## Case 2.1 Infectious mononucleosis

A 20-year-old carpet fitter presented with a 1-week history of a sore throat, stiffness and tenderness of his neck, and extreme malaise. On examination, he was mildly pyrexial with posterior cervical lymphadenopathy, palatal petechiae and pharyngeal inflammation without an exudate. Abdominal examination showed mild splenomegaly. There was no evidence of a skin rash or jaundice.

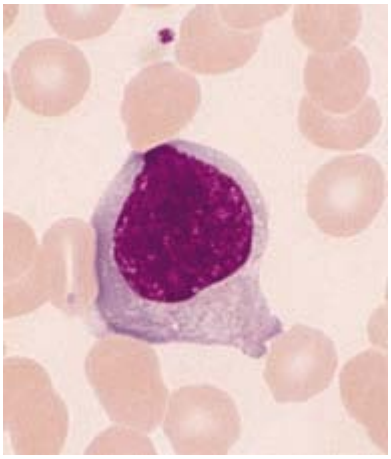
The clinical diagnosis of infectious mononucleosis ('glandular fever') was confirmed on investigation. His white cell count was $13 \times 10^9$/l (NR 4–$10 \times 10^9$/l) with over 50% of the lymphocytes showing atypical morphology ('atypical lymphocytosis'). His serum contained IgM antibodies to Epstein–Barr viral capsid antigen (VCA), a common test for acute infectious mononucleosis (see Table 2.2). Liver function tests were normal.

He was treated symptomatically and was advised to avoid sporting activity until his splenomegaly had completely resolved, because of the danger of splenic rupture. Many patients show clinical or biochemical evidence of liver involvement and are recommended to abstain from alcohol for at least 6 months.

**Table 2.2** Patterns of antibodies to Epstein–Barr viral (EBV) antigens

| Anti-VCA | | | | |
|---|---|---|---|---|
| **IgM** | **IgG** | **Anti-EA** | **Anti-EBNA** | **Interpretation** |
| + | + | ± | – | Primary infection (with/without symptoms) |
| – | + | – | + | Past EBV infection (>4 months) |

VCA, Viral capsid antigen; EA, early antigen; EBNA, Epstein–Barr nuclear antigen.

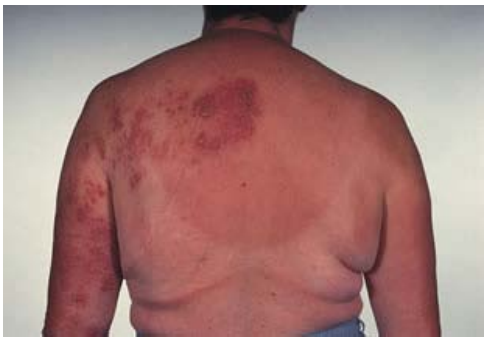


**Case Figure 2.1** Peripheral white blood cells 'blast' from a patient with acute myeloid leukaemia; the blood film usually shows a hugely increased number of such blasts (up to 200x109/l) and few normal granulocytes.

*Essentials of Clinical Immunology*, Sixth Edition. Helen Chapel, Mansel Haeney, Siraj Misbah, and Neil Snowden.

## Case 2.2 Recurrent herpes zoster

A 72-year-old woman was commenced on oral corticosteroids for giant cell arteritis. Over the next 6 months she had three episodes of a painful, vesicular rash ('shingles') typical of herpes zoster affecting the ophthalmic division of the right trigeminal nerve. Each episode was successfully treated with oral acyclovir, but she experienced considerable post-herpetic neuralgia. A steady improvement in her arteritic symptoms and inflammatory indices allowed a reduction in steroid dosage over a period of 6 months, with no further episodes of zoster.



**Case Figure 2.2** Herpes Zoster. Pain preceded the appearance of this eruption in the left T2 dermatome. There are erythematous papules with clusters of overlaying blisters and pustules visible on the back. These will subsequently crust before healing.

## Case 2.3 Chronic fatigue syndrome

A 25-year-old woman presented with a 6-month history of extreme lethargy and difficulty in concentration following a flu-like illness. She was unable to work as a physiotherapist and experienced considerable stress as a result of having to give up work. Clinical examination was unremarkable with the exception of globally reduced muscle strength; the rest of the neurological examination was normal. She was assessed by several specialists, who found no other explanation for her extreme lethargy. A diagnosis of chronic fatigue syndrome (CFS) of unknown aetiology was made and a programme of graded exercises was recommended. Over the next 2 years she improved steadily, enabling her to resume employment.

## Case 2.4 Acute bacterial tonsillitis

A 5-year-old boy presented to his general practitioner with a 36-h history of acute malaise, shivering and vague pains in his legs. For 12 h he had complained of a dry, sore throat and had vomited twice. He was febrile (temperature 40.2°C) with a tachycardia of 140/min and tender, bilateral, cervical lymphadenopathy. His pharynx, tonsils and buccal mucosa were red and inflamed and his tonsils were studded with white areas of exudate. He was diagnosed as having acute bacterial tonsillitis and treated with phenoxymethyl penicillin for 5 days. A throat swab taken before starting antibiotics grew β-haemolytic streptococci (Group A). After 3 days of treatment, his temperature had returned to normal and he made an uneventful recovery. Haemolytic streptococcal infections illustrate an important point about bacterial infection – namely, that immune defences plus antibiotics cope satisfactorily with most bacterial infections in most people.

## Case 2.5 Streptococcal toxic shock syndrome

A 35-year-old man was admitted to hospital with a 7-day history of high fever, sore throat and a diffuse erythematous rash over the anterior chest wall. Additional findings on examination included hypotension (blood pressure 80/50 mmHg), conjunctival injection and cellulitis of both calves. Over the next 24 h there was increasing pain and swelling of the right calf associated with disappearance of the pedal pulse, necessitating emergency fasciotomies of the anterolateral and posterior compartments of the right leg. At operation, there was marked bulging of muscle in both compartments. Gram stain of the fluid obtained during fasciotomy showed Gram-positive cocci with an abundant growth of Group A β-haemolytic streptococci on muscle culture eventually. The same organism was also isolated from throat and blood cultures. Rapid exotoxin typing with a gene probe revealed pyrogenic exotoxins A and B.

A diagnosis of streptococcal toxic shock syndrome was made on the basis of the above findings. The patient made a full recovery following treatment with intravenous clindamycin.

## Case 2.6 Rheumatic heart disease

A 38-year-old labourer presented with a 3-month history of progressive shortness of breath on effort. Exertion was often associated with central chest pain and irregular palpitations. He had twice woken from sleep with attacks of frightening breathlessness and was unable to lie flat. His general health was good, with no weight loss or anorexia. He had been told that he had suffered from rheumatic fever when he was 9 years old.

On examination, he had the typical physical signs of congestive cardiac failure due to underlying mitral valve stenosis and rheumatic heart disease. There was no evidence of bacterial endocarditis. On treatment with digoxin, diuretics and anticoagulants, his exercise tolerance improved dramatically and cardiac surgery was postponed. Antibiotic cover was provided for any dental or surgical treatment, in order to prevent the development of subacute bacterial endocarditis.

## Case 2.7 Tuberculosis

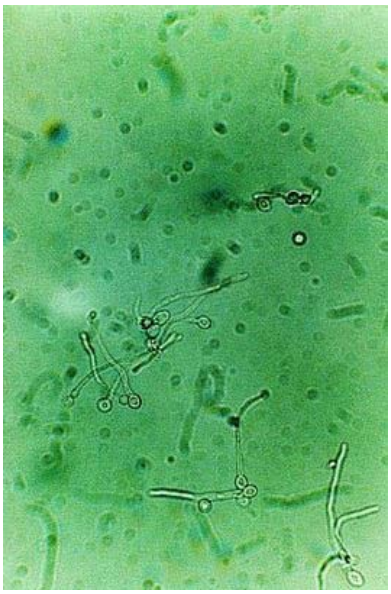
A 25-year-old Asian man was referred to his local chest clinic with a history of a cough and loss of weight over the preceding 6 months. He had lived in the UK for the past 7 years and a chest X-ray taken immediately prior to entry into the UK was reportedly normal.

On examination, left apical crackles were noted on auscultation of his chest and a chest X-ray revealed left apical shadowing with cavitation. His sputum contained Mycobacterium tuberculosis and a skin test with tuberculin was strongly positive. He was promptly treated with standard anti-tuberculous therapy and made a full recovery. The local public health department was notified, who undertook contact tracing.

This patient presented with latent TB, a common form of the disease, which occurs as a result of reactivation of quiescent endogenous primary infection or exogenous reinfection. Since the policy of screening new immigrants in many countries now includes IFN release assays (see Section 2.5.2 and Chapter 19), latent TB is detected and individuals treated with 6 months of therapy on arrival.

## Case 2.8 Acute vulvo-vaginitis

A 27-year-old woman presented with a 4-week history of severe irritation and soreness of her vulva. For 2 weeks she had experienced burning pain on micturition but no frequency. In addition, she had a thick, creamy-white vaginal discharge. Her menstrual periods were regular and she was taking the oral contraceptive pill. On examination, her general condition was good. She had marked erythema of her vulva and vaginal mucosa, with white plaques. The appearances were those of acute vulvo-vaginitis. A vaginal swab showed masses of pseudohyphae, with a profuse growth of Candida albicans on culture. She was treated with oral miconazole with rapid symptomatic relief.

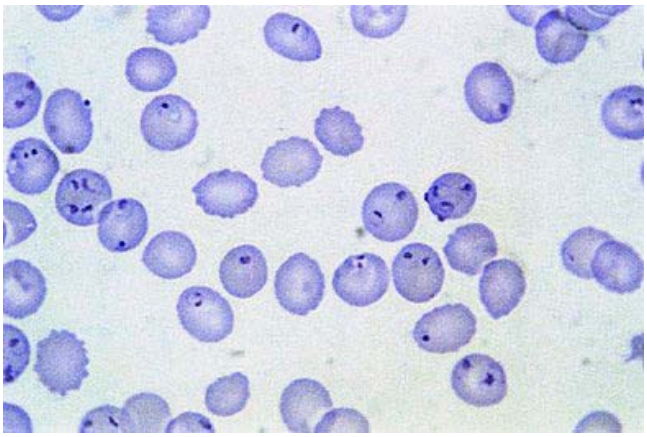


**Case Figure 2.8** Pseudohyphae of Candida from vaginal swab.

## Case 2.9 Cerebral malaria

A 44-year-old Nigerian man was admitted as an emergency while visiting relatives in England. His symptoms began 4 days after arrival, and over the following 10 days he deteriorated progressively, with vague upper abdominal pain, sweating, rigors and vomiting. In the past, he had been treated twice for malaria but had never taken malarial prophylaxis. On examination he was ill and jaundiced, with a temperature of 39.2°C. His blood pressure was 90/70 but he showed no signs of visceral perforation. The differential diagnosis included occult gastrointestinal bleeding, septicaemia, hepatitis or recurrence of malaria.

Emergency investigations showed a normal haemoglobin (140 g/l) and a white cell count of $6.1 \times 10^9$/l. Sickle-cell anaemia was excluded by normal haemoglobin electrophoresis. However, a thick blood film showed a heavy infestation with Plasmodium falciparum. After consultation with a specialist centre, the patient was treated with intravenous quinine. Unfortunately, his condition rapidly deteriorated over the next 30 h. Terminally, he suffered a cardiac arrest and could not be resuscitated. The post-mortem diagnosis was cerebral malaria.



**Case Figure 2.9** Malaria: moderate/heavy infestation of Plasmodium falciparum in erythrocytes; some red cells are crenallated.