Atypical pneumonias

Atypical pneumonias are pneumonias that are characterized by a mismatch between poor physical and extensive X-ray findings (large wedge-shaped infiltrates) with frequent pleural involvement. They are usually **viral**, **chlamydial**, **mycoplasmal** or **pneumocystic**.

The term atypical pneumonia is currently considered obsolete and should not be used. It has previously been used to identify pneumonia caused by atypical agents, which is a mislabel, or is used by radiologists to identify pneumonia without a typical X-ray, or is used for unusual pneumonia that does not respond to ATB treatment. Currently, the preferred cutting pneumonia is **nosocomial**, **community, pneumonia in immunocompromised, pneumonia in social care** and **ventilator-associated pneumonia**. [1]

Viral pneumonia

Etiology

- RSV infection – especially in the winter months,
- parainfluenza - in autumn, winter and spring,
- influenza - in the middle of winter,
- adenoviruses - throughout the year.

Clinical picture

At the beginning, inflammation of the upper respiratory tract with wheezing or stridor, cough, signs of difficulty breathing (retraction, grunting, alar joint) often precede. **Physical findings** similar to bacterial pneumonias - crustaceans, impaired respiration**. Laboratory tests** : leukocytes normal or slightly higher (this will not help to differentiate bacterial, but if the leukocytes were significantly elevated, viral inflammation would be unlikely). Severity, X-rays and physical examinations do not reliably distinguish between viral and bacterial inflammation.

Diagnosis

Rapid diagnostic tests for viruses (eg. fluorescent Ig or ELISA tests for RSV). **Detection of the virus** is important because it sometimes allows the use of a specific antiviral agent. Patients with adenoviral pneumonia may have severe necrotizing pneumonias with pneumatocele.
X-ray of the lungs - striated perihilence drawing, highlighted interstitial drawing, peribronchial infiltrates or dispersed bronchopneumonia (but there may also be alolar occlusion as in bacteria).

Complication

Adenovirus pneumonia may be followed by bronchiolitis obliterans or severe chronic respiratory failure. Airway hyperresponsiveness may develop after infection. They can subsequently be complicated by bacterial pneumonia.

Therapy

General supportive care as with bacterial, seriously ill patients should be hospitalized. Bacterial superinfection often cannot be completely ruled out, co-administration of ATB is indicated. For RSV - ribavirin, for influenza A and B - amantadine.

Prevention and prognosis

Respiratory patients should be vaccinated against influenza A and B annually, children with suspected viral pneumonia should be isolated, and their hands should be washed thoroughly.
Most are cured without complications.

Chlamydia pneumonia

Increasingly, they mainly affect infants aged 2-12 weeks. In newborns and infants mainly *Chlamydia trachomatis* - chlamydia reach the baby from the mother during childbirth. In older children *Chlamydia pneumoniae* - transmission is droplet.

Clinical picture

Cough , tachypnoea, conjunctivitis (but it doesn't have to be!), Listening - wheezing, occasionally wheezing, the temperature may not be elevated. **Laboratory tests**: eosinophilia, elevated IgM , IgG , IgA . X-ray of the lungs - diffuse interstitial shading, hyperinflation, multiplication of the peribronchial pattern.

Differential diagnosis

Viruses, pneumocystis.

Therapy

Erythromycin or sulfisoxazole, treatment must last 14 days. Infants with severe respiratory distress, cough or apnea are hospitalized. Sometimes longer-term oxygen therapy is needed.

Mycoplasma pneumonia

The causative agent is *Mycoplasma pneumoniae* (Eaton's agent). It causes pneumonia mainly in children over 5 years of age. It does not occur in infants under 6 months of age because they have maternal immunoglobulins. It is called ***primary atypical pneumonia*** - due to the discrepancy between a poor clinical finding and a large X-ray finding. **Incubation period** is long (2-3 weeks), the onset of problems is gradual.

Clinical picture

Fever (above 39 ° C), cough, headache, nausea, cough is first dry, then sputum production. There may be sore throat, otitis. Listening - wheezing, wheezing, weakened or tube breathing. The disease is mild and is also called "**walking pneumonia**" (the patient walks with her).

Diagnosis

Leukocytes and leukocyte differential are usually normal. The diagnosis is supported by the titer of cold hemaglutinins (more than 1:64), as well as a four-fold increase in Ig titer against mycoplasma.
X-ray of the lungs - interstitial shading of a whipped character or bronchopneumonic infiltrates, effusions are rare.

Complication

CNS, blood, skin, heart or joint involvement (autoimmune haemolytic anemia, thrombocytopenia, Guillain-Barre syndrome, rash,...).

Therapy

Erythromycin for 7-10 days. Other macrolides (azithromycin and clarithromycin), also tetracyclines, are also effective.

Prognosis

When there are no complications it may subsides spontaneously.

Pneumocystis pneumonia

Pneumocystis carinii is an infection classified as a fungus (first described by the Pilsen pathologist Vaňek, in 1954). It often occurred in the post-war years in malnourished infants, infant institutions and low birth weight children.

Inflammation of the interstitium with a **large distribution of interalveolar septa** (they contain plasma cells and lymphocytes). There are foamy eosinophilic proteinaceous substances in the alveoli that contain cysts. The infection is transmitted by droplets, it can also be obtained from rodents.

Predisposing factors: prematurity, malnutrition, chemotherapy, malignancies, long-term treatment with corticosteroids, immunosuppression, anemia, haemophilia, nephrosis,...

Clinical picture

The onset is gradual, with non-specific symptoms (restlessness, loss of appetite), there is no cold, cough or fever, tachypnoea and cyanosis appear around the mouth. Severe dyspnoea, tachypnea (80-120 / min) and cyanosis occur within 1-2 weeks. Numbness can be heard on the lungs.
Lung X-ray - bilateral interstitial striated shadows based on enlarged hils, lung hyperinflation.

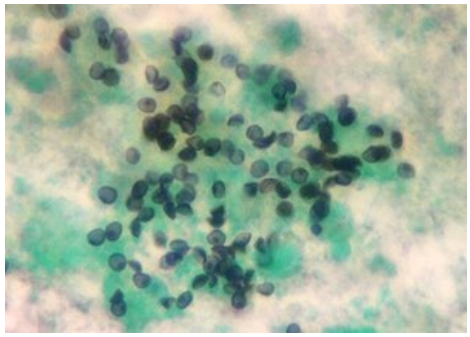
Summary Lung X-ray of patient shows infection with Pneumocystis carinii pneumonia.

Diagnosis

Definitive diagnosis by evidence of pneumocystis in lung tissue or in fluid respiratory pathways (bronchoscopy, BAL, biopsy), or open lung biopsy or percutaneous lung puncture.

Therapy

The most important drug - **pentamidine** (4 mg / kg / day) i.v. or i.m. for 10-14 days (we cure 60-90% of patients). It has a number of side effects - impaired kidney and liver function, anemia, thrombocytopenia, neutropenia, hypotension, hypoglycemia, local reactions. Another important drug - **cotrimoxazole** - has fewer side effects and is just as effective.



Pneumocystis (carinii) jiroveci

Prognosis

The disease lasts 4-6 weeks, and if left untreated, the mortality rate is 25-50%. With proper treatment, 50-95% of patients survive.

Prevention

Patients should be isolated from patients with impaired immunity, and endangered patients provide prophylaxis with cotrimoxazole.

Correlation table for typical and atypical pneumonia

PARAMETER	TYPICAL PNEUMONIA	ATYPICAL PNEUMONIA
Basic characteristics	significant physical finding	poor physical findings
Agens	(extracellular) ***Streptococcus pneumoniae***, *Haemophilus influenzae Haemophilus parainfluenzae, Staphylococcus aureus, Klebsiella pneumoniae, Escherichia coli a Pseudomonas aeruginosa*	(intra/paracelullar) ***Mycoplasma pneumoniae***, *Chlamydophila pneumoniae, Chlamydophila psittaci, Legionella pneumophila, Coxiella burnetii*, viruses – RSV, influenza, *Pneumocystis carinii*
Onset	sudden	after upper respiratory tract infection, slow
Extrapulmonary symptoms	indistinct	common - headache and muscle pain, vomiting, diarrhea
Fever	septic febrile	subfebrile
Shaking	yes	rare
Cough	productive	dry, irritating
Heart rate	possible tachycardia	standard
The patient looks	sick	'cool'
Physicall examination	crepitus, tubular respiration, crackles	isolated crackles
X-ray	segmental/lobar obscuration (alveolar involvement)	intestinal reticulonodulation (interstitial involvement)
Sedimentation	high	slightly increased
Inflammatory paramaters	high	slightly increased
Blood count	leukocytosis	lymphocytosis
Therapy	penicillins	macrolides

References

Related Articles

- Pneumonie • Pneumonie (pediatrie) • Pneumonie u kojenců • Pneumonie u větších dětí
- Bakteriální pneumonie • Abscedující pneumonie • Aspirační pneumonie
- RDG vyšetření u zánětů dolních cest dýchacích • Klinické hodnocení závažnosti pneumonie

Source

- BENEŠ, Jiří. *Studijní materiály* [online]. [cit. 2010]. <http://jirben.wz.cz>.

Reference

1. ČEŠKA, Richard. *Interna.* 1. edition. Triton, 2010. 855 pp. pp. 474-475. ISBN 978-80-7387-423-0.