

Ornithosis

Diagnosis

PSITTACOSIS



Psittacosis—also known as **parrot fever**, and **ornithosis**—is a zoonotic infectious disease in humans caused by a bacterium called *Chlamydia psittaci* and contracted from infected parrots, such as macaws, cockatiels, and budgerigars, and from pigeons, sparrows, ducks, hens, gulls and many other species of birds. The incidence of infection in canaries and finches is believed to be lower than in psittacine birds.

In certain contexts, the word is used when the disease is carried by any species of birds belonging to the family Psittacidae, whereas **ornithosis** is used when other birds carry the disease.

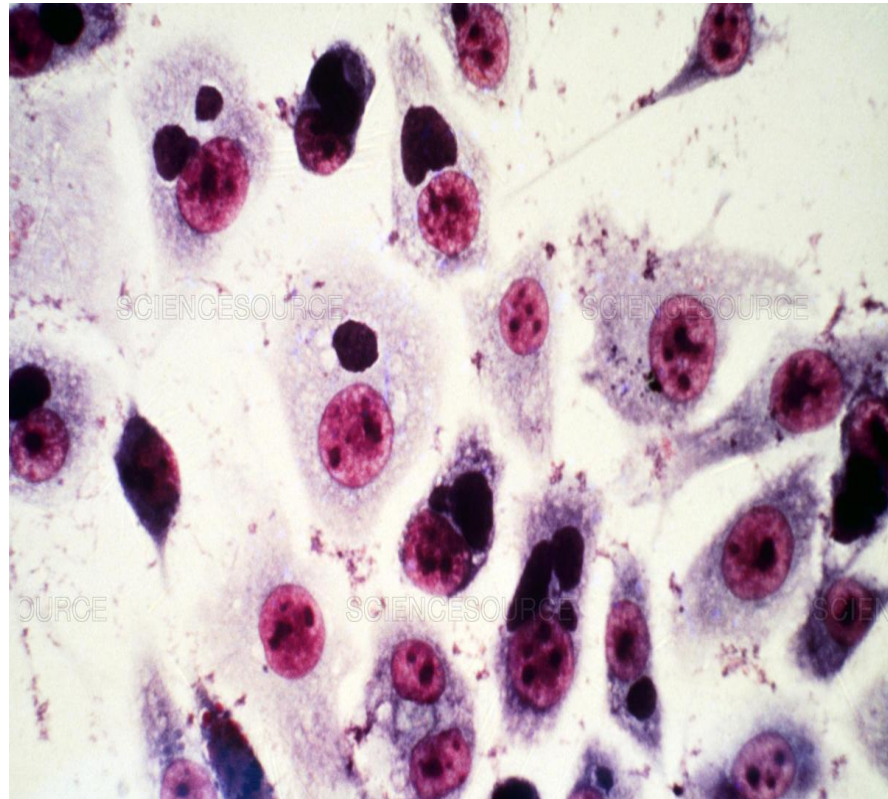
Psittacosis

an acute infectious disease from the group of zoonoses with natural foci.

It is characterized by

- **fever,**
- **general intoxication,**
- **pulmonary,**
- **central nervous system,**
- **increased liver and spleen.**

The causative agent of psittacosis is *Chlamydophila psittaci*.



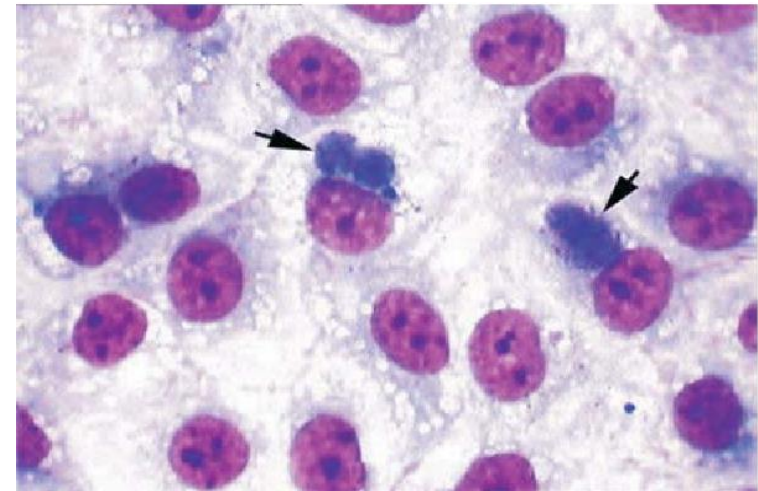
Etiology.

Chlamydia and *Chlamydophila* are nonmotile, obligate intracellular prokaryotic organisms.

In the current schema they are classified in the order *Chlamydiales*, which contains only one family, the *Chlamydiaceae*, and two genera, *Chlamydia* and *Chlamydophila*.

Within this family there are four currently recognized species: *Chlamydophila pecorum*, *Chlamydophila psittaci*, *Chlamydia trachomatis* and *Chlamydophila pneumoniae*.

All except *C. pecorum* have been associated with human disease.

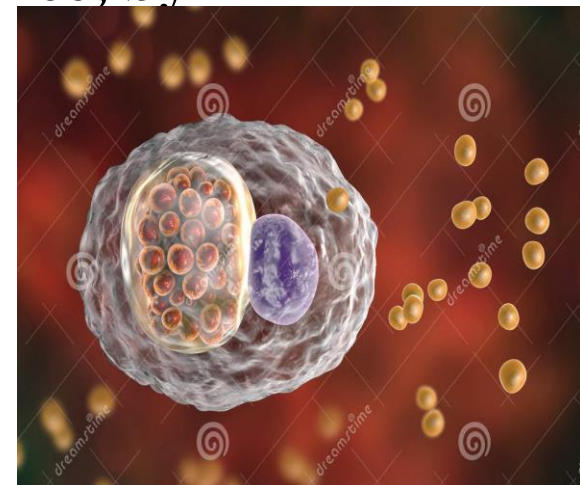


Etiology.

Pathogen - Chlamydia psittaci possesses properties, characteristic and for other types of chlamydia.

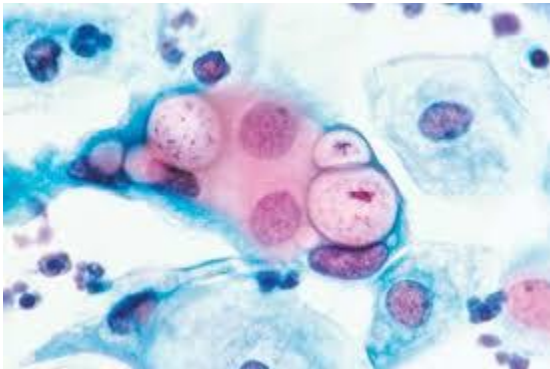
The antigens of the pathogen of ornithosis can be divided into two types: thermotolerant and heat-labile. The first is group specific antigens, which react with antibodies to all types of chlamydia in RNC, HI, immunofluorescence, agglutination particle, radioisotope precipitation, and formulation with an allergic skin test. Heat-labile species-specific antigens react with homologous antibodies or partially to antibodies closely antigens. Species-specific antigen can be detected in reactions microimmunofluorescence, by immunoelectrophoresis and others.

The antigenic properties of Chlamydia can be divided into strains isolated from birds (these strains are pathogenic to humans) and mammalian (their pathogenicity for humans has not been proved).



Chlamydia inactivated when heated above 70 ° C, under the influence of disinfectants (Lysol, formalin, chloramine, ether).

In the external environment will remain until 2-3 weeks.



Epidemiology.

Reservoir and source of infection are domestic and wild birds.

Currently, the causative agent of psittacosis selected from more than 150 species of birds.

The largest epidemiological importance poultry (especially ducks and turkeys), pet birds (parrots, budgerigars, canaries and other small songbirds), and especially the city pigeons infection which ranges from 30-80%.

Outbreaks of occupational diseases are more common in late summer - early autumn. Sick person, constantly in contact with the birds (workers of poultry farms, meat-packing plant, etc..). However, the share of occupational diseases account for only 2-5% of the total number of cases. Consequently, psittacosis can not be attributed primarily to occupational diseases, as some epidemiologists believe. When domestic infection more common sporadic disease, although there may be small (usually family) outbreak. These diseases are more common during the cold season. Family outbreaks are developing quickly (within 1-2 weeks) after the acquisition of the infected pet birds. If the birds have long been found in the apartment (over several months), the infection does not come from them if the infection is not stored with the newly acquired birds or feed.

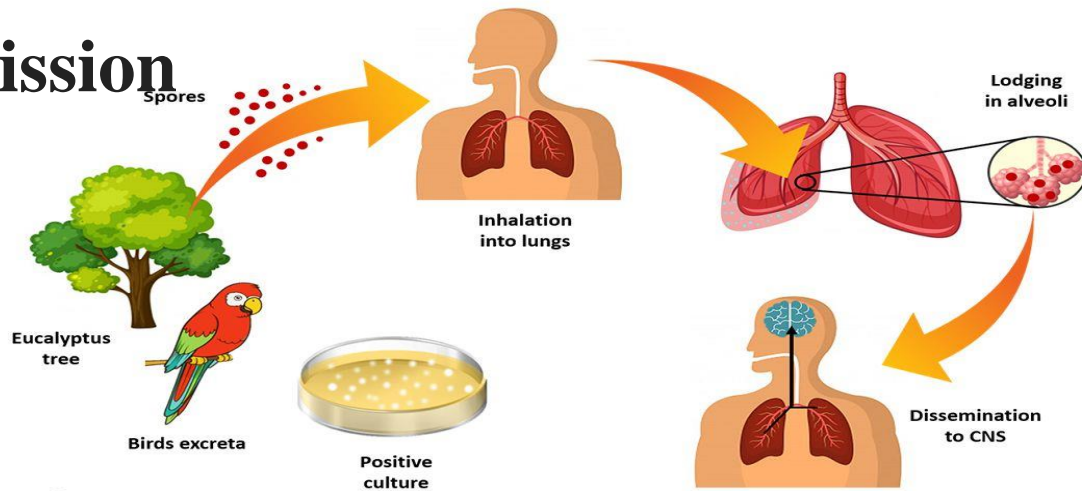


Epidemiology

C. psittaci is common in birds and domestic animals. Infection is therefore a hazard to pet owners. The infection is generally spread by the respiratory route, by direct contact or aerosolization of infective discharges or dust. Rarely, the bird may spread the infection by a bite.

Psittacosis

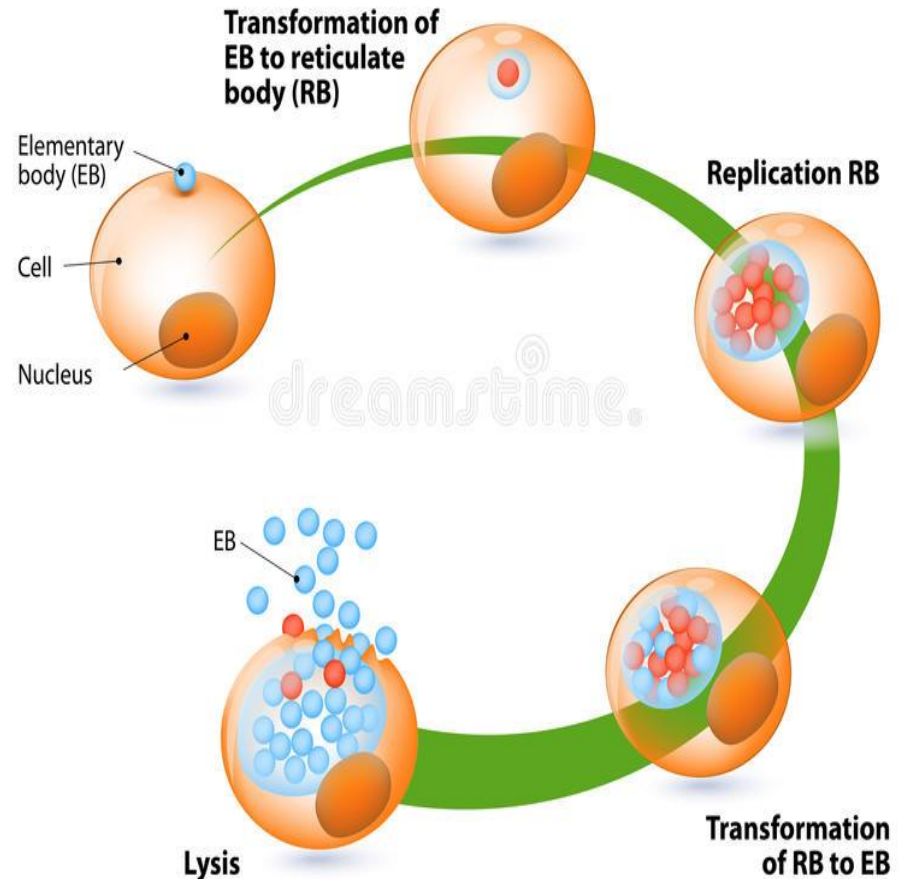
Person-to-person transmission is possible, but rare.



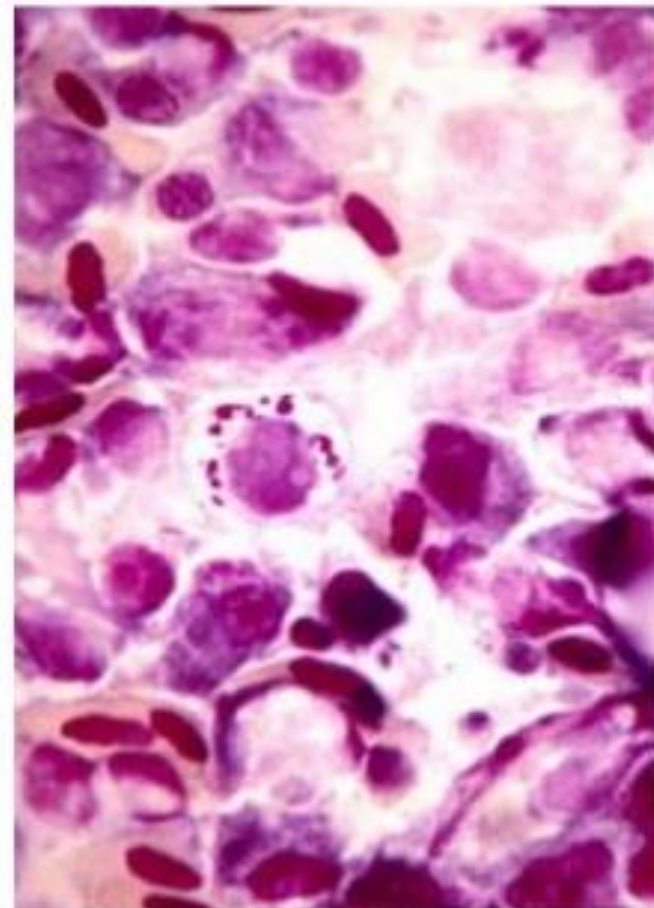
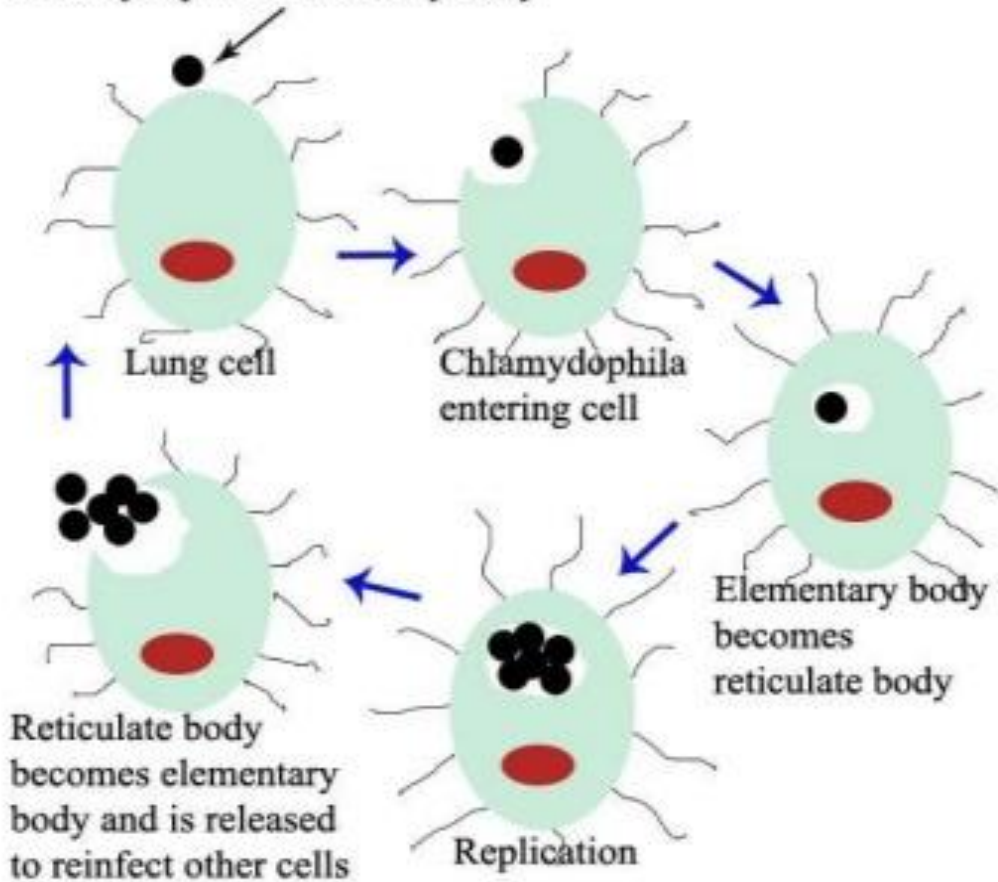
Pathophysiology

All chlamydiae have a unique life cycle that uses an extracellular infectious form, the elementary body (EB), and an intracellular replicative form, the reticulate body (RB).

LIFE CYCLE OF THE CHLAMYDIA



Chlamydomphila elementary body

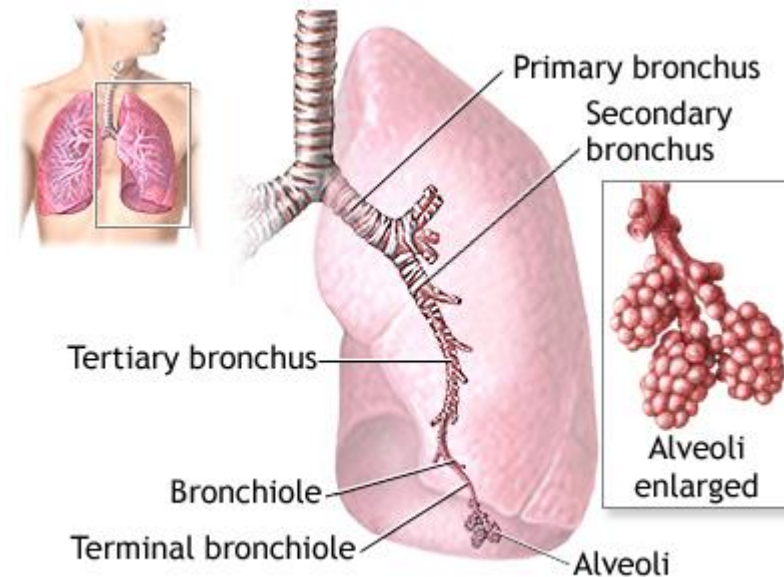


Pathogenesis.

In humans, the pathogen penetrates mainly through the mucous membranes of the respiratory system. Infection occurs by inhalation of dust containing chlamydia (pieces of dried excreta of birds, as well as discharge from the beak, contaminated particles down, etc..). The penetration depth of the respiratory tract depends on the particle size. Large settle in the bronchi, bronchioles, and small reach the small bronchi, and particles with a diameter of 5 microns or less are free to reach the alveoli.



Lesions in the upper respiratory tract ornithosis available, but in the bronchi, according to bronchoscopy for biopsies and research, changes are detected early enough. The causative agent is adsorbed on the surface of epithelial cells, and then enters the cell (by phagocytosis or pinocytosis) where reproduction begins. To play a causative agent of psittacosis must be 24-48 hours, then the process captures the new cells. With the development cycle and the amount caught in the respiratory Chlamydia linked and duration of the incubation period.



Detection of the pathogen of ornithosis in the blood from the first days of the disease, severe symptoms of intoxication without any organ lesions indicate the importance of viremia for the initial period of illness.

The syndrome may be caused by intoxication or toxic effects of the pathogen or toxin produced by them. In the future circulation of chlamydia in the blood is maintained in secondary centers.

Pneumonia in ornithosis always primary.

In experiments on various animals, including monkeys, demonstrated that pneumonia can develop only when the infection through the respiratory tract.

For other methods of infection (subcutaneously, intravenously, in the brain, peritoneal cavity, alimentary) disease occurs, but it proceeds without pneumonia.



Thus, the initial accumulation of the pathogen occurs in the respiratory tract; hematogenically chlamydia affect a number of organs and systems with the formation of secondary centers there.

Very often suffer from liver, spleen, brain, myocardium and others.

In alimentary introduction chlamydia infection occur in the small intestine. However, the gut epithelium is not very suitable for reproduction and significant changes intestine does not occur. The pathogen enters the blood, affects a number of organs and systems, causing development of atypical forms of ornithosis, proceeding without pneumonia.



With good reactivity of the organism, especially in young people, the causative agent of psittacosis infection does not lead to clinical manifestations of the disease.

There is only an increase in antibody titer, indicative of asymptomatic (inapparent) infection.

In most patients, cleansing the body of the pathogen occurs within a few weeks, the individual may preserve chlamydia in the body up to 8 years.

In these cases develop chronic forms psittacosis. Can layered secondary bacterial infection, but the main changes are due to very chlamydia.

In acute ornithosis antibody levels in the serum (according to RSK) starts to decrease from the second month of the onset of the disease.

In chronic forms of antibodies persist for several years, due to the long persistence in the body of Chlamydia.

In these cases we can talk about non-sterile immunity. As a result of undergoing an acute infection and immunity intermittent unstable.

There are cases of repeated illnesses, sometimes after a short time after the primary (through 0,5-1-2 year).



CLINIC

The incubation period ranges from 6 to 17 days (usually 8-12 days).

Manifestations ornithosis different polymorphism.

It can occur in acute and chronic forms.

Acute psittacosis
can occur in

typical
(pneumonic)
forms

mild

moderate,

severe

atypical forms

meningopnevmoniya

Meningeal forms of
ornithosis

psittacosis without lung
disease

The rare atypical forms include hepatitis form of ornithosis and endocarditis form of ornithosis .

A third option is asymptomatic acute ornithosis (inapparent) form.

Chronic psittacosis can occur in the form of chronic pneumonia and a chronic ornithosis without lung disease. With long-term (more than 6 months) persistence Chlamydia ornithosis and in the absence of clinical symptoms can talk about latent psittacosis.

After an incubation period 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, joint pains, diarrhea, conjunctivitis, nose bleeds, and low level of white blood cells.

Rose spots called Horder's spots can appear.

Spleen enlargement is common

towards the end of the first week.

It may become a serious lung infection.

Diagnosis can be suspected in case of respiratory infection associated with splenomegaly and/or epistaxis.

Headache can be so severe that it suggests meningitis and some nuchal rigidity is not unusual.

Towards the end of the 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, headaches, cough, and dyspnea.

X-rays show patchy infiltrates or a diffuse whiteout of lung fields.

Chronic psittacosis can occur without lung disease.

Manifested in the form of a long subfebrile, symptoms of chronic toxicity, vegetative-vascular disorders, enlarged liver and spleen, increasing asthenia.

It can last for years.

Complications in the form of

endocarditis,

liver inflammation,

inflammation of the heart's muscle,

joint inflammation,

keratoconjunctivitis (occasionally extranodal marginal zone lymphoma of the lacrimal gland/orbit),

and neurologic complications (brain inflammation) may occasionally occur.

Severe pneumonia requiring intensive-care support may also occur.

Fatal cases have been reported (less than 1% of cases).

Diagnosis

The total white blood cell count is usually normal or slightly elevated.

Appearance on the chest film is abnormal in approximately 75% of patients and is usually more abnormal than auscultation would predict.

Laboratory diagnosis depends mainly on serology: microimmunofluorescence (MIF) and complement-fixing (CF) methods are used.

**Differential diagnosis:
meningitis, community-
acquired pneumonia,
pulmonary embolism,
endocarditis, vasculitis,
septicemia, brucellosis and
polymyositis.**

Treatment.

Possible regimens may include:

Azithromycin 250-500 mg per os daily × at least 7 days.

Doxycycline 100 mg twice daily or Tetracycline 500 mg four times a day for 10 days.

Prevention

Avoid close contacts with birds if possible. Infected birds should be treated with tetracycline, chlortetracycline, or doxycycline for at least 45 consecutive days. There is no documented protection after infection, and second infections are possible.

