

Psittacosis: An Invisible Threat from Our Feathered Companions

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ABSTRACT

Psittacosis is a zoonotic disease caused by bacterium *Chlamydia psittaci* and primarily affects birds mainly parrot family and known as parrot fever or avian chlamydiosis. People in close contact with affected birds are at high risk. This disease first identified in 20th century but first documented outbreak of psittacosis occurred in 1929. In affected birds different respiratory, ocular, digestive, neurological and generalised signs and symptoms are observed. In humans affected with psittacosis show flu like, respiratory, gastrointestinal and systemic signs and symptoms which in severe cases leads to pneumonia while severity of signs and symptoms of disease vary among individuals and species. Antibiotics are quite effective in treatment of psittacosis. Diagnosis of psittacosis depends on the medical history, physical examination, blood tests, serology tests, PCR, culture and chest x-ray etc

Introduction

Psittacosis, also known as parrot fever or avian chlamydiosis, is a zoonotic infectious disease caused by the bacterium *Chlamydia psittaci* [1]. It primarily affects birds, particularly parrots, cockatiels, and other members of the parrot family (Psittacidae). However, it can also be transmitted to humans, leading to a range of respiratory symptoms and potential complications if left untreated. Psittacosis has garnered attention due to its ability to cause outbreaks and its potential for person-to-person transmission. Psittacosis has a long history, with the first recognized outbreak occurring in the early 20th century. The disease can be contracted through inhalation of dried bird droppings, respiratory secretions, or dust contaminated with the bacteria. Bird owners, pet shop workers, veterinarians, and individuals working in aviaries or poultry farms are particularly at risk. In humans, psittacosis can present with flu-like symptoms, including fever, headache, muscle aches, and cough. Severe cases can result in pneumonia, leading to respiratory distress and, in rare instances, fatalities. Prompt diagnosis and treatment with appropriate antibiotics are essential to prevent complications and reduce the risk of transmission to others. Psittacosis poses challenges for both public health and veterinary professionals. Outbreaks require diligent surveillance, rapid response, and collaboration between human and animal health sectors. Additionally, educational campaigns emphasizing proper hygiene, safe bird handling practices, and the importance of seeking medical attention for respiratory symptoms are vital in preventing and controlling the spread of psittacosis [2].

History

The history of psittacosis dates back to the early 20th century when the disease was first recognized during a series of outbreaks among bird handlers and pet shop workers. The initial identification and understanding of psittacosis were linked to the observation of its occurrence in parrots, leading to its popular name "parrot fever." The first documented outbreak of psittacosis occurred in 1929 [3], when a cluster of cases was reported among workers at a bird importation facility in the United States. It was during this outbreak that researchers discovered the bacterium responsible for the disease, initially named "Psittacosis virus" but later identified as *Chlamydia psittaci*. Subsequent investigations linked psittacosis cases to the handling and close contact with infected birds, especially parrots, cockatiels, and other members of the Psittacidae family. In the following years, outbreaks of psittacosis continued to be reported worldwide. The disease gained significant attention during World War II when several military personnel contracted psittacosis after handling infected birds, leading to concerns about its potential impact on military operations. Advancements in diagnostic techniques, such as the complement fixation test, facilitated improved identification and tracking of psittacosis cases. It became evident that psittacosis was not limited to bird handlers but could also affect individuals who came into contact with infected birds in various settings, including households, pet shops, and aviaries. Over time, research efforts focused on understanding the pathogenesis of the disease, developing diagnostic tools, and exploring treatment options. Antibiotic therapy, particularly with tetracyclines, was found to be effective against psittacosis, leading to improved patient outcomes. In recent decades, the awareness and recognition of psittacosis have increased, and stricter regulations and guidelines have been

implemented to prevent and control the disease. Measures such as quarantine of imported birds, regular monitoring of pet bird populations, and public education campaigns have aimed to reduce the risk of transmission and ensure early detection and appropriate management of psittacosis cases.

Clinical findings

In Birds:

Respiratory Symptoms: Infected birds may exhibit signs of respiratory distress, including sneezing, coughing, and difficulty breathing. Respiratory discharge, often watery or mucous-like, may also be present.

1. **Ocular Symptoms:** Birds with psittacosis may develop conjunctivitis, characterized by redness, swelling, and discharge from the eyes.
2. **Digestive Symptoms:** Infected birds may experience gastrointestinal symptoms such as diarrhea, decreased appetite, and weight loss.
3. **Neurological Signs:** In some cases, psittacosis can affect the nervous system of birds, leading to neurological symptoms like tremors, imbalance, and paralysis.
4. **Generalized Symptoms:** Infected birds may appear weak, lethargic, and fluffed up, displaying overall signs of illness [4].

In Humans

1. **Flu-like Symptoms:** Psittacosis in humans often presents as a flu-like illness. Symptoms may include fever, headache, muscle aches, fatigue, and general malaise.
2. **Respiratory Symptoms:** Infected individuals may experience a persistent cough, shortness of breath, and chest pain.
3. **Gastrointestinal Symptoms:** Some individuals may develop gastrointestinal manifestations, such as nausea, vomiting, abdominal pain, and diarrhea.
4. **Systemic Symptoms:** Psittacosis can cause systemic involvement, leading to symptoms such as chills, sweats, joint pain, and swollen lymph nodes.
5. **Pneumonia:** In severe cases, psittacosis can progress to pneumonia, characterized by severe respiratory symptoms, including cough with phlegm, difficulty breathing, and chest tightness [5].

Diagnosis

1. **Diagnosing psittacosis** involves a combination of clinical evaluation, laboratory tests, and medical history. Here are some common methods used for diagnosing psittacosis:
2. **Medical history and physical examination:** Your healthcare provider will ask about your symptoms, recent exposure to birds, and any relevant travel history. They will also conduct a physical examination to check for signs of infection or respiratory distress.
3. **Blood tests:** Blood tests can be performed to detect the presence of antibodies against *Chlamydia psittaci*. These antibodies are produced by the immune system in response to the infection. Serologic tests such as complement fixation, immunofluorescence assay (IFA), or enzyme immunoassay (EIA) are commonly used.
4. **Polymerase chain reaction (PCR):** PCR tests can be used to detect the genetic material (DNA) of *Chlamydia psittaci* in respiratory secretions or other samples. This test can provide a rapid and accurate diagnosis.

5. **Chest X-ray:** A chest X-ray may be performed to assess the extent of lung involvement and to rule out other respiratory conditions.
6. **Culture:** In some cases, a culture of respiratory secretions or other samples may be attempted to isolate the *Chlamydia psittaci* bacterium. However, this method can be time-consuming and may require specialized laboratory facilities.

References

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