

Invasive Group A Strep Pneumonia with Influenza B Co-Infection in Pregnancy: A Case Report

Thuy Nguyen, DO^{1,2}, Riya Patel, DO^{1,3}, Ricky Patel, DO¹, Katherine Radvansky, DO²

¹ Northeast Regional Medical Center, Anniston, AL; ² Department of Internal Medicine, Jefferson Health Northeast, Philadelphia, PA ; Department of Internal Medicine, Baylor Scott & White, Temple, TX



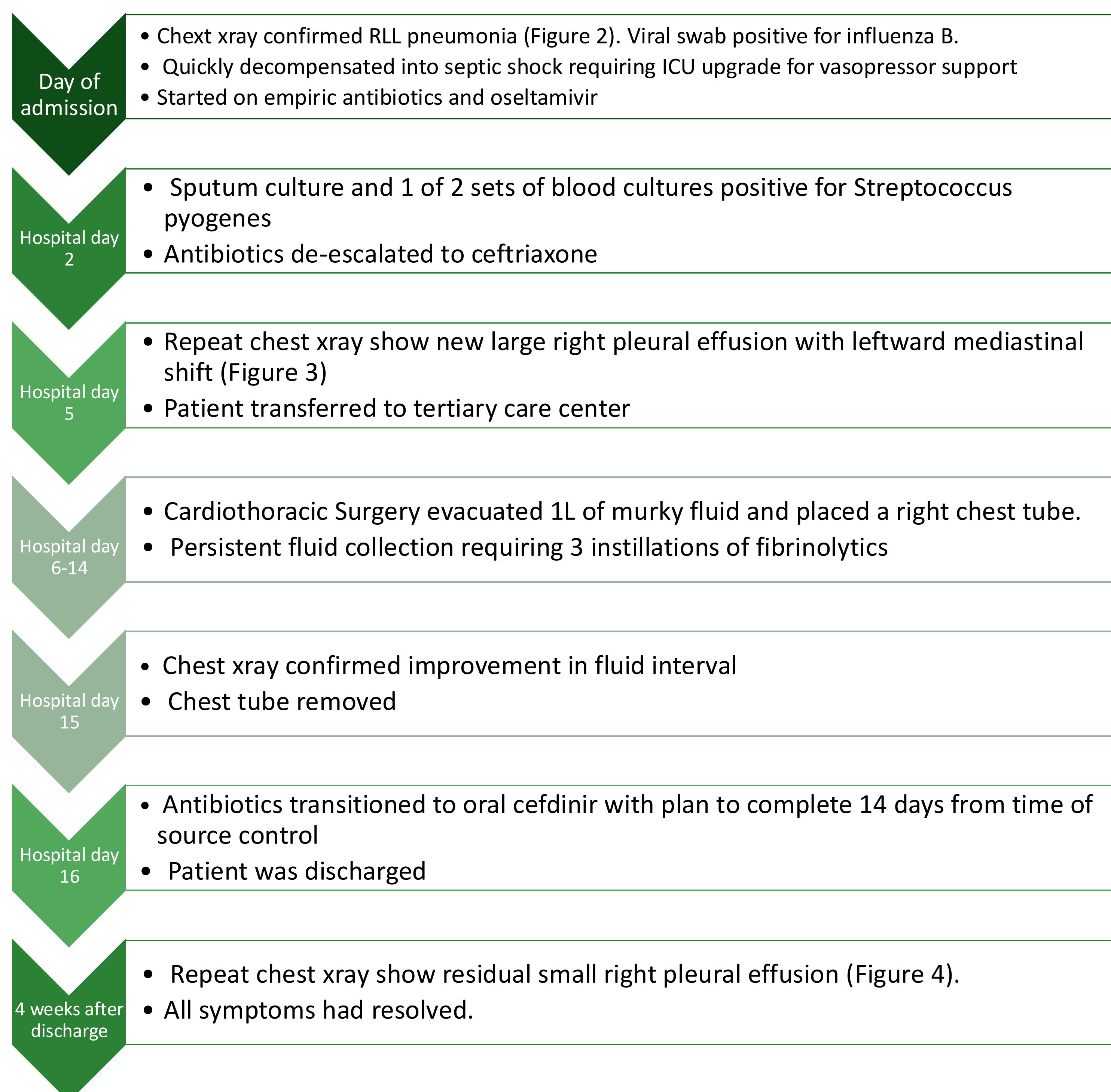
INTRODUCTION

- Group A Streptococcus (GAS) is a gram-positive coccus capable of causing mild pharyngitis to invasive, life-threatening infections.
- Pregnancy is an immunomodulatory state that increases susceptibility to severe GAS infection.
- Risk of invasive GAS is **20x higher in pregnancy**, with mortality up to **60% with septic shock**.
- We present a case of invasive GAS pneumonia with Influenza B co-infection in a 27-week pregnant woman complicated by empyema, bacteremia, and septic shock.

CASE OVERVIEW

- Patient: 37-year-old G4P2 at 27 weeks of gestation**
 - Past medical history of gestational diabetes, class I obesity, and one spontaneous abortion
 - Vaccinations are up to date except for pneumococcal vaccine
 - She works as a post-partum nurse
 - She recently traveled to Dollywood, Tennessee for vacation
- Initial ED visit:**
 - Complained of low-grade fever < 100 F, congestion, cough
 - Chest X-ray (**Figure 1**), RADT, COVID/flu/RSV swab, viral respiratory panel, urinalysis were all negative for infection.
 - Patient discharged home
- Two days later at emergency obstetric clinic:**
 - Complained of fever, dyspnea, hemoptysis, diarrhea
 - Vitals: temperature 102.9 F, blood pressure 125/56, heart rate 161, respiratory rate 50
 - Physical exam notable for tachycardia, decreased breath sounds and rhonchi at right lung base.
 - She was placed on non-rebreather mask and admitted to labor and delivery unit for sepsis from pneumonia with multi-organ failure.
 - Labs drawn on admission (Table 1) with significant derangement compared to 2 days prior.

CLINICAL COURSE



DISCUSSION

- Patient had multiple risk factors including pregnancy status, gestational diabetes, healthcare worker exposure, and recent travel during high GAS transmission period.
- During pregnancy, absence of proinflammatory M1 macrophages decreases the patient's ability to fight bacterial pathogens.
- Influenza B co-infection contributed to damage of airway epithelium, allowing bacterial invasion.
- Negative RADT gave false reassurance. Inadequate sampling can miss Streptococcal and viral infections.
- Despite GAS growing in only 1 of 2 sets of blood culture, its presence always indicate a true infection.
- GAS infection carries **15–20% maternal mortality** and **6–24% fetal loss**. Early recognition and aggressive treatment are critical.
- Source control is essential in invasive infection. Beta-lactams remains an effective treatment against GAS infection.

CONCLUSION

- Pregnant women are very vulnerable to GAS infection due to immunomodulatory state during gestation.
- Early recognition, high index of suspicion, proper culture sampling, and prompt treatment are essential to reduce morbidity and mortality.
- Key takeaway:** Do not dismiss negative RADT in high-risk populations—maintain suspicion for GAS in pregnant women presenting with respiratory illness.

SERIAL CHEST XRAY

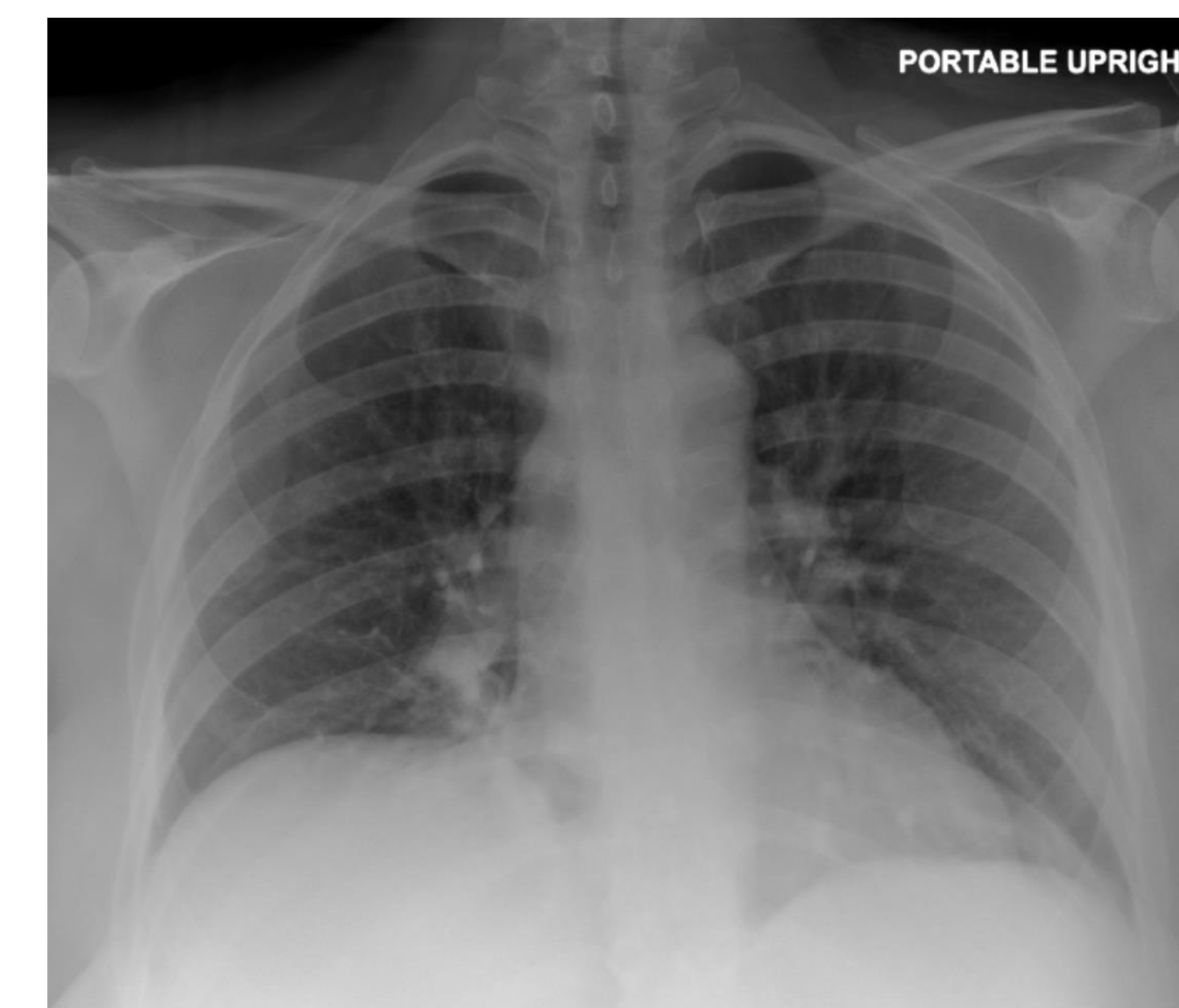


Figure 1: Two days prior to admission, chest Xray read as no evidence of acute pulmonary disease

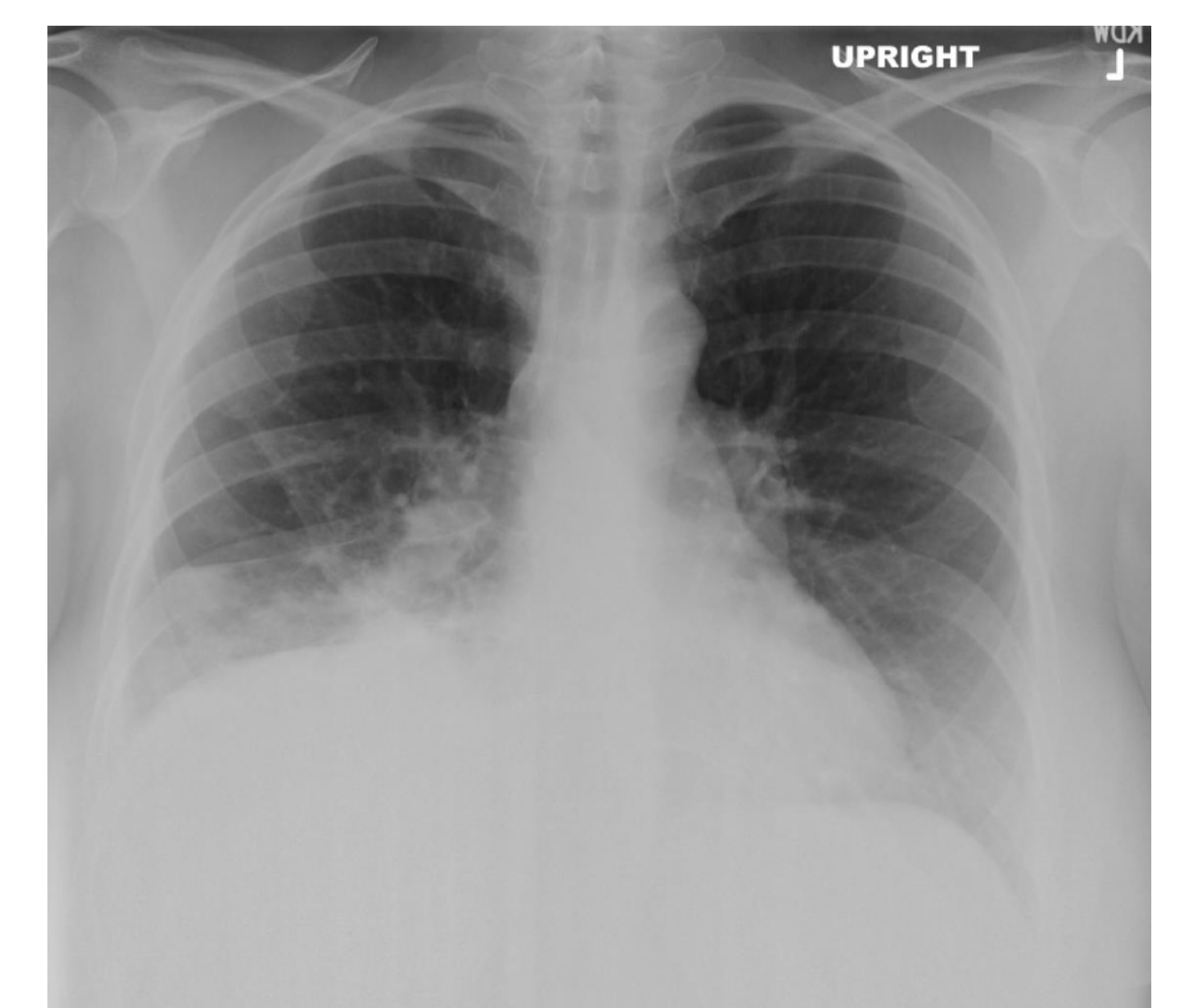


Figure 2: Day of admission, right lower lobe consolidation suspicious for pneumonia

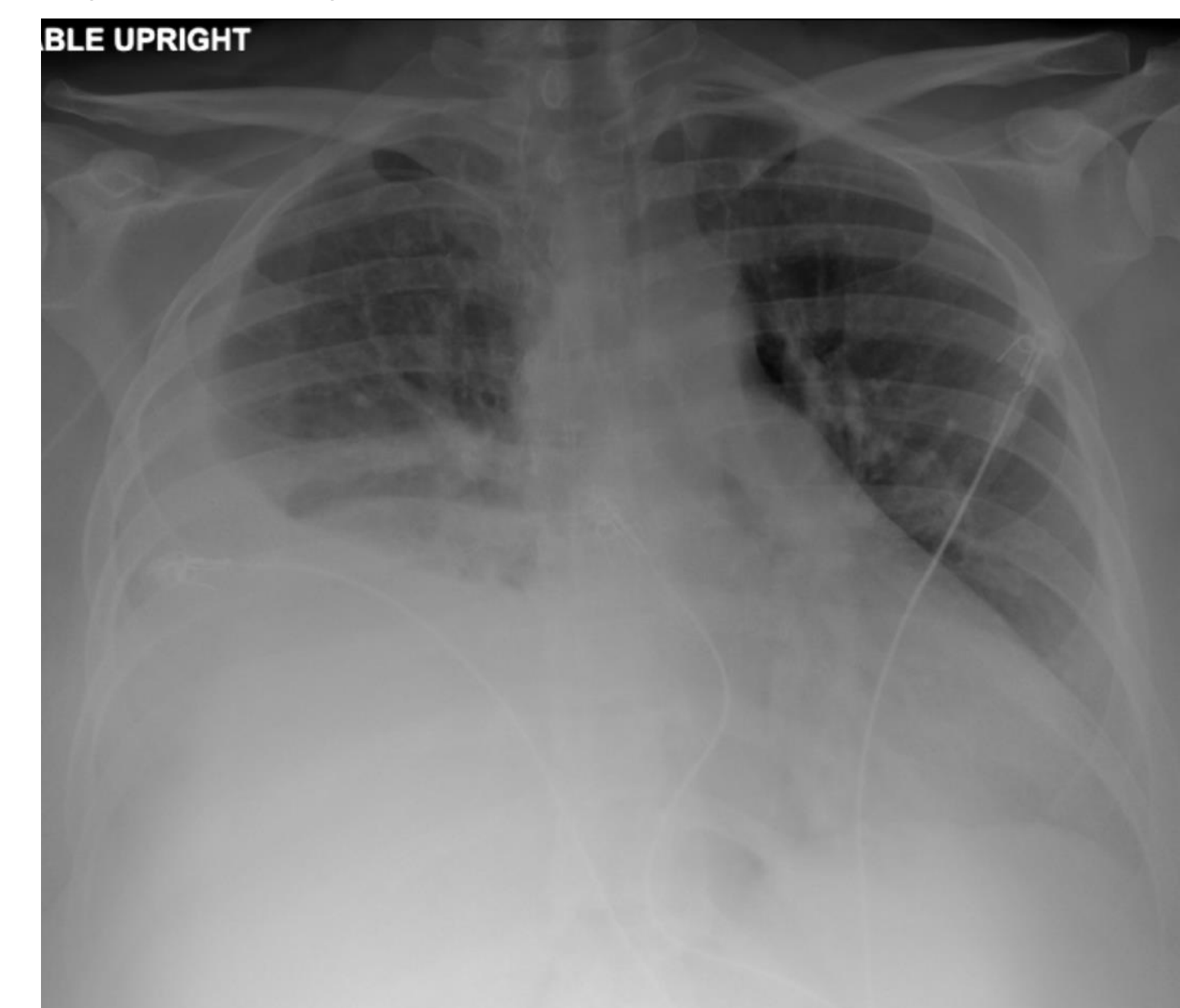


Figure 3: On hospital day 5, right pleural effusion with leftward mediastinal shift



Figure 4: Four weeks after discharge, trace right pleural effusion

Table 1. Laboratory Data

| Tests | In ED (2 days PTA) | At admission | Reference range |
|--------------|--------------------|--------------|-----------------|
| Sodium | 137 | 134 | 136-145 |
| Potassium | 3.9 | 3.3 | 3.5-5.1 |
| Chloride | 108 | 107 | 98-107 |
| CO2 | 19 | 18 | 20-31 |
| Creatinine | 0.790 | 0.780 | 0.550-1.30 |
| Calcium | 9.0 | 7.7 | 8.7-10.4 |
| Magnesium | 1.8 | 0.9 | 1.6-2.6 |
| Phosphate | -- | 0.9 | 2.4-4.9 |
| WBC | 9.7 | 11.9 | 4.5-10.4 |
| Hemoglobin | 11.8 | 10.8 | 11.0-16.0 |
| Neutrophil % | 87.8 | 94.7 | 48.0-82.0 |
| Lactic Acid | -- | 3.80 5.60 | 0.40-2.00 |

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