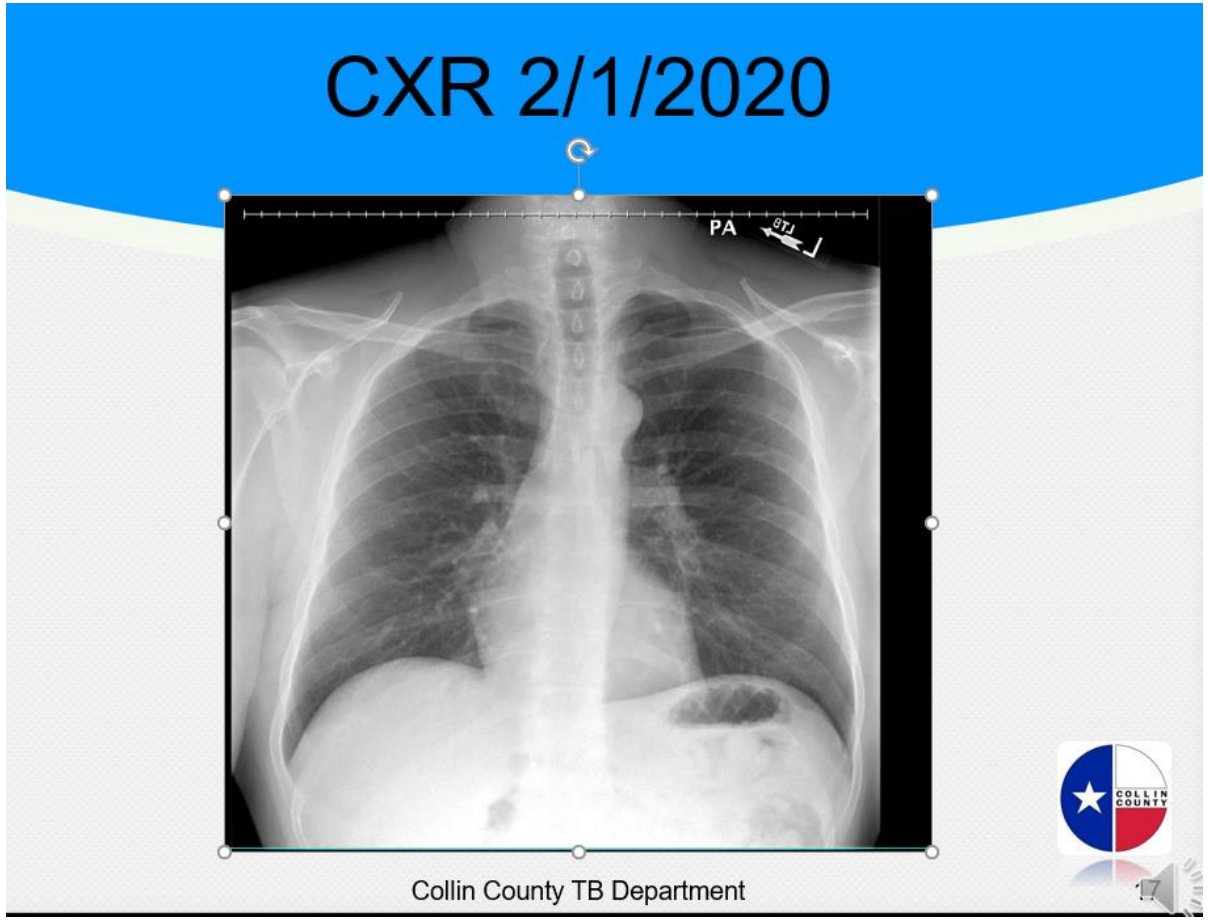
Moxifloxacin 0.54 mcg/mL (dosage 400mg). Normal range, 3-5mcg/mL 2 hours post dose

- Dosages increased: RIF 1200mg, INH 450mg, Moxi 600mg. Symptoms improved and patient slowly started gaining weight. Released from isolation 8/8/19, & returned to work on 8/19/19.

Repeat imaging at 2 months shows Normal Chest!!



Repeat imaging at 6 months shows Normal Chest!!



Textbook Patient

Continuation phase was going well. Symptoms resolved and gained weight appropriately.

Reported fever/chills and cough, tested (+) for Type A flu 01/10/20. Recovered within a few days.

Dexamethasone was tapered SLOWLY,
last dose 4/8/20, then started taking Lialda to manage UC.

No adverse reactions or side effects.

UNTIL…

Surprise Ending

05/04/20, 10 months into treatment, patient reports fever, congestion, chest tightness, fatigue/weakness and decreased appetite

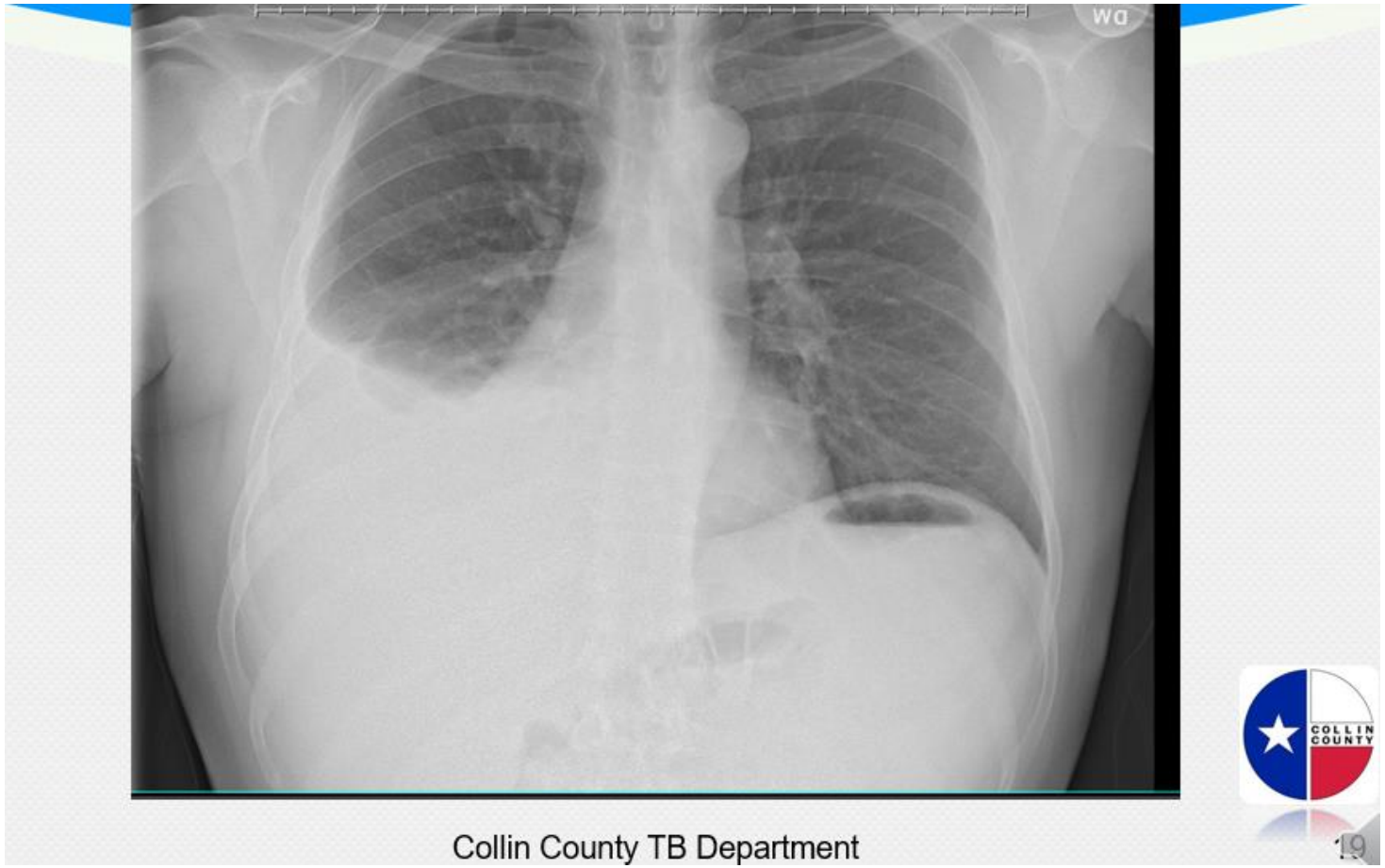
COVID testing performed 05/05/20, NEGATIVE

Due to new COVID guidelines, imaging was delayed because patient was febrile. He declined to go to ED and waited for fever to resolve

Collected 3 sputum specimens while waiting for CXR. Smears & NAA returned NEGATIVE…

05/12/20 CXR

3V CXR
Right pleural effusion with consolidation to right lower and middle lobe



Hospital Admission

Admitted to hospital for further evaluation and testing.

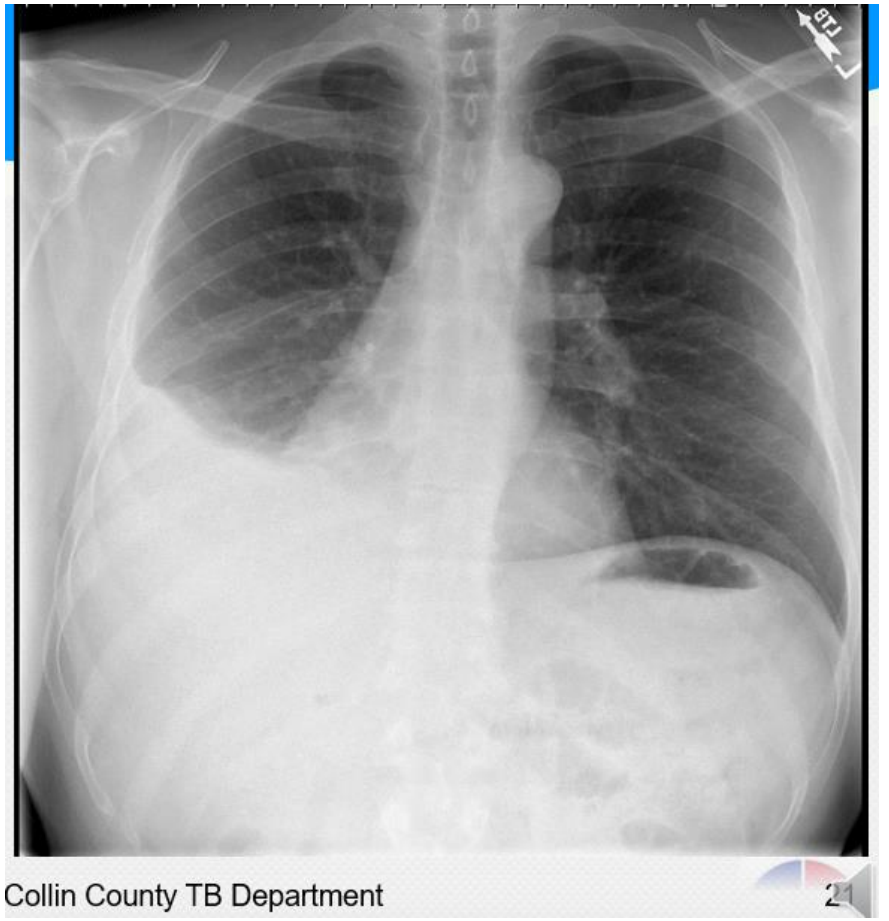
Thoracentesis performed 05/15/20: Smear (-), NAA (+)

05/16/20 CT Chest

05/15/20 Thoracentesis

Fluid Reaccumulated

Underwent VATS and Pleurodesis



Tuberculosis-Associated Immune Reconstitution Inflammatory Syndrome

TB-IRIS occurs when the immune system has been restored, then overreacts to the MTB antigens.

A paradoxical worsening occurs. The patient will develop worsening symptoms/imaging despite initial improvement.

This patient had a couple of risk factors for developing IRIS: Disseminated TB and Biologics

TB-IRIS continued

- Serum Drug Levels were repeated

Rifampin 18.48 mcg/mL (dosage 900mg) Normal range, 8-24mcg/mL 2 hours post dose

INH 5.47 mcg/mL (dosage 300mg) Normal range, 3-6mcg/mL 1-2 hours post dose

Moxifloxacin 5.83 mcg/mL (dosage 400mg). Normal range, 3-5mcg/mL 2 hours post dose

Therapeutic range. No changes made to dosages

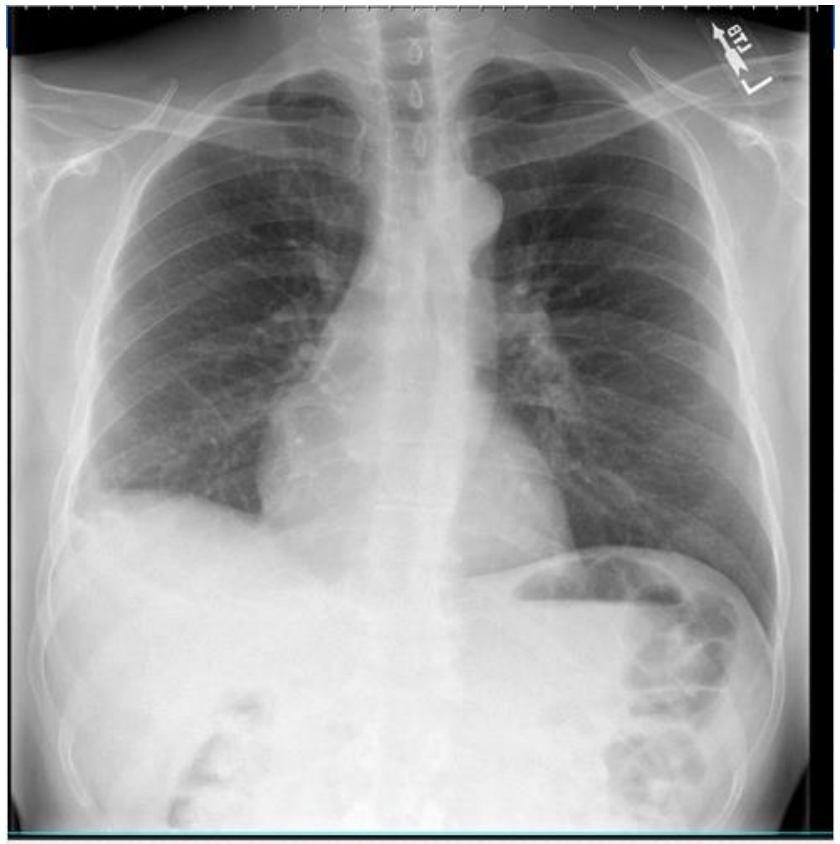
TB-IRIS Continued

- Coordinated care with TB Expert Consultant, Pulmonologist and ID to support the patient's recovery. DSHS lab also involved
- Cultures from Sputum and Thoracentesis were all NEGATIVE
- Pulmonologist performed decortication on 6/30/20 and discharged home 7/6/20

Resolution of symptoms

Patient reported great symptom improvement. Chest tightness and shortness of breath resolved. Continued to experience fatigue for several weeks, but all symptoms resolved following decortication.

Final CXR 09/02/2020



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Completion of therapy

- Final CXR showed small pleural effusion.
- Discussed plan of care with treating team and consultant. Decision made to complete treatment at 12 months (260 doses)
- Patient continued follow-up monitoring with his ID and Pulmonologist.

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THANK YOU