



Introduction

Bordetella bronchiseptica is a Gram-negative bacteria that colonizes the respiratory tracts of mammals (rodents, swine, dogs and cats) and is closely related to *Bordetella pertussis* and *Bordetella parapertussis*. Although rare, human infection with *B. bronchiseptica* has been documented in both healthy and immunocompromised individuals [2-4]. Infection can be transmitted to humans from infected animals by aerosols carrying the infectious agent [3-6-7]. Respiratory illnesses ranged from mild upper respiratory tract infections to pneumonia [5]. More severe infections as meningitis, endocarditis, peritonitis and sinusitis can occur and in some cases, a direct contact to animals is obvious.

Case report

A 42-year-old female presented with complaints of shortness of breath, cough with whitish sputum, wheezing, runny nose, tactile fevers, and malaise, associated with chest tightness during the last 7 days. Symptoms were progressively worsening in severity for the past few days requiring admission to the hospital. Patient denied any chest pain, headache, nausea, vomiting, abdominal pain, no urinary or bowel complaints.

Past medical history included asthma, hypertension, MVP, Sjogrens, Fibromyalgia, Sickle Cell trait, Rheumathoid Arthritis, DVT-PE 4 years ago and completed 9 months of Coumadin. She was a smoker for 20 years, a pack per day, denied any alcohol or illicit drug use.

Physical exam was significant for mild respiratory distress, and marked wheezes and scattered crackles.

Laboratory findings showed Hb/Hct of 13.9/42.0, WBC of 20.

CXR showed bilateral opacities.

Chest CTA was done, results were negative for PE and showed bilateral ground glass opacities compatible with viral or atypical PNA.

Hospital course

Patient was admitted under the impression of Asthma Exacerbation secondary to Community Acquired Pneumonia.

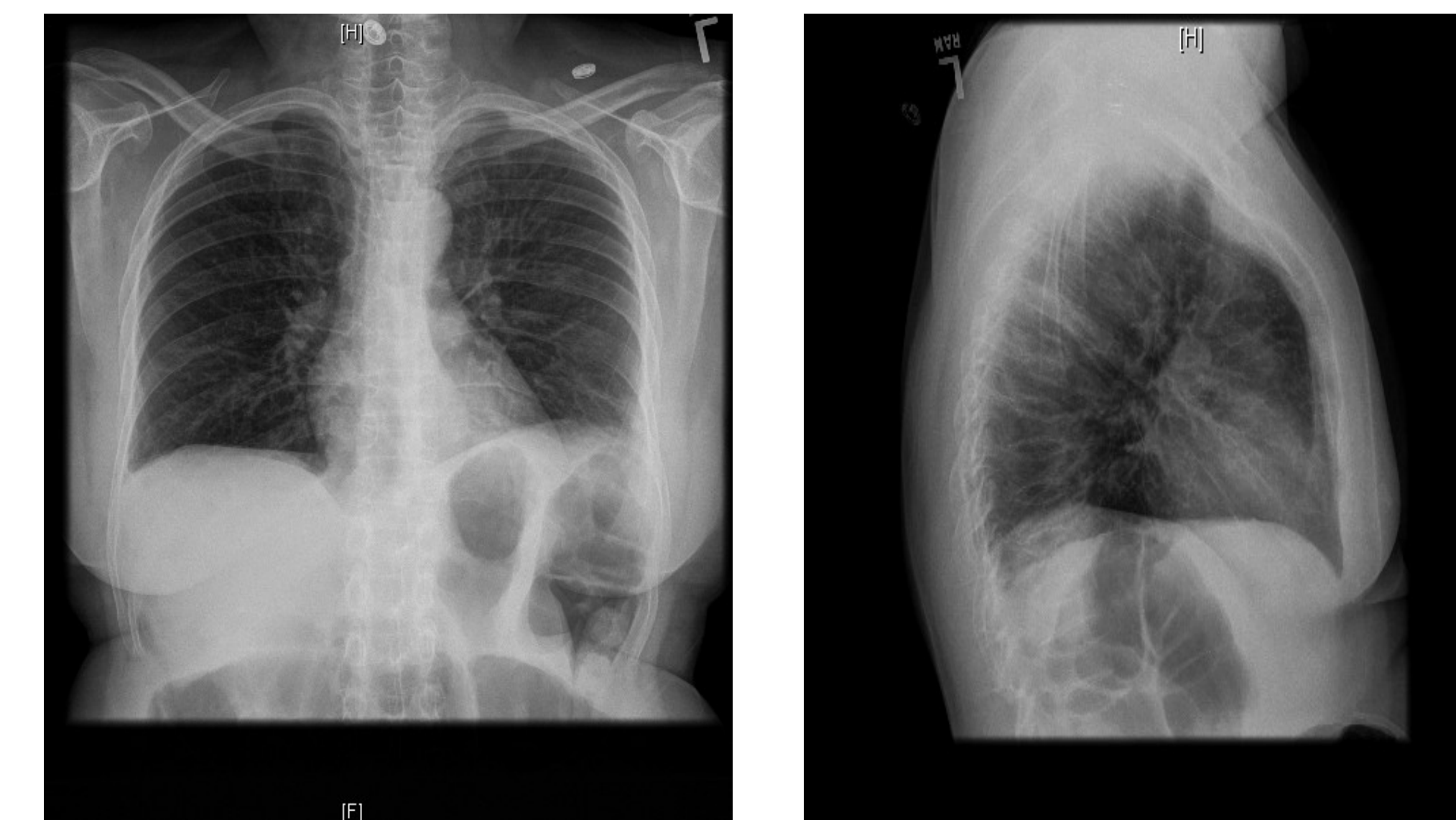
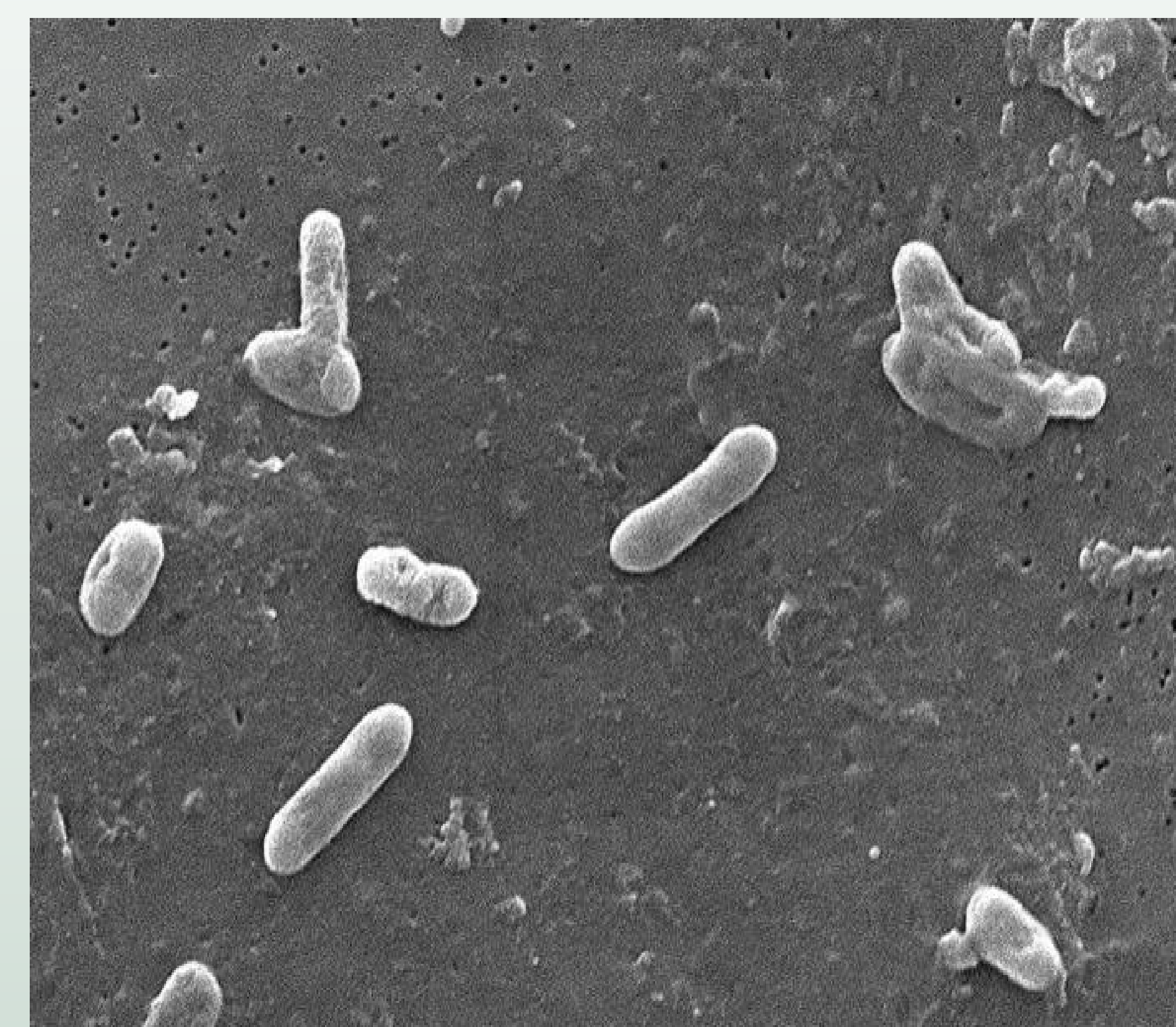
Patient was started on Ceftriaxone, Zithromax, bronchodilators and steroids, with minimal improvement in symptoms.

Sputum culture came positive for *Bordetella Bronchiseptica*, Blood and Urine Cultures were negative.

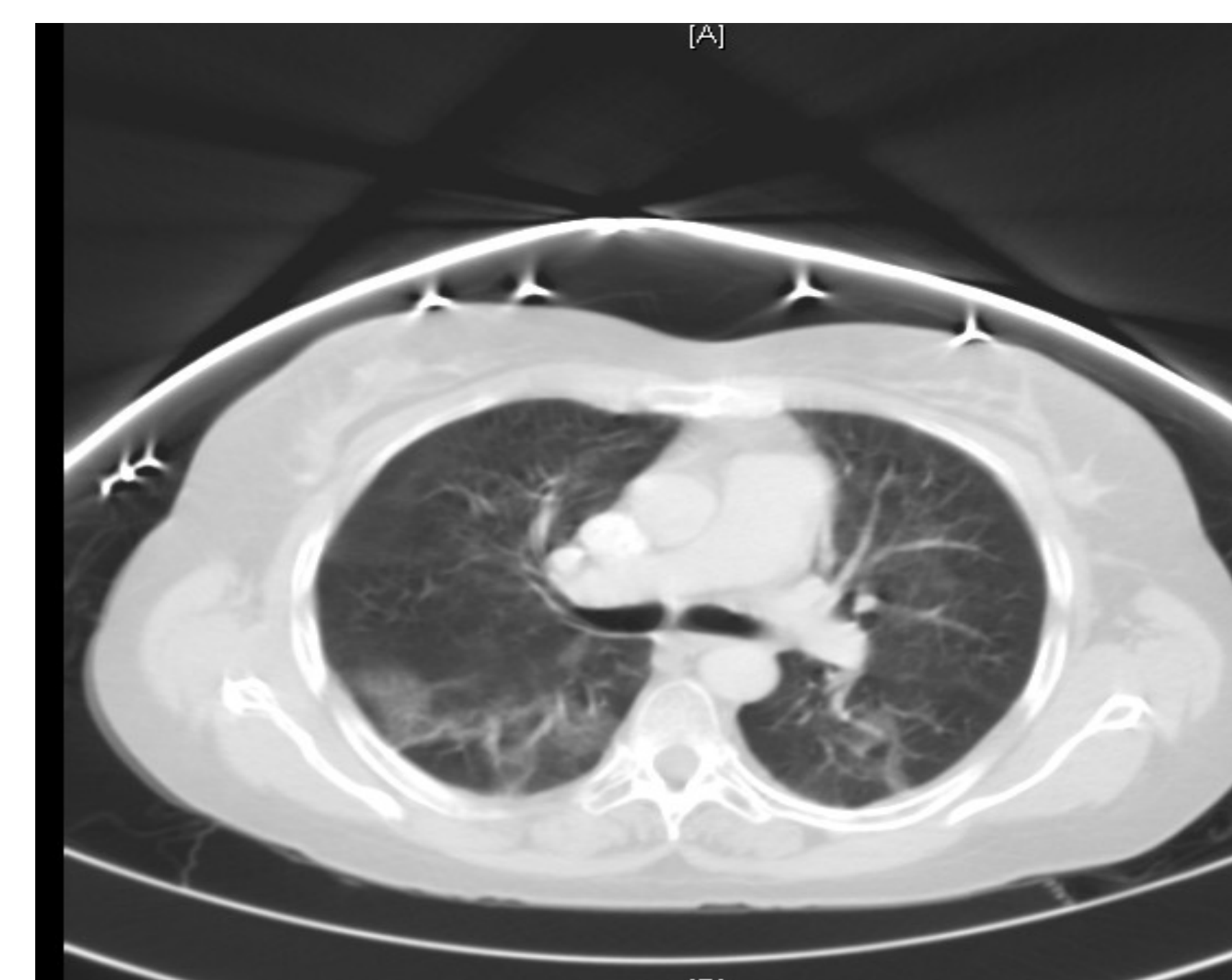
Patient evaluated by Infectious Diseases consultant and antibiotic therapy was switched to Ciprofloxacin based on sensitivities.

Upon further investigation and questioning patient had a cat as a pet for the past 5 months.

Symptoms resolved during the hospital course and patient was discharged home with close follow up with PMD to complete 10 days of Ciprofloxacin, it was advised to take her cat to veterinarian for decolonization of *Bordetella Bronchiseptica* and to avoid close-intimate contact with the cat.



Chest X ray: Bilateral opacities and LLL infiltrate.



CTA: Bilateral ground glass opacities compatible with viral or atypical PNA.

Discussion

Bordetella bronchiseptica is a respiratory pathogen closely related to the etiologic pathogen of whooping cough, *Bordetella pertussis*. Both share virulence factors facilitating prolonged carriage in the respiratory tract [8-9]. *B. pertussis* infects only humans, but *B. bronchiseptica* naturally infects a variety of mammalian species, causing tracheobronchitis ("kennel cough") in dogs and cats and atrophic rhinitis in swine.

Discussion

Human infections are extremely rare and it can affect multiple organs and system with upper respiratory infection being the most common presentation. No specific guidelines have been described for the treatment of *B. bronchiseptica*. [7]

Patients are generally treated with aminoglycosides, extended-spectrum third-generation penicillin, tetracycline, quinolones and trimethoprim-sulfamethoxazole. Antibiotics course of 2 to 4 weeks is recommended to treat the disease. [7] Our patient had culture-proven *Bordetella bronchiseptica* infection that responded well to antibiotics

Conclusion

This case represents a rare and potentially serious condition, leading to prolong hospitalization and morbidity if not identified and treated properly.

Bibliography

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