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المحاضرة الرابعة- المرحلة الثانية
الطب الباطني- تقنيات التخدير

Pneumonia
tuberculosis
viral illness

Community-acquired pneumonia (CAP)

Definition A syndrome of infection that is usually bacterial, with symptoms and signs of consolidation of part(s) of the lung parenchyma. This is different to bronchitis.

Epidemiology • CAP is the commonest infectious cause of death and the 6th leading cause of death in the UK and USA (with age-adjusted death rat Up to **42**% of UK adults with CAP require hospital admission.

Hospital mortality varies between **5% and 12%** • •

A BTS multi centre UK study showed that **5–10%** of patients with CAP require ICU admission •

Mortality is up to **50%** in those admitted to ICU • •

CAP managed in the community has a mortality of **<1%.** •

Risk factors for CAP

- **Aspiration** Typically caused by anaerobes and Gram-negative organisms
- **Alcoholism and diabetes** Typically associated with bacteraemic pneumococcal pneumonia.
- **Oral steroids/immunosuppression** Legionella infection may be more common
- **Cigarette smoking**
- **COPD** Haemophilus influenzae and Moraxella catarrhalis are more common
- **Nursing** home residents have an increased frequency of CAP

Organisms causing CAP

- **Streptococcus pneumoniae** (‘pneumococcus’)—the most frequently identified organism, commonest in winter, accounting for two-thirds of all cases of bacteraemic pneumonia.
- **Legionella pneumophilia**—most common in the autumn. 52% are travel-related
- **Staphylococcus aureus**—commonest in winter months.
- **Influenza**—annual epidemics in the winter months, complicated by pneumonia
- **Mycoplasma pneumoniae**—epidemics occur every 4y in the UK
- **Chlamydophila pneumoniae**—
- **Chlamydophila psittaci**—infection acquired from birds and animals, with 20% of cases having a history of bird contact. Human-to-human spread may occur. Uncommon
- **Coxiella burnetii** (Q fever)—epidemics in relation to animal sources (usually sheep), but occupational exposure only present in 8%. Uncommon.

clinical features

Fever • Cough • Sputum • SOB • Pleuritic chest pain

Diagnosis of CAP is made on the basis of:

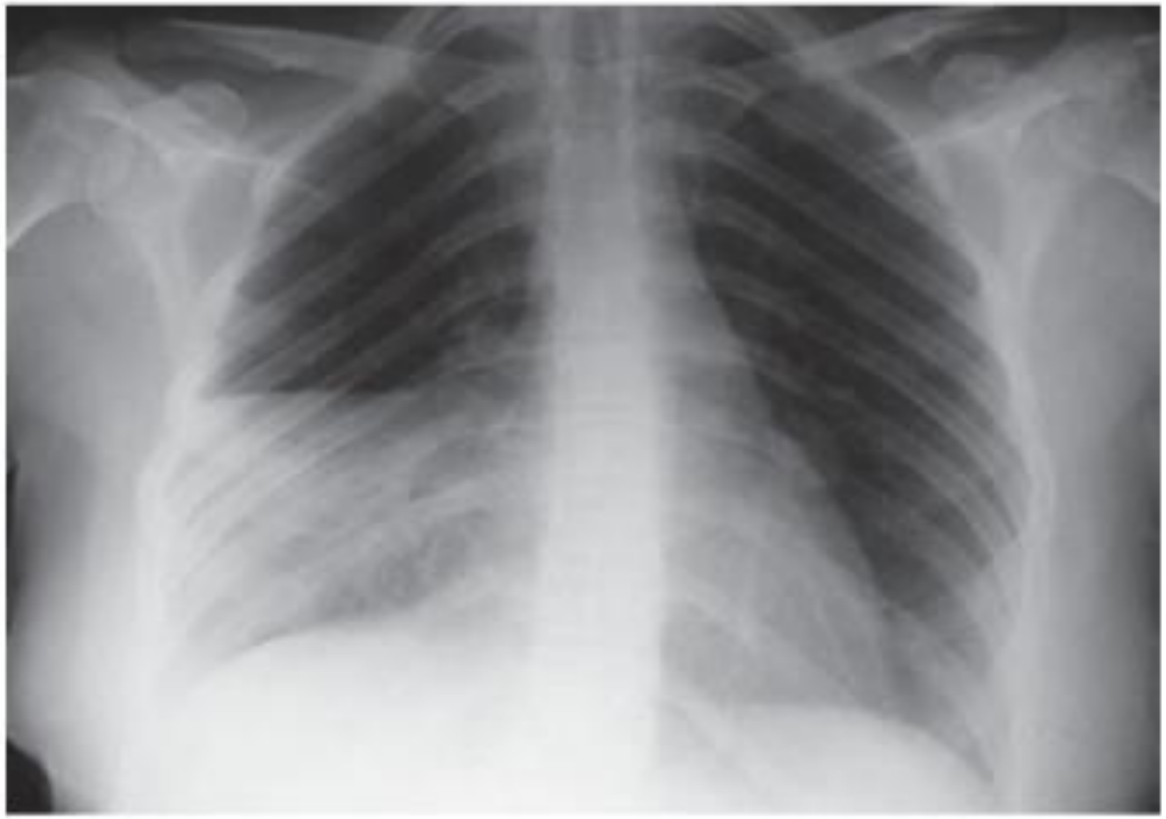
- Symptoms and signs of an acute lower respiratory tract infection •
- New radiographic shadowing
- At least one systemic feature (e.g. sweating, fevers, aches, and pains)
- No other explanation for the illness

investigations

1- cxr : consolidation •

2- cbc

3 crp



Prevention

- Current smokers should be advised to stop.
- Influenza and pneumococcal vaccination should be considered in patients at highest risk of pneumonia (e.g. those over 65 or with chronic lung, heart, liver or kidney disease, diabetes or immunosuppression).
- Because of the mode of spread, Legionella pneumophila has important public health implications and usually requires notification to the appropriate health authority for investigation of potential sources.
- In resource-poor settings, tackling malnourishment and indoor air pollution, and encouraging immunisation against measles, pertussis and Haemophilus influenzae type b are particularly important in children.

17.40 Antibiotic treatment for community-acquired pneumonia*

Uncomplicated CAP

- Amoxicillin 500 mg 3 times daily orally

If patient is allergic to penicillin

- Clarithromycin 500 mg twice daily orally ***or*** Erythromycin 500 mg 4 times daily orally

If *Staphylococcus* is cultured or suspected

- Flucloxacillin 1–2 g 4 times daily IV ***plus***
- Clarithromycin 500 mg twice daily IV

If *Mycoplasma* or *Legionella* is suspected

- Clarithromycin 500 mg twice daily orally or IV ***or*** Erythromycin 500 mg 4 times daily orally IV ***plus***
- Rifampicin 600 mg twice daily IV in severe cases

Severe CAP

- Clarithromycin 500 mg twice daily IV ***or*** Erythromycin 500 mg 4 times daily IV ***plus***
- Co-amoxiclav 1.2 g 3 times daily IV ***or*** Ceftriaxone 1–2 g daily IV ***or*** Cefuroxime 1.5 g 3 times daily IV ***or***
- Amoxicillin 1 g 4 times daily IV ***plus*** flucloxacillin 2 g 4 times daily IV

Prognosis

- Most patients respond promptly to antibiotic therapy.
- Fever may persist for several days, however, and the chest X-ray often takes several weeks or even months to resolve, especially in old age. Delayed recovery suggests either that a complication has occurred or that the diagnosis is incorrect.
- Alternatively, the pneumonia may be secondary to a proximal bronchial obstruction or recurrent aspiration.
- The mortality rate of adults with non-severe pneumonia is very low (< 1%); hospital death rates are typically between 5% and 10% but may be as high as 50% in severe illnes

Discharge and follow-up

- The decision to discharge a hospitalised patient depends on the home circumstances and the likelihood of complications.
- A chest X-ray need not be repeated before discharge in patients making a satisfactory clinical recovery.
- Clinical review by GP or hospital should be arranged around 6 weeks later and a chest X-ray obtained if there are persistent symptoms, physical signs or reasons to suspect underlying malignancy

tuberculosis

- **Tuberculosis** (TB) is caused by infection with Mycobacterium tuberculosis (MTB), which is part of a complex of organisms including M. bovis (reservoir cattle) and M. africanum (reservoir humans).
- **Primary pulmonary TB** Primary TB refers to the infection of a previously uninfected (tuberculin-negative) individual. A few patients develop a self limiting febrile illness but clinical disease occurs only if there is a hypersensitivity reaction or progressive infection . Progressive primary disease may appear during the course of the initial illness or after a latent period of weeks or months.

- **Miliary TB** Blood-borne dissemination gives rise to miliary TB, which may present acutely but more frequently is characterised by 2–3 weeks of fever, night sweats, anorexia, weight loss and a dry cough. Hepatosplenomegaly may develop

Post-primary pulmonary TB Post-primary disease refers to exogenous (‘new’ infection) or endogenous (reactivation of a dormant primary lesion) infection in a person who has been sensitised by earlier exposure,

The onset is usually insidious, developing slowly over several weeks. Systemic symptoms include fever, night sweats, malaise and loss of appetite and weight, and are accompanied by progressive pulmonary symptoms.

17.49 Clinical presentations of pulmonary tuberculosis

- Chronic cough, often with haemoptysis
- Pyrexia of unknown origin
- Unresolved pneumonia
- Exudative pleural effusion
- Asymptomatic (diagnosis on chest X-ray)
- Weight loss, general debility
- Spontaneous pneumothorax

investigations

- Cxr cavitation
- Cbc
- Tuberculin skin test or Mantoux skin test
- AFB in sputum or pleural fluid
- Esr
- IGRA TEST

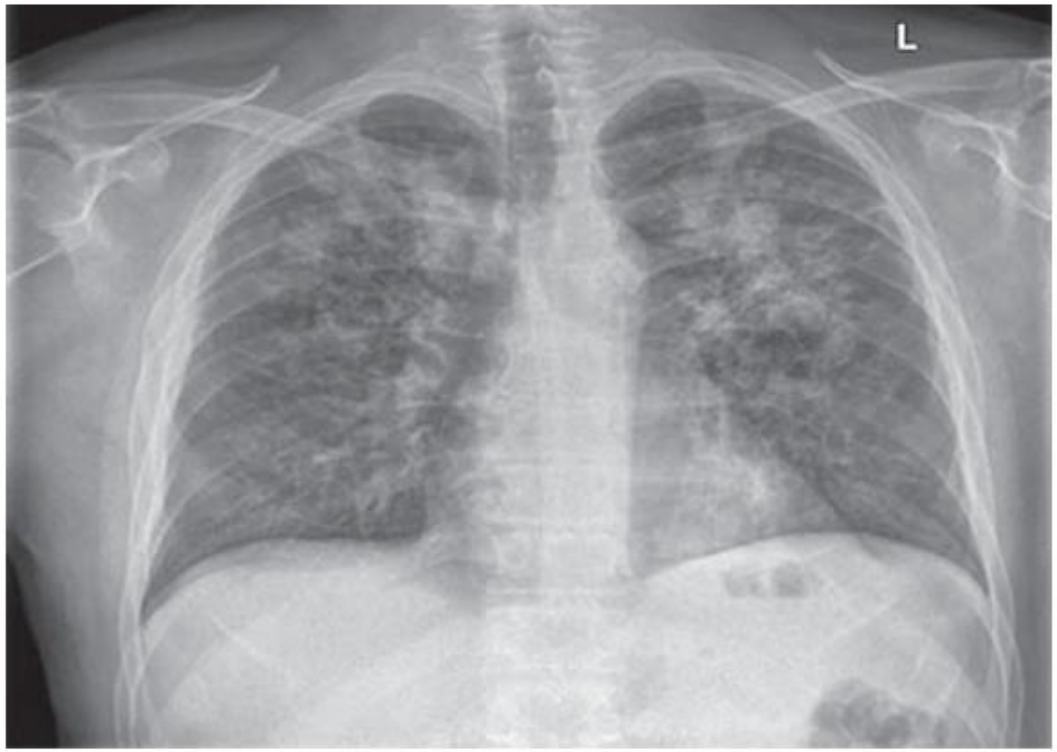


Fig. 17.39 Typical changes of tuberculosis. The chest X-ray shows bilateral upper lobe airspace shadowing with cavitation.

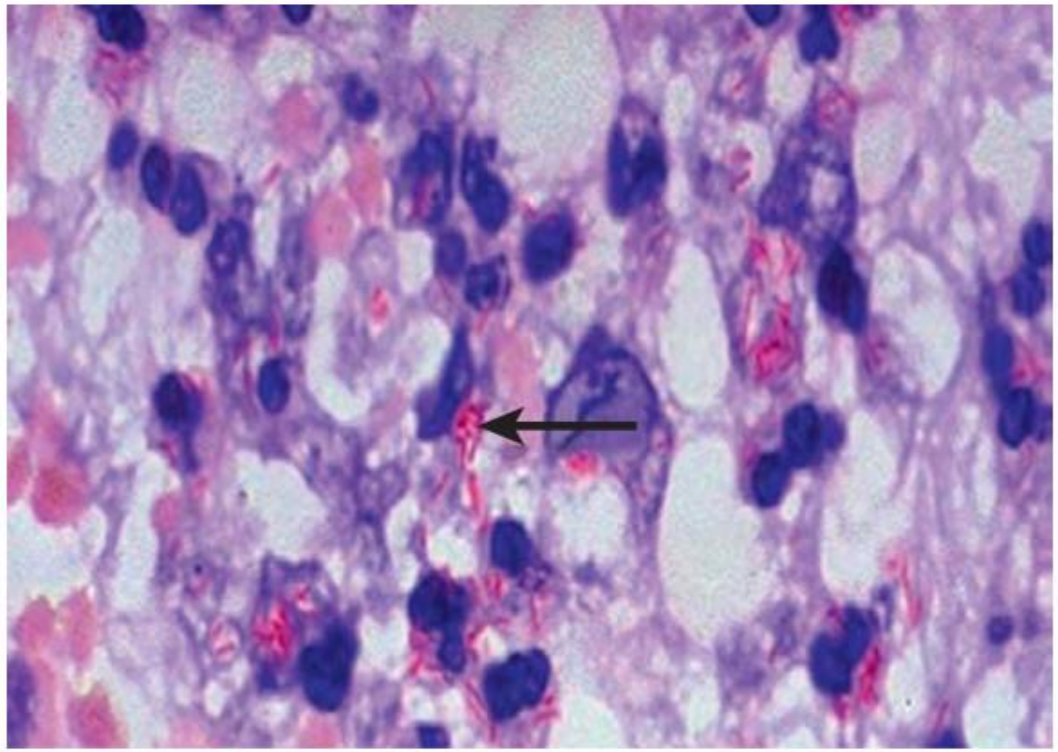
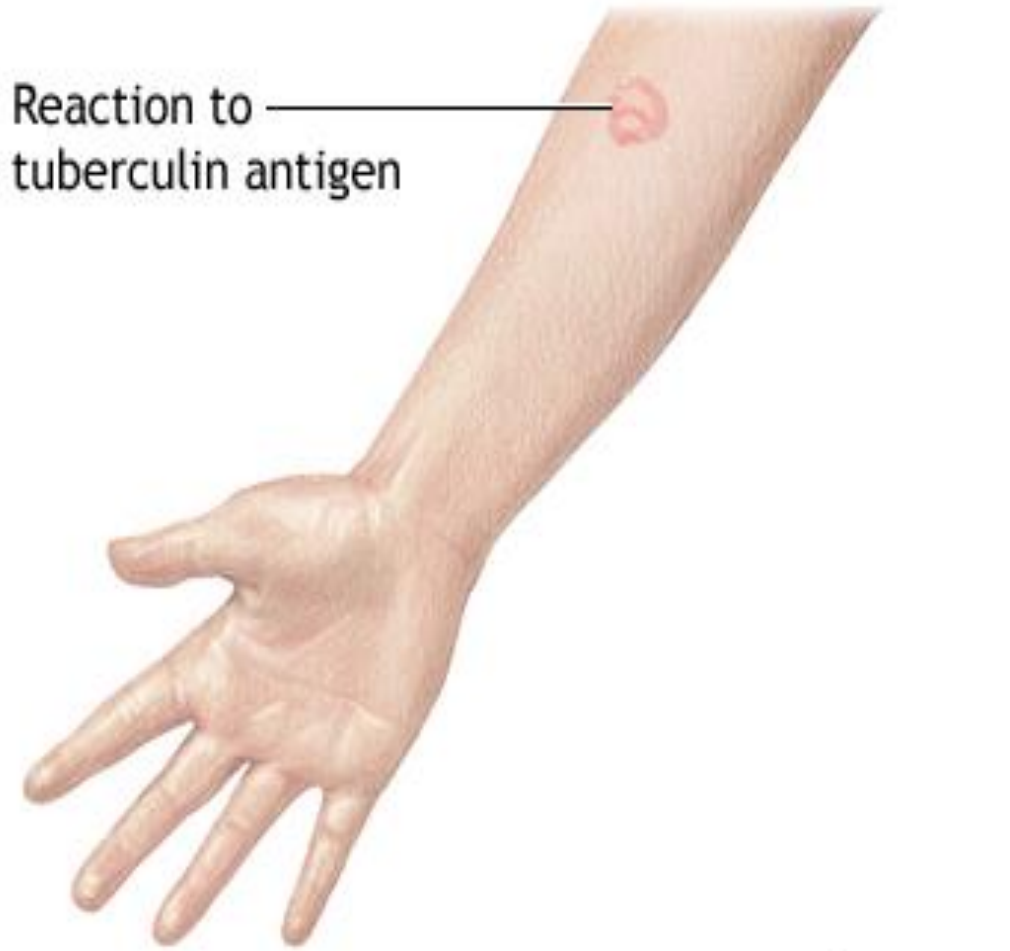


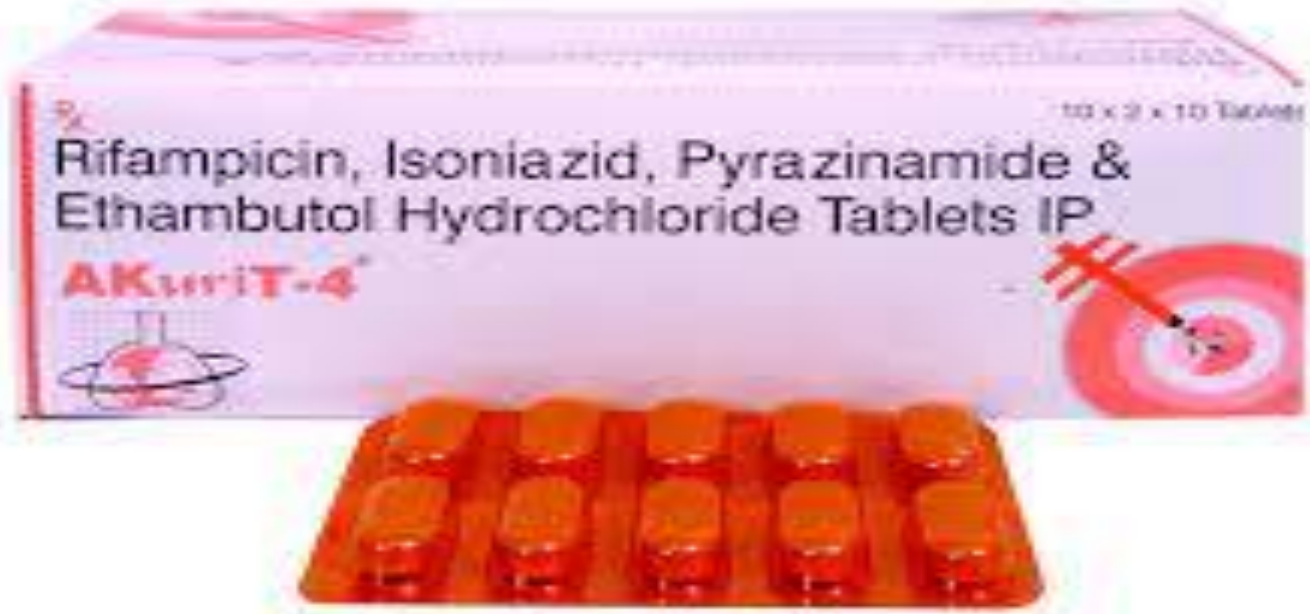
Fig. 17.40 Positive Ziehl–Neelsen stain. Mycobacteria (arrow) retain the red carbol fuchsin stain, despite washing with acid and alcohol. *Courtesy of Adam Hill.*



treatment

17.52 Treatment of new tuberculosis patients (World Health Organisation recommendations)

Intensive phase	Continuation phase	Comments
Standard regimen		
2 months of HRZE	4 months of HR	
2 months of HRZE	4 months of HRE	Applies only in countries with high levels of isoniazid resistance in new TB patients, and where isoniazid drug susceptibility testing in new patients is not done (or results are unavailable) before the continuation phase begins


Rifampicin, Isoniazid, Pyrazinamide &
Ethambutol Hydrochloride Tablets IP

Viral illness

- Viral URTIs are common, but typically self-limiting, and are usually managed in the community. Viral pneumonia is less common but is more serious and usually requires hospitalization. Viral pneumonia in the immunocompetent is rare and typically affects children or the elderly; influenza strains are the commonest cause in adults. Studies suggest that viruses are detectable in 15–30% of patients hospitalized with pneumonia

Influenza: diagnosis Clinical and laboratory features Incubation period typically 1–4 days; adults contagious for 7 days and children for 21 days from illness onset. The clinical picture following infection is variable and may be influenced, in part, by the influenza subtype. Features include: • Asymptomatic infection • ‘Flu’ (acute onset of fever, cough, headache, coryzal symptoms, myalgia, sore throat)

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Diagnosis is often suggested by knowledge of a local outbreak. •

Diagnostic investigations include: •

• Virology (not routinely required if pandemic established with • widespread infection

• direct immunofluorescence, ELISA, virus culture, and/or reverse • transcriptase PCR

• Bacteriology (in patients with influenza-related pneumonia)

Treatment

- Supportive care O2, IV fluids, nutritional support.
- Consider ITU/ HDU admission for patients with one or more of more of: 1° viral pneumonia; CURB-65 score of 4 or 5; PaO2 <8kPa despite high-flow O2; progressive hypercapnia; pH <7.26; septic shock
- Antiviral treatment with neuraminidase inhibitors is indicated for patients with an influenza-like illness and fever >38°C within 48h of symptom onset;
- Treat influenza-related pneumonia with antibiotics, according to severity, e.g. oral co-amoxiclav, a tetracycline (e.g. doxycycline), or a macrolide if non-severe; IV co-amoxiclav or cefuroxime or cefotaxime, together with a macrolide, if severe

THANK YOU•