

A Complicated Case of Contagious Cough: A Case Report

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Introduction

- Despite the availability of multiple vaccinations against *Bordetella pertussis*, infection rates remain a public health concern and a cause of chronic cough
- Even those previously vaccinated are at risk of infection as the available vaccines offer variable and non-lifelong immunity protection¹⁻²
- Certain comorbid conditions such as chronic obstructive pulmonary disease (COPD) put individuals at risk for more severe cases of infection and are associated with worse outcomes³
- Here, we present the case of a patient with COPD and allergy to first-line treatment who was treated for “whooping cough”, the disease caused by *Bordetella pertussis*, throughout the course of an extended hospital stay

Epidemiology in New Jersey

- In 2019, 458 cases of pertussis were reported in all of New Jersey⁴
 - Of those 458 cases, 30 were reported in Atlantic County
- Table 1 highlights the total cases of pertussis in New Jersey as recorded.
 - The graph is directly from the New Jersey Public Health Data Resource tools accessible on the website⁴
- Confirmed or suspected cases of pertussis are to be telephoned immediately to the local health department⁵

Case Presentation

- A 65-year-old female with past medical history of COPD, fibromyalgia, gastroesophageal reflux disease (GERD), and recent COVID-19 infection several months prior presented to the emergency department with a chronic cough of 4-6 week duration under the recommendation from her pulmonologist.
- Due to a history of penicillin allergy, she was started on intravenous (IV) Levofloxacin and IV Aztreonam following a sepsis alert due to tachycardia to 102 beats per minute and an elevated lactate of 3.01 mmol/L.
- Further complicated by comorbidity of COPD, the patient was started on an inhaled corticosteroid (ICS) and a long-acting beta agonist (LABA).
- An initial chest computed tomography (CT) scan was negative for pneumonia. Pulmonology was consulted and recommended Pertussis titers due to the chronic cough and the fact that the patient was not up-to-date with Tdap (Tetanus, Diphtheria, Pertussis) Vaccine.
- The patient improved over the course of the hospital stay with the Levofloxacin and supportive therapies for her cough which persisted.
- After 6 days, the pertussis titers came back positive. Due to her penicillin allergy, infectious disease (ID) was consulted and recommended Trimethoprim / Sulfamethoxazole (TMP-SMX).
- The New Jersey Health department was contacted to notify her close contacts. After an extended hospital stay of 10 days, she improved and was stable enough to be discharged home on TMP-SMX, pseudoephedrine-guaifenesin, codeine-promethazine, benzonatate, acetylcysteine.

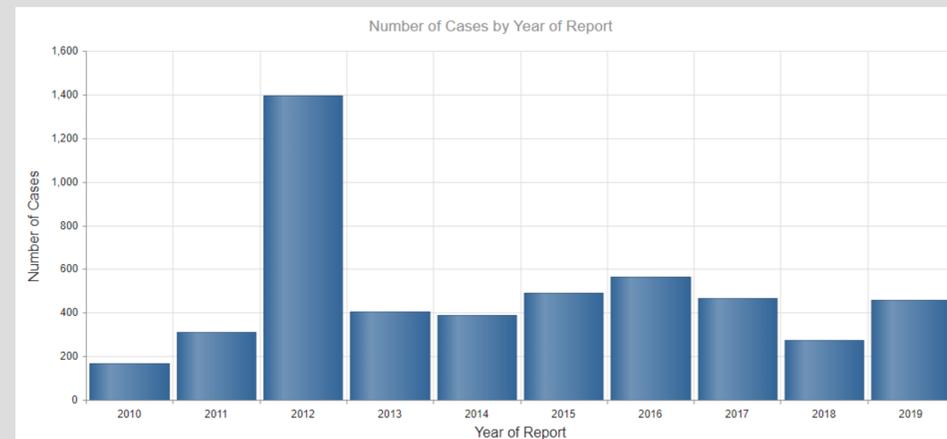


Table 1. Cases of Pertussis Reported In New Jersey
Above represents the number of cases of pertussis in New Jersey from 2010-2019⁴

Discussion

- Especially in the context of the current COVID-19 pandemic, it is important to maintain a broad differential in the work-up of chronic cough
- It is well known that neither natural nor vaccine generated immunity offers lifelong protection from *Bordetella pertussis*. It is also well understood that patients with certain comorbidities such as COPD suffer from increased economic burden while being treated for whooping cough^{1-3,6}
- Here, we discuss the extended hospital stay of our patient with a history of COPD complicated by the fact that the patient is allergic to the first-line treatment for pertussis infection. We are reminded of the importance of advocacy for booster pertussis vaccination.

References

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