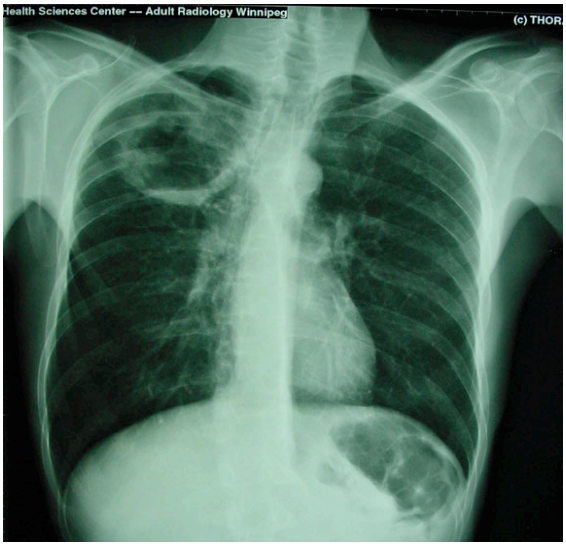
1) A 74 year old man presents with a 7 day history of right sided chest pain. He is a smoker and has NIDDM, otherwise previously well.



What is the diagnosis?

Lung abscess right upper lobe.

List 6 important symptoms to elicit.

i) Cough ? bloodstained/ offensive sputum.
ii) Fever.
iii) Night sweats.
iv) Nature of pain ? pleuritic.
v) SOB.
vi) Anorexia or weight loss.

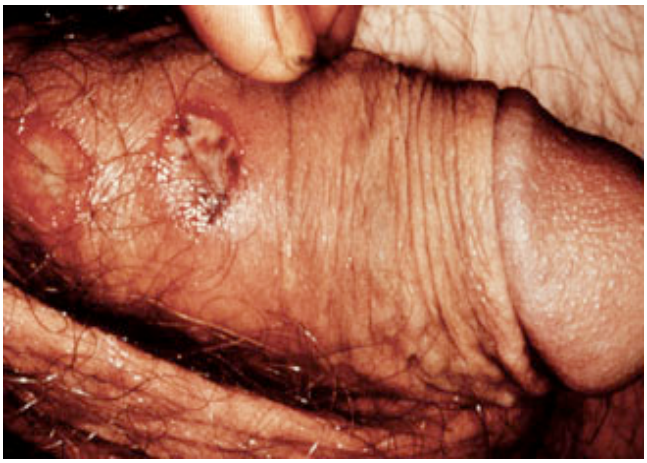
The most common cause of lung abscess, or empyema (pus in the pleural cavity), is aspiration. Patients at risk include the elderly, alcoholics, those with poor dentition or primary lung disease. Other causes of empyema include penetrating chest trauma (including chest drains) and oesophageal rupture.

The patient is usually elderly and the abscess is most commonly located in the dependent part of the lung on the right side. Organisms are usually polymicrobial oral flora e.g. Bacteroides and Fusobacterium.

Increasingly in the paediatric population S. aureus has become the predominant organism because of the use of the pneumococcal conjugate vaccine.

Treatment is with broad-spectrum antibiotics and drainage by tube thoracostomy.

2) A 40 year old man presents with a 10 day history of a penile ulcer.



What is usually classical of this lesion to help diagnosis?

It is a painless ulcer – usually solitary, may be multiple. Usually associated with regional lymphadenopathy.

What is it?

Primary chancre of syphilis.

What is the offending organism and how is it transmitted?

Treponema pallidum, a spirochaete. It is almost always transmitted by sexual contact with infectious lesions but can be transmitted in utero and by blood transfusion.

List 4 other causes of genital ulceration.

i) Other infections e.g. herpes simplex, gonorrhoea.
ii) Neoplasms e.g. carcinoma of penis
iii) Behçet's disease.
iv) Trauma (may be self-inflicted).

What investigations could confirm the diagnosis?

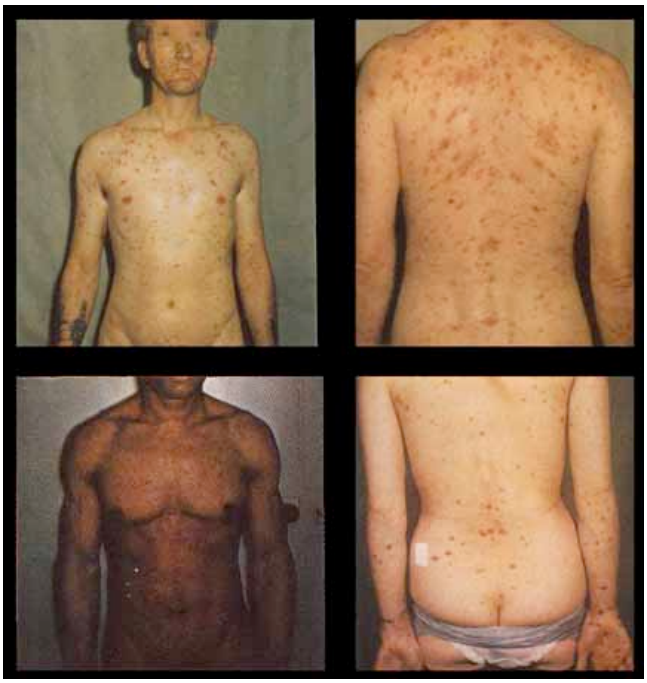
Direct visualisation by darkfield microscopy.
VDRL serology.

What is the treatment of choice?

Primary and secondary syphilis are highly responsive to penicillin and cure is likely.

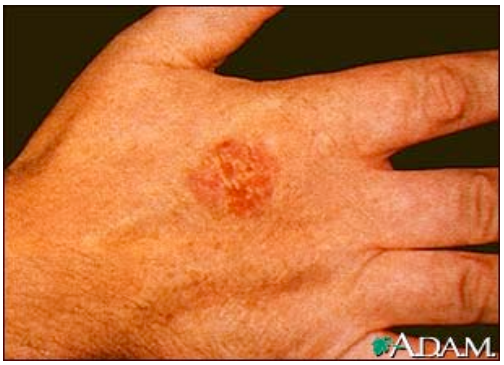
How may secondary syphilis present?

There is often a localised or diffuse mucocutaneous rash and generalised lymphadenopathy. Constitutional symptoms include malaise, sore throat, headache, fever, arthralgia and myalgia. Other less common manifestations include hepatitis, nephropathy, optic neuritis, proctitis.



Generalised rash of secondary syphilis.

3) This patient presents with a rash on the hand.



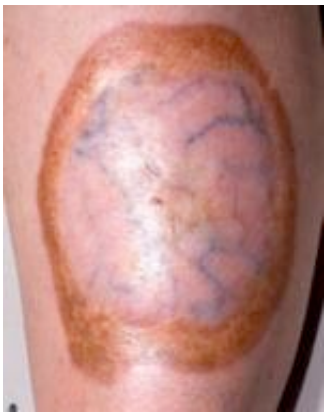
What is the diagnosis?

Bowen's disease.

Usually results from chronic sun exposure. It may develop into an intraepidermal squamous cell carcinoma. Early lesions may resemble fungal infections, dermatitis or psoriasis. It is slow growing and metastasises rarely.

Diagnosis is by skin biopsy. Treatment is with cryotherapy, surgical excision, photodynamic therapy or 5-FU cream.

4) This woman presents with a rash.



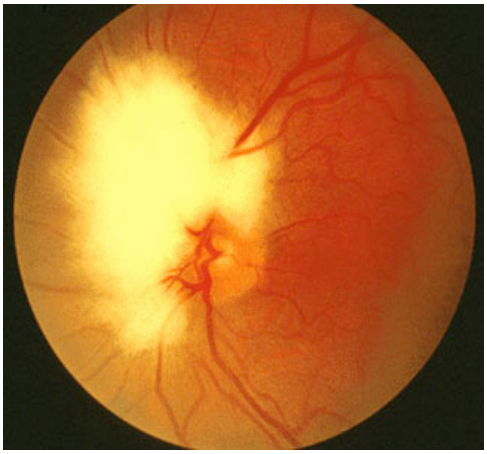
What is the diagnosis?

Necrobiosis lipoidica.

Commonly affects the shins, seen more often in women. More than fifty percent of sufferers have DM. It is a chronic condition; ulceration may occur.

Flare-ups may respond to cortisone cream or UV light. Aspirin may also help.

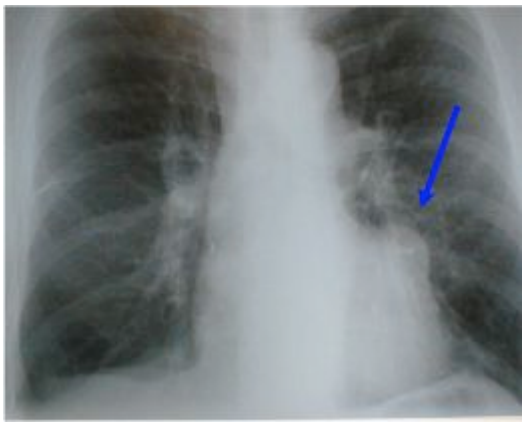
5) You undertake fundoscopy on a patient; there is no history of visual problems.



What is the diagnosis?

Congenital anomaly: myelinated retinal nerve fibres. Myelination does not normally extend onto the retina; when it does the appearance is as shown. Vision is unaffected.

6) This patient suffered an MI 6 months ago and presents with chest pain.



What is the diagnosis?

Left ventricular aneurysm.

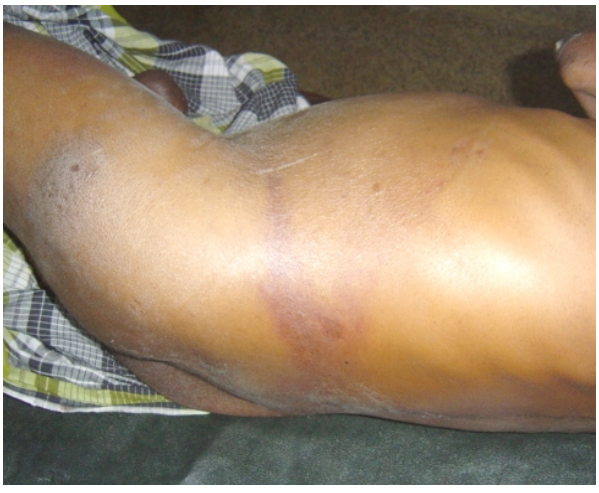
Occur after 2-15% of infarcts, usually on left ventricle.

Complications may include:

i) Heart failure (filling of the aneurysm during systole reduces the EF).
ii) Ventricular arrhythmias.
iii) Persistent angina.
iv) Systemic emboli.

Usually treated by limiting activity and close follow-up. Surgical removal is considered for persistent arrhythmias or heart failure.

7) This Asian gentleman presents with abdominal pain.



What is the diagnosis?

Grey Turner's sign. Acute pancreatitis.

List some common aetiologies of pancreatitis.

i) Idiopathic.
ii) Obstruction; gallstones, tumours.
iii) Toxins; alcohol, drugs e.g. salicylates.
iv) Trauma.
v) Infection.
vi) Pancreatic structural anomalies.

Complications?

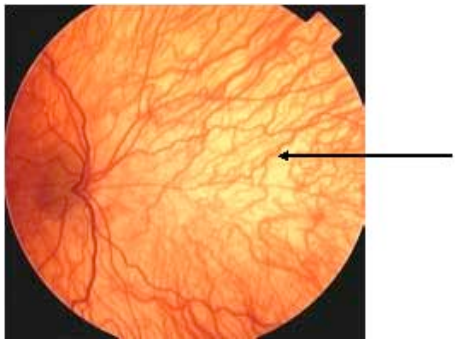
Local

Necrosis ± infection.
Fluid collections.
Pseudocysts.
GI haemorrhage.

Systemic

Shock.
Coagulopathy.
Renal failure.
Respiratory failure.
Hyperglycaemia.
Hypocalcaemia.

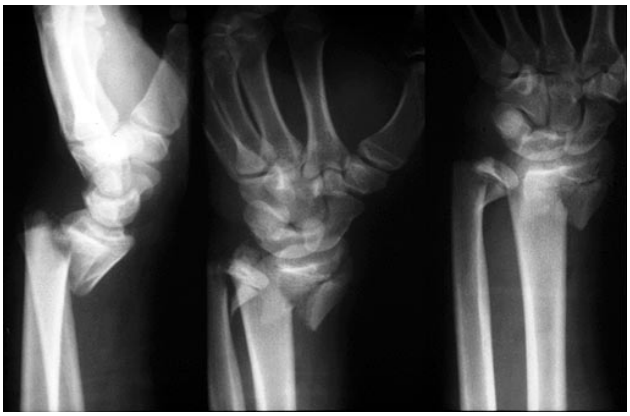
8) What is the diagnosis?



Tigroid fundus.

If the retinal epithelium is not well pigmented, as in people with blonde or red hair, the underlying choroidal vessels may become strikingly visible.

9) This patient tripped and fell injuring her wrist.



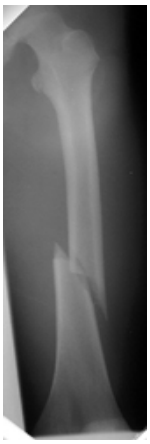
What is the diagnosis?

Smith's fracture.

What is the treatment?

Analgesia, immobilise, refer T+O for buttress plate.

10) This 14 year old boy was hit by a car sustaining the following isolated injury.



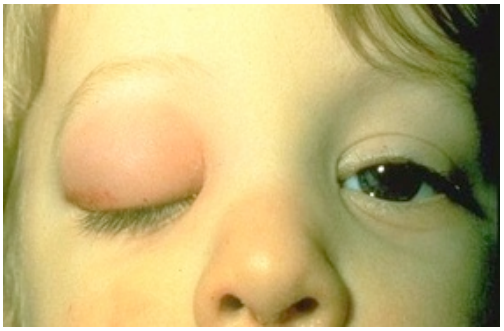
Apart from initial A/B/C etc, how would you manage this?

Analgesia:

i) IV morphine 0.1mg/kg = 3.6mg.
ii) Femoral nerve block (max. dose is 3mg/kg, there are 10mg/ml in 1% lignocaine = 108mg = 11ml).

Immobilise in Thomas splint or skin traction. Refer T+O.

11) This child presents with a painful right eye, pyrexia and inability to move the eye on examination.



What is the diagnosis?

Orbital cellulitis.

Name 2 possible causative organisms.

Since invasive H. influenza infection has been all but eradicated by immunisation, S. aureus and Strep. pneumoniae are the commonest pathogens.

What is the likely source of infection?

It is usually caused by spread from the sinuses (ethmoidal or para-nasal) but may arise from local trauma (e.g. bites, foreign body) or haematological spread.

List 3 complications.

i) Cavernous sinus thrombosis.
ii) Cerebral abscess.
iii) Optic nerve compression leading to loss of vision.

Patients should be admitted under joint care of paeds./ ENT/ eyes.
Antibiotics – IV flucloxacillin and metronidazole. Essential investigation is CT scan of orbit and sinuses.

12) A 78 year old lady is sent in from a nursing home. She has been previously well apart from mild dementia but over the last few days she has become unwell, is not feeding and is now drowsy. She is afebrile, PR 120 irregular, clinically dehydrated. CXR shows a RLL pneumonia.

What initial investigations, apart from CXR, are appropriate?

All patients admitted to hospital: FBC, U&E, CRP, ABG, blood cultures, sputum cultures.

For patients with severe CAP pneumococcal antigen, legionella urine antigen, chlamydial antigen and mycoplasma CFT are appropriate.

What features may indicate an adverse prognosis?

Pre-existing

Age >50 years.
Presence of co-existing disease.

Core clinical adverse features (CURB 65)

Confusion:	new confusion or defined as an AMT score of 8 or less.
Urea:	raised >7mmol/l.
Respiratory rate:	raised ≥30/min.
Blood pressure:	low BP systolic <90 and or diastolic ≤60.
Age:	>65 years.

A score of 2 or greater on CURB 65 means hospital treatment is usually necessary.

Additional adverse features

Hypoxaemia: SaO_2 <92% or PaO_2 <8kPa regardless of FiO_2.
Bilateral or multilobe involvement on the CXR.

What antibiotic therapy is recommended?

For hospital-treated, not severe CAP: amoxicillin 500mg tds plus clarithromycin 500mg bd.
For severe CAP: co-amoxiclav 1.2g tds IV plus clarithromycin 500mg bd.

See BTS Guideline for full details of recommended therapies.

13) A 56 year old man attends with a 2 day history of SOB. He is previously well except for recent malaise, night sweats and weight loss. Vital signs are PR 130/min, BP 95/60, T37.5°C, SaO_2 91%. He has extensive inspiratory crepitations and a gallop rhythm with a new systolic murmur at the apex.

What is your working diagnosis?

Infectious endocarditis. Mitral valve is most commonly affected.

What signs will you look for on further examination?

i) Splenomegaly.
ii) Roth spots (retinal haemorrhages with central clearing).
iii) Splinter haemorrhages.
iv) Anaemia.
v) Janeway lesions (red skin spots on the palms and soles).
vi) Osler's nodes (red, painful intradermal pads in the fingers and toes).
vii) Haematuria.

What investigations are appropriate?

ECG, CXR, FBC, blood cultures X 3, ECHO, ASO test.

Commonest organism is S. viridans (found in the mouth, 40%) but others are often implicated, e.g. S. aureus (which presents with heart failure), enterococci and fungal e.g. candida, aspergillus. Complications include valve destruction, heart block, LVF, embolic events, lung abscesses (right-sided disease).

Which patients are at risk from this condition?

May develop on previously normal valves as well as diseased valves or prosthetic valves. IV drug abusers are prone to staphyloccal infection of the tricuspid valve (i.e. right-sided), with fever and pneumonia from septic PE.

What antibiotics would be appropriate for initial management?

Benzylpenicillin and gentamicin IV.

14) A 5 week old boy is brought in by his mother. He has a history of vomiting shortly after feeds.

What aspects of the history are important?

i) Birth; term, weight, delivery, neonatal problems.
ii) Severity; duration of vomiting, wet nappies, diarrhoea.
iii) Other; thriving, rashes, fever, alertness.

Capillary gases show:

pH	7.5
pCO_2	5.3
pO_2	3.1
HCO^{3-}	32
Na	131
K	3.6
Cl	67 (range 95-105)

Comment on these results.

Hypochloraemic, hypokalaemic alkalosis.

What is the diagnosis?

Pyloric stenosis.

Congenital pyloric stenosis is the most common cause of intestinal obstruction in infancy. It is more prevalent in males, usually a first-born aged 3-6 months. Vomiting is projectile and bile-free. Test feed may reveal a palpable tumour. USS may also be used in diagnosis.

Vomiting leads to the characteristic metabolic picture as the metabolic alkalosis leads to K+ loss in the urine.

The child should be kept NBM and an NG tube passed. If rehydration is necessary use ½ Normal saline with dextrose. Refer for surgery – Ramstedt's pyloromyotomy.

Pyloric stenosis in adults results from scarring, usually secondary to a chronic DU. It presents with vomiting, dehydration, weight loss and malnutrition. There may be an audible succession splash.

15) HIV notes.

RNA retrovirus. Binds to CD4 receptors on T-lymphocytes, monocytes and macrophages. These CD4 cells normally play a crucial role in co-ordinating the immune response. CD4 cell counts provide an indication of disease progression.

Presentations to the ED:

i) Respiratory: PCP pneumonia, pulmonary TB, Aspergillus, Cryptococcus.

ii) Neurological: Cryptococcus meningitis, cerebral toxoplasmosis, cerebral lymphoma, CMV encephalitis.

iii) Eye: CMV retinitis.

iv) GI problems: Nausea, vomiting, weight loss are common and may be drug effects. Oesophageal candida or herpes simplex infection. CMV colitis and other causes of infectious diarrhoea e.g. cryptosporidium, Giardia, Salmonella.

v) Mucocutaneous: Oral candidiasis, seborrheic dermatisis. Oral hairy leukoplakia, herpes infections, molluscum contagiosum, Kaposi's sarcoma.