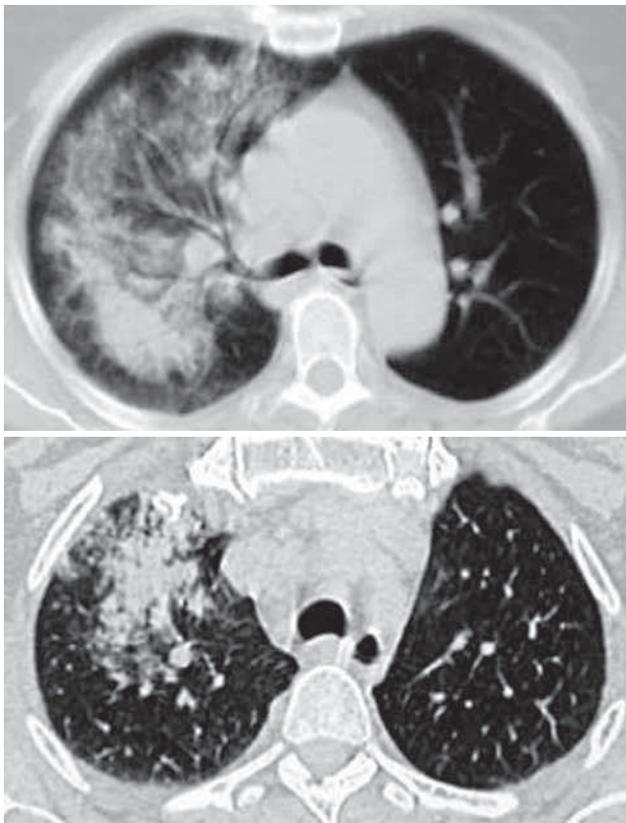


## CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

### Medical Imaging Quiz – Case 23

A 66-year-old woman, who was working as an employee in a pet shop with parrots and pigeons, was admitted to our hospital because of fever (39.1 °C), non-productive cough, weakness, myalgias and headache of one-week duration. On clinical examination, cricket-sounds in the right hemithorax, bradycardia and splenomegaly were found. On blood count, the white blood cells were elevated (12.000/ $\mu$ L) and the platelets were low (<100.000/ $\mu$ L). The tuberculosis skin test (PPD skin test) was negative. The chest X-ray showed pulmonary infiltrates in the right lung. Chest CT scan confirmed the X-ray findings (figures 1–3).

Due to the clinical symptoms, the laboratory tests, the radiological findings and the history of pet shop employee, the clinical doctors asked for serological test of blood sample which showed antibodies against *Chlamydia psittaci*. The final diagnosis



Figures 1–3. CT scan. Pulmonary infiltrates in the right lung.

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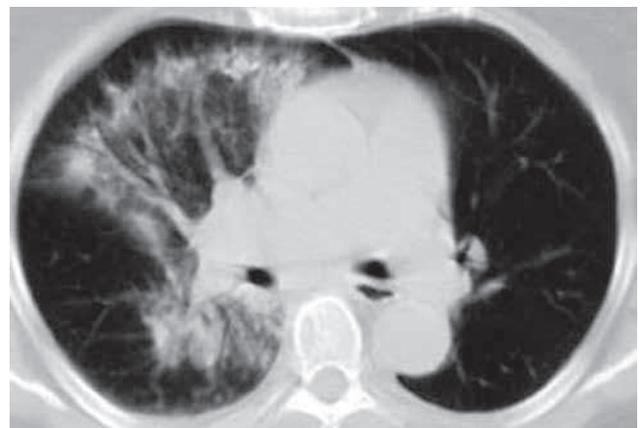
was psittacosis and the patient was treated with doxycycline for 10 days with good outcome.

#### Comment

*Psittacosis*, also known as parrot disease, parrot fever and ornithosis, is a zoonotic infectious disease caused by a bacterium called *Chlamydophila psittaci* (formerly *Chlamydia psittaci*) and contracted not only from parrots, such as macaws, cockatiels and budgerigans, but also from pigeons, sparrows, ducks, hens, gulls and many other species of bird. In certain contexts, the word "psittacosis" is used when the disease is carried by any species of bird belonging to the *Psittacidae* family, whereas "ornithosis" is used when other birds carry the disease.

Infection is usually via the droppings of another infected bird, though it can also be transmitted via feathers and eggs, and is typically either inhaled or ingested.

*C. psittaci* strains in birds infect mucosal epithelial cells and macrophages of the respiratory tract. Septicemia eventually develops and the bacteria become localized in epithelial cells and



macrophages of most organs, conjunctiva, and gastrointestinal tract. It can also be passed in the eggs. Stress will commonly trigger onset of severe symptoms, resulting in rapid deterioration and death. *C. psittaci* strains are similar in virulence, grow readily in cell culture, have 16S-rRNA genes that differ by <0.8%, and belong to eight known serovars. All should be considered to be readily transmissible to humans.

*C. psittaci* serovar A is endemic among psittacine birds and has caused sporadic zoonotic disease in humans, other mammals, and tortoises. Serovar B is endemic among pigeons, has been isolated from turkeys, and has also been identified as the cause of abortion in a dairy herd. Serovars C and D are occupational hazards for slaughterhouse workers and for people in contact with birds. Serovar E isolates (known as Cal-10, MP or MN) have been obtained from a variety of avian hosts worldwide and, although they were associated with the 1920s–1930s outbreak in humans, a specific reservoir for serovar E has not been identified.

In humans, after an incubation period of 5–14 days, the symptoms of the disease range from inapparent illness to systemic illness with severe pneumonia. It presents chiefly as an atypical pneumonia. In the first week of psittacosis, the symptoms mimic typhoid fever: Prostrating high fevers, arthralgias, diarrhea, conjunctivitis, epistaxis, and leukopenia. Rose spots can appear and these are called Horder's spots. Splenomegaly is frequent toward the end of first week. Diagnosis can be suspected in case of respiratory infection associated with splenomegaly and or epistaxis. Headache can be so severe that suggests meningitis and some nuchal rigidity is not unusual. Towards the end of first week, stupor or even coma can result in severe cases. The second week is more akin to acute bacteremic pneumococcal pneumonia with continuous high fevers, cough and dyspnea. X-rays show patchy infiltrates or a diffuse whiteout of lung fields. Bloodwork shows leukopenia, thrombocytopenia and moderately elevated liver enzymes.

Differential diagnosis must be made with typhus, typhoid and atypical pneumonia by *Mycoplasma*, *Legionella* or Q fever. Exposure history is paramount to diagnosis.

Complications in the form of endocarditis, hepatitis, myocar-

ditis, arthritis, keratoconjunctivitis and neurologic complications (encephalitis) may occasionally occur. Severe pneumonia requiring intensive care support may also occur. Fatal cases have been reported (less than 1% of cases).

Diagnosis involves microbiological cultures from respiratory secretions of patients or serologically with a fourfold or greater increase in antibody titers against *C. psittaci* in blood samples combined with the probable course of the disease. Typical inclusions called "Leventhal-Cole-Lillie bodies" can be seen within macrophages in BAL (bronchial alveolar lavage) fluid.

The infection is treated with antibiotics. Tetracyclines and chloramphenicol are the drugs of choice for treating patients with psittacosis. Most persons respond to oral therapy, such as doxycycline, tetracycline hydrochloride, or chloramphenicol palmitate. For initial treatment of severely ill patients, doxycycline hyclate may be administered intravenously. Remission of symptoms usually is evident within 48–72 hours. However, relapse can occur, and treatment must continue for at least 10–14 days after fever abates.

When there is an exposure history to birds, respiratory disease with pulmonary infiltrates on X-ray or CT scan and splenomegaly, psittacosis should always be considered as a possible diagnosis.

## References

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