

FCEM SAQs October 2010

Question 1-Jaundice

This 60yrs female presents to ED. She says she has been feeling increasing tired and generally unwell for the last 2 weeks, thinks she may have lost some weight. Over the last few days she noted that her skin became discoloured.



UEs Na 142
K 4.2
Urea 8.4
Creatinine 97
LFTS T Prot 46 Albumin 41 Bilirubin 75
Alk Phos 470 ALT 150 AST 110 GGT 920

1. Give most likely diagnosis and explain blood results

- *Obstructive Jaundice – raised Alkaline Phosphatase /GGT and normal AST/ALT suggest obstruction*

2. List 5 questions in the history and how they would aid diagnosis

- *To suggest obstructive cause :Dark urine and pale stool*
- *To exclude malignancy: previous CA /recent weight loss,painless jaundice*
- *Detailed Drug History: Homeopathic/ Paracetamol /Alcohol induced*
- *Risk Factors for infective Hepatitis: Blood transfusion, IVDU, Homosexual, Travel*
- *Acute Cholangitis: Fever, Rigors ,abdominal pain and fluctuating jaundice*

3. List three further investigations you would consider in ED? (3 marks)

- *Pancreatic amylase/Lipase*
- *Conjugated/ unconjugated Bilirubin*
- *Coombe test*
- *Chest X –Ray*

4. What other imaging modalities she may need for further management?

- *USG Hepatobiliary tree- to demonstrate dilated CBD AND Gallstones*
- *ERCP-shows stone in CBD and allow GI /amupla exam to exclude pathology*
- *Magnetic Resonance Cholangio Pancreatography*

Question 2- Red Eye

20yrs male presents with right eye redness and pain. He was chiselling while wearing his permanent contact lenses and foreign body in his eye from work today

1. List five questions you would want to ask him in the history except his symptoms.

- *Find out if protective glasses were worn.*
- *Ascertain whether a small FB travelling at speed may have penetrated the orbit, ie grinding, hammering, chiselling*
- *Recent H/O eye infection or vision impairment before ?*
- *Was wearing contact lens? Has it been removed?*
- *PMH: IBD, Glaucoma*
- *Tetanus status*

2. List four examination findings you for penetrating injury of the globe.

- *Look for puncture/entry wounds on both aspects of the eyelids, the cornea and sclera. Corneoscleral wounds are often situated inferiorly, due to upturning of the eyeball as the patient blinks.*
- *Other signs of penetration are: ↓VA, pupil irregularity, opacification of ocular media, including bleeding into the anterior chamber (hyphaema) or posterior chamber (vitreous haemorrhage).*

3. What complication can occur due to hyphaema?

- *A hyphaema causes pain, photophobia, blurred vision and can ↑intraocular pressure, causing nausea and vomiting.*

4. What investigations do you want to arrange?

- *Xray Orbit*
- *CT Orbit or USG*

5. List 3 treatments/classes of drugs will you use in ED . Give one name of drug in each class in ED

- *Analgesia: morphine IV 2-10mg*
- *Tetanus prophylaxis*
- *Cefuroxime 1.5 IV*
- *Metoclopramide IV*

Question 3- STD

22yrs male presents with penile discharge to ED, it's Friday afternoon and the GUM clinic will not open until Monday morning.

1. What four questions you would like to ask in the history to exclude STD

- *Genital Ulcers*
- *Enlarged Inguinal Lymph nodes*
- *Prostatism may suggest STD*
- *Urinary symptoms: Increase frequency, Dysuria*

2. List 2 investigations you will do in the ED

- *Urethral Swabs for MC&S*
- *Urine Microscopy /Dip stick to exclude UTI*
- *Chlamydia Slides from for GUM clinic*

3. Name 2 common bacterial STIs and their treatment

Bacteria	Treatment
• <i>Neisseria Gonorrhoea</i>	<i>Ceftriaxone 500 mg IM single dose</i>
• <i>Chlamydia Trachomatis</i>	<i>Doxycycline 200mg BD for 7 days</i>

4. What four pieces of advice will you give to this patient?

- *No further sex until complete recovery*
- *Advice regarding using protection/ Condom*
- *Contact tracing- Partner will need treatment*
- *Sex Education- provide leaflet for GUM clinic*
- *HIV Status*

Question 4- Delivery/Neonatal Resuscitation

STANDBY CALL mother en route 38wks pregnant, about to deliver baby
You have 5 minutes to prepare the resus area

1. List 4 extra pieces of equipment needed (not including resus drugs / fluids)

- *Delivery pack including cord clamp*
- *Resuscitaire/Radiant Heat source*
- *Warm Room and Dry Towels*
- *Breslow tape*

2. The baby is born immediately in resus as the woman arrives
Describe how will you assess the neonate?

APGAR SCORING SYSTEM				
	0 Points	1 Point	2 Points	Points Total
Activity (muscle tone)	Absent	Arms and legs flexed	Active movement	↓ Severely depressed 0-3 Moderately depressed 4-6 Excellent condition 7-10
Pulse	Absent	Below 100 bpm	Over 100 bpm	
Grimace (reflex irritability)	Flaccid	Some flexion of extremities	Active motion (sneeze, cough, pull away)	
Appearance (skin color)	Blue, pale	Body pink, Extremities blue	Completely pink	
Respiration	Absent	Slow, Irregular	Vigorous cry	

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- *A healthy baby will have good tone, will cry within a few seconds of delivery and have a heart rate of 120–150/min and will become rapidly pink during the first 90secs. Less healthy babies will have poorer tone, slower heart rates and may not establish adequate respiration by 90–120secs. The most sick will be pale, floppy apnoeic and bradycardic.*

3. Describe cardiac massage technique in a neonate and the compression/ventilation ratio

- *Grip the chest in both hands in such a way that two thumbs can press on the lower third of the sternum, (just below the intermammary line) with the fingers over the spine at the back. Aim for a rate of 100/min, and to depress the AP diameter of the chest by a third. Use a chest compression to inflation **ratio of 3:1***

4. List 2 drugs you might give in neonatal resus and doses

- **Adrenaline** if there is no initial response 10 micrograms/kg (0.1mL/kg of 1:10,000 which if ineffective may be increased to 30 micrograms/kg (0.3mL/kg of 1 in 10,000).
- **Sodium bicarbonate** 1–2mmol/kg (2–4mL of 4.2% solution/kg) when there is no cardiac output
- Hypoglycaemia is a potential problem for all newborns and BMG is unreliable when reading <5mmol/L. Take blood sample to confirm and treat immediately with bolus of **2.5mL/kg of 10% dextrose**.

- Suspect hypovolemia if: very pale baby, PEA, history of antepartum haemorrhage, placenta, or vasa previa, or unclamped cord. Give 10mL/kg 0.9% saline followed by O⁻ve blood repeated as necessary.
- Atropine and calcium have no role in newborn resuscitation.

Question 5- Fall/Knee Injury

8 yrs male presents fall off push bike today and now has painful swollen left knee, unable to weight bear.



1. Describe this xray

- *Salter Harris Type four Fracture involving lateral tibial plateau left knee*

2. What other soft tissue injuries in the knee are commonly associated with this bony injury?

- *Valgus stresses crush or fracture the lateral tibial plateau. These injuries are commonly seen in pedestrians injured following impact with car bumpers.*
- *Varus injuries result in crushing or fracture of the medial tibial plateau and are usually associated with rupture of the opposite collateral ligaments.*

3. What management steps are required?

- *Immobilization in a long leg POP backslab*
- *Adequate analgesia ie IV Morphine*
- *Admit to orthopaedic staff. Fractures of the tibial plateau often require elevation ±ORIF with bone grafting. Admit all patients with an acute haemarthrosis.*

4. Describe how to perform a knee aspiration include landmarks

- *Knee joint: The patient lies with knee supported slightly flexed and muscles relaxed. Palpate the joint space behind patella either medially or laterally—the lateral approach may be less reliable. Insert a needle horizontally between the patella and femur. Slight resistance is felt on traversing the synovial membrane; it should be possible to aspirate fluid, and injection fluid should flow easily.*

Question 6-Hypothermia

You receive a standby call for an adult male patient, paramedics believe he is severely hypothermic, cardiac arrest has occurred in the ambulance en route to ED. ETA 8 minutes.

1.How will you prepare the resus area? – what extra equipment will you need?

- *Low reading Thermometer*
- *Bair Hugger*
- *Warm IV fluids from fluid warmer*
- *Increase room temperature to >21C*
- *warmed, humidified O2 by mask*
- *Scissors to remove clothes*

2.How will you alter your standard ALS protocol for resuscitation in hypothermia?

- In hypothermic cardiac arrest, the heart may be unresponsive to defibrillation, pacing and drug therapy.
- Drug metabolism is ↓ and unpredictable: avoid drugs until core T° >30°C.
- Defibrillation is appropriate at normal energy levels if VF/VT is present.
- If 3 shocks are unsuccessful, defer further shocks until core T° >30°C.
- Double the interval for drug delivery till temp 35 C
- Palpate pulse for 60 seconds

Question 7- Sickle Cell Crisis

18yrs African male with sickle cell disease presents with sustained painful erection

1. What is the immediate management required in ED?

- *Keep warm, maintain clear airway and administer high flow Oxygen*
- *Morphine 5-20 mg IV titrate to effect*
- *Normal saline 1L IV stat to rehydrate*

2. What is the most likely cause of this? describe the pathophysiology

- HbS molecules polymerise in deoxygenated and acidotic conditions, leads to RBC sickling which causes tissue ischemia, infarction and further sickling
- Diagnosis: Sickle cell crisis

3. What other treatments are required ?

- Arrange for Exchange Transfusion
- Aspiration of 50 ml blood from corpus cavernous/ urgent urology input
- Antibiotic if an infective precipitant suspected
- Folic Acid 5mg PO OD

4. List 3 alternative causes for priapism

- *Haematological: Leukaemia's, Lymphoma*
- *Drug induced: Sildenafil, Antidepressants (Trazodone), Antipsychotics (Clozapine), Antihypertensive*
- *Spinal Shock Lesions/ Spinal Cord Tumors*
- *Black widow spider*

Exchange transfusion -OHAM

This is performed by venesection of 1–2U, with fluid replacement (N saline, 1L over 2–4h) followed by transfusion of X-matched blood. If a larger exchange is required, or fluid balance is precarious, the exchange can be performed on a cell separator. Aim for Hb between 7–9g/L in either case; a higher Hb can increase blood viscosity and precipitate further sickling. In severe crises, red cell exchange should be repeated until the HbS% is <40%.

Indications for urgent exchange transfusion

- Chest crisis
- Cerebral infarction
- Severe, persisting painful crisis
- Priapism.

Question 8- GHB& Amphetamine OD/Rhabdomyolysis

Your SHO asks for advice in resus. 21yrs female body builder brought from night club, paramedics report potential drug overdose of amphetamines and GHB. She has reduced GCS 6 and large pupils. The patient's urine output is shown below.



1. What is the most likely cause for (a) the reduced GCS and (b) for the dark urine?

a) Due to neurotoxicity of GHB.

b) This is the development of AKI (ARF) 2° to extensive muscle damage and release of myoglobin due to drug overdose

2. What electrolyte would you like to check before commencing treatment and explain why?

- *Hyperkalaemia may be life-threatening*
- *↑CPK levels reflect muscle damage. Check U&E, PO₄⁻, Ca²⁺ and urate*

3. What will be your ongoing treatment plan in the resus area ?

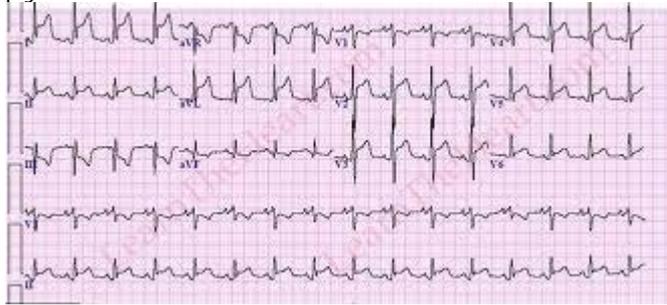
- *Give oral **activated charcoal** if within 1 hour*
- *Trismus and fits may prevent **airway control** and necessitate an anaesthetic before intubation.*
- *Control fits with **clomethiazole** (which also helps to ↓hyperthermia) or lorazepam.*
- *Immediate ↓ in T° is essential, as for heat stroke . If rectal T°>40°C, give **dantrolene** 1mg/kg IV, repeated if necessary up to 10mg/kg in 24hr.*
- *Correct metabolic acidosis with **sodium bicarbonate**.*
- *If hyperkalaemia occurs, give **glucose and insulin***
- *Severe tachycardia may **require (β-blockade (metoprolol 5mg IV)**. For severe hypertension, consider nifedipine (5–10mg PO) or phentolamine (2–5mg IV)*

4. What will be the most likely clinical course in this overdose?

- *Potentially lethal overdose ,w ill need ITU input.*
- *New focal signs should prompt urgent CT scanning looking for evidence of intracranial bleeding.*

Question 9- Pericarditis

A 25yrs male presents to ED with sharp retrosternal chest pains and mild pyrexia.



1. You are suspecting acute pericarditis. List 5 questions to include in your history to confirm or exclude diagnosis

- Chest pain is typically sharp, central, retrosternal
- Worse on deep inspiration, change in position, exercise and swallowing.
- Pericardial effusion may cause dysphagia by compressing the oesophagus.
- Exclude respiratory cause: SOB/Cough/Sputum
- Inquire about ischaemic features

2. What other tests will you do in the ED?

- Appropriate **investigations** include: ECG, CXR, FBC, ESR, U&E.
- Obtain **blood cultures** if there is evidence of sepsis or suspicion of a bacterial cause (eg spread of intrathoracic infection).
- A pericardial effusion is most quickly and easily demonstrated by **echocardiography or FAST scanning**: clinical evidence of cardiac tamponade is rare.

3. List 3 viral causes of pericarditis.

- Coxsackie A + B,
- echovirus, adenovirus, mumps,
- EBV, VZV, CMV, hepatitis B, and HIV.

Causes

- Myocardial infarction (including Dressler's syndrome)
- Viral (eg coxsackie B virus, HIV)
- Bacterial (pneumonia and/or septicaemia)
- TB (especially in patients with HIV)
- Locally invasive carcinoma (eg bronchus or breast)
- Rheumatic fever
- Uraemia
- Collagen vascular disease (SLE, polyarteritis nodosa, RA)
- After cardiac surgery or radiotherapy
- Drugs (hydralazine, procainamide, methyldopa, minoxidil).

Question 10- Major incident/Chlorine Poisoning

You get a standby call that a chemical spill of an unknown compound containing chlorine has occurred from a lorry on the local motorway. Major incident is declared, you are to expect three P1 patients and two P2 patients.

1. At the scene how do you get more info about the chemical and its hazards?

- M
- E
- T
- H
- A
- N
- E

2. Working in ED, who do you contact first?

- Ensure that the **ED consultant on duty** is informed immediately of any suspected major incident, enabling them to participate in the decision to start the major incident procedure. Senior medical, nursing, and administrative staff will set up the hospital's Control Centre and prepare for action.

3. What are your priorities in preparing the department?

- **Clear the ED** of any patients who are not seriously ill or injured. Prepare the department to receive patients from the incident.
- Doctors and nurses arriving to help should be **given appropriate action cards**. Staff should have labels or tabards so that ED staff and other specialties (eg anaesthetists) can be identified easily.
- Set up a **decontamination area**
- Prepare a **triage point** at the ambulance entrance. This should be staffed by a senior doctor and nurse who direct patients to the most appropriate area of the department.
- All patients should be labelled immediately with a **unique Major Incident number**, which is used on all notes,

4. Casualties start to arrive. What does "P2" mean?

- **P1**= requires immediate resuscitation and stabilisation and ITU placement
- **P2**= serious injuries that do not impose immediate threat to life but require urgent interventions
- **P3**= Moderate to minor injury requiring simple measures to treat

5. What are the common clinical features of Chlorine poisoning?

- *lacrimation, conjunctivitis, coughing, wheezing, breathlessness and chest pain. Laryngeal and pulmonary oedema may develop within a few hrs.*

6. What is the management of Chlorine poisoning?

- Remove from exposure and **give O2, with bronchodilators** if necessary. If there is laryngeal or pulmonary oedema, consult an expert and give **prednisolone** in high dosage (adult 60–80mg/day initially). In severe cases, **IPPV in ICU** may be needed.
- If the eyes are painful, **irrigate with water or saline** and examine with fluorescein for corneal damage.

Question 11- Paracetamol OD

Your SHO asks for your help in assessing a 62yrs female who has apparently taken a large paracetamol overdose many hours ago. She appears confused now and is trying to leave the department.

1. Describe the intravenous drug treatment regime for paracetamol overdose including doses and timing.

Acetylcysteine

- (Parvolex®; previously called N-acetylcysteine) is given by IV infusion in 5% dextrose. Initial dose is 150mg/kg body weight in 200mL dextrose over 15mins, then 50mg/kg in 500mL over 4hrs, then 100mg/kg in 1L over 16hrs. Acetylcysteine occasionally causes side effects: erythema and urticaria around the infusion site or more generalized rashes, itching, nausea, angioedema, bronchospasm and rarely hypotension or hypertension. Side effects usually occur in the first hour of treatment and are dose related. If they occur, stop the infusion and give an antihistamine (eg chlorphenamine 10mg IV over 1min). When the symptoms have settled, acetylcysteine can usually be resumed at the lowest infusion rate (100mg/kg body weight over 16hrs).

2. How would you assess her capacity?

- *Understand and retain relevant information*
- *Understand risk and benefit of alternatives*
- *Understand the consequences of refusal*
- *Retain the information*
- *Make a free choice and communicate back*

3. You believe that she does not have capacity, what will you do now?

- Treat in her best interest: Physical restraint vs rapid tranquilisation
- *Contact Independent Mental Health Advocacy (IMCA) to assess capacity*
- *Liaise with on call approved social worker and mental health practitioner for assessment under mental health act if mental illness suspected.*
- *Contact trust legal team to get a court order*

Question 12- Collapse/SIADH

Your SHO asks for advice. A 50yrs female has presented following a collapse fall and is now increasingly confused. She has a minor abrasion to her forehead only.

You have the following blood/urine results thus far

Glucose 6.4
Na 115
K 4.2
Urea 7.2
Creatinine 102
Hb 13.1
WCC 12.2
Plt 175
Urine Osmolality 125
Urine Na 42

1. What are the potential causes for her confusion?
 - Normovolaemic (normal or mildly increased ECV)
 - **SIADH**: urine osm. >100, serum osm. low (<260), urine Na+ >40mmol/L
 - Hyponatremic Encephalopathy
2. What 3 further investigations will you arrange now in ED?
 - Measure serum osmolality and compare it to the calculated osmolality [$2 \times (\text{Na}^{++} + \text{K}^{+}) + \text{urea} + \text{glucose}$]. An increase in osmolar gap is with substances such as ethylene glycol, severe hyperglycaemia, mannitol,
 - CT Head
3. List 4 intracranial causes for this blood picture?
 - CNS disorders
 - Trauma, Stroke/SAH
 - Malignancy (1°/2°)
 - Vasculitis (e.g. SLE)
 - Infection (abscess or meningoencephalitis)

Management

- If hypovolaemic: IV 0.9% saline and recheck U&Es.
- If hypervolaemic (congestive cardiac failure, renal failure or cirrhosis): fluid restrict.
- SIADH: water restriction (about 500–750mL/day).
- In severe cases of hyponatraemia presenting with seizures or coma: manage airway, anticonvulsant if fitting; cautious use of hypertonic (3%) saline, preferably via central line in HDU setting

Hypovolaemia (hyponatraemia + hypovolaemia = salt depletion)

Renal losses (uNa >20mmol/L)

- Diuretics, Addison's disease, Na-losing nephropathies

Non-renal losses (uNa <20mmol/L)

- GI losses (diarrhoea, vomiting), Burns, Fluid sequestration (e.g. peritonitis, pancreatitis)

QUESTION 13- DKA

14yrs female (49kg) presents with vomiting and abdominal pain and the following blood results

Na 133
K 5.0
Urea 13.3
Creatinine 150
Glucose 39.5
Chloride 93
Bicarb 9
Hb 14.0
WCC 10.0
Plts 175

1. What is the diagnosis?

- DKA

2. Calculate the anion gap (show your calculations)

- $2X(\text{Na} + \text{K}) - (\text{Cl} + \text{HCO}_3)$

3. Give 4 non-drug related causes for this anion gap. (1/2 each)

- *Uraemia*
- *Lactic Acidosis (hypoxia, trauma, Sepsis)*
- *Starvation ketoacidosis*
- *DKA*

4. Write a fluid chart for the next 8 hours for this patient. You assessed he is 5% dehydrated

- *Deficit = (50ml/Kg) = 2450ml*
- *Maintenance = 1000 + 500 + 200 + 200 + 180 = 2080ml x 2 = 4160ml*
- *Total = 6610ml over 48hr*
- *137.7 ml of n/saline per hour for 48 hours*
- *Replace K*

5. Name 2 complications of this clinical presentation.

- *Cerebral Edema*
- *ARDS*
- *Cardiac failure*
- *Thromboembolism*

Question 14-LMA



1. What is this device ?

Laryngeal Mask Airway

2. Describe 2 clinical situations when you might consider using this device in ED?

- *Cardiac Arrest*
- *Failed intubation, as a rescue airway technique*

3. How can you confirm the placement of this device?

- *It should rise when cuff inflated*
- *Air entry to both lung fields*
- *Absence of gurgling when listening over epigastrium*
- *Capnography*

4. What are the limitations of this device?

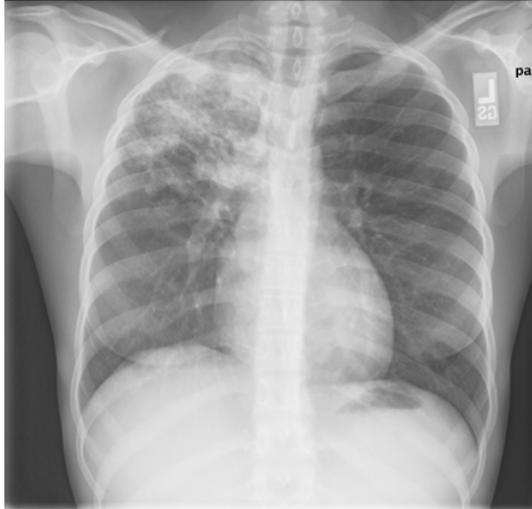
- *Does not protect airway*
- *Can cause mechanical obstruction*

5. Describe clinical situations when this device would be inappropriate / contraindicated.

- *Non-fasted patients*
- *Morbidly obese patients*
- *Pregnancy*
- *Obstructive or abnormal lesions of the oropharynx*
- *Increased Airway resistance and decreased lung compliance*

Question 15- Cough

A 32yrs homeless female presents with a dry cough and intermittent mild fever and one episode of fresh haemoptysis today.



1. Describe this CXR.

- Consolidation Right upper lobe

2. List 4 potential causes for her presentation and CXR findings.

- Pneumonia: Bacterial/Atypical
- PE
- Malignancy: CA Bronchus/Pancoast Tumor
- TB

3. List 4 investigations that you will arrange to confirm the diagnosis

- Urine for pneumococcal antigen, Legionella Antigen, Mycoplasma Cold agglutinin
- ABG-Hypoxia in PE
- Sputum for ZN staining for AFB/TB
- Ct Chest for CA bronchus/Pancoast tumor

Question 16-Malaria

A 22yrs female medical student is brought in by ambulance following a prolonged seizure at home. She has recently returned from her elective in Malawi. Her student friends are unsure if she took any of her medications because they gave her nightmares. She is now drowsy and confused with a temperature of 38.9.

1. What is the most likely diagnosis?

- *Cerebral Malaria*

2. Name the most likely causative organism

- *Plasmodium Falciparum may cause cerebral malaria with coma, fits, oculogyric crisis and focal neurological signs. Diarrhoea, cardiac failure, pulmonary oedema and shock may occur. Deterioration can be rapid.*

3. What diagnostic tests will you arrange immediately?

- *Send blood for thin and thick film*
- *FBC (malaria may cause anaemia, neutropenia and thrombocytopenia),*
- *U&E (renal failure is possible),*
- *blood glucose (hypoglycaemia may be severe)*
- *urine testing (haemolysis may occur—'black water fever')*
- *Head CT scan and LP May be required in suspected cerebral malaria to exclude other pathologies.*
- *ABG Metabolic acidosis (pH <7.3) indicates severe malaria.*

4. List 4 differential diagnoses

- *Meningitis/Encephalitis*
- *SAH*
- *Brain Tumor*
- *CVA*
- *Cerebral abscess*

5. What would be your immediate treatment in the ED?

- *Quinine **dihydrochloride** IV 20mg/kg in 5% glucose or glucose/saline over 4h (maximum dose 1.4g). Watch carefully for toxicity (QT prolongation). Change to oral regime at 48h and continue quinine 600mg tds until 5–7 days of treatment completed.*
- *Quinine treatment should be accompanied by a **second drug** (doxycycline 200mg tds or clindamycin 450mg tds) for 7 days.*
- ***Mefloquine** may be effective but resistance is emerging. It is best to contact a malaria expert for advice on the best regimen for the country of origin.*
- *Chloroquine resistance is widespread. It is not used to treat falciparum malaria*

Question 17-Dental Trauma

A 6yrs female has tripped on the street and knocked out one of her front teeth. She has been brought into ED by her mum.

1. Identify 6 points in the history you would elicit

- *Accounted for in order to exclude the possibility of aspiration ie choking*
- *How long it has been out?*
- *How was it transported to prevent drying ie saline or milk*
- *Primary or secondary dentition*
- *Any contraindications: A history of rheumatic fever, valvular heart disease, or immunosuppressive treatment*
- *PMH/Allergy*

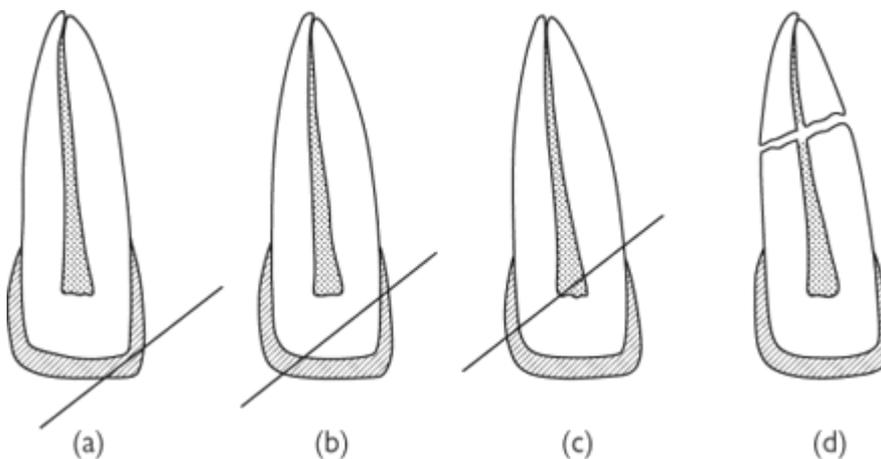
2. You discuss your management plan with mother

(a) What will you recommend if the tooth was deciduous?

- *Baby teeth, if one is knocked out it should not be pushed back into the socket because the developing adult tooth may be damaged.*

(b) What will you recommend if the tooth was permanent?

- *The primary aim of treatment is to replant an avulsed adult tooth as soon as possible.*
- *Milk is the best easily available transport medium to advise a patient to bring a tooth in. The best chance of success lies with early reimplantation (within the first few hours). Handle the tooth as little as possible. Hold it by the crown to clean it gently with 0.9% saline. Orientate the tooth, then replace it within the socket using firm pressure (this may be easiest after LA. Secure it with a temporary splint (eg milk bottle top).*
- *Refer immediately to the on-call dentist for stabilization and prophylactic antibiotics (eg erythromycin).*
- *Ensure tetanus prophylaxis.*



Simple classification of tooth fractures (a) Enamel only; (b) Enamel and dentine; (c) Enamel, dentine, and pulp; (d) Root fracture

Question 18-Shingles

A 30yrs female who is usually well presents with a rash on her forehead



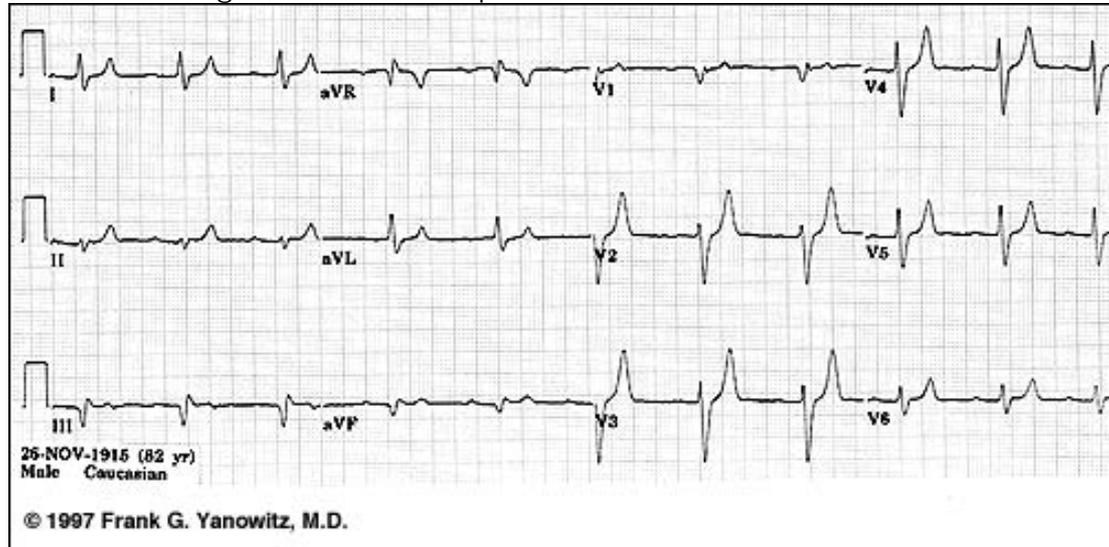
1. What is the most likely diagnosis?
 - *Shingles*
2. Name the causative organism
 - *Herpes Zoster*
 - *Ophthalmic shingles may affect the eye via the long ciliary nerves: skin lesions on the side of the tip of the nose imply a high risk of eye involvement. Oral lesions occur in maxillary and mandibular shingles. Infection of the geniculate ganglion causes a facial palsy with lesions in the pinna of the ear and on the side of the tongue and hard palate (Ramsay-Hunt syndrome). In severe shingles there may be weakness of muscles supplied by nerves of the same spinal root.*
3. Outline the treatment of this condition (include drug doses)
 - *Stain cornea with fluorescein to detect keratitis; ophthalmology opinion vital if ↓visual acuity or any evidence of eye involvement.*
 - *If keratitis present treat with topical, acyclovir, or trifluoridine ointment*
 - *IV aciclovir or oral valaciclovir or famciclovir.*
 - *IV Morphine*
 - *IV Antibiotics to prevent secondary bacterial infection*
4. The patient tells you that she is 26 weeks pregnant, what will you ask /advise her?
 - *If you get shingles when you're pregnant, it's usually mild and there's no risk to you or your baby. You can only get shingles if you've already had chickenpox because they're both caused by the same virus: the herpes varicella-zoster virus (VZV).*
5. She also has a 2 week old niece. What will you advise her regards infectivity to this neonate?
 - *VZIG is not usually required for infants born more than 7 days after the onset of maternal chickenpox or whose mothers develop zoster before or after delivery as these infants will have maternal antibody.*

VZIG is also recommended for the following:

 - *VZ antibody-negative infants exposed to chickenpox or herpes zoster (other than in the mother) in the first 7 days of life*

Question 19-Hyperkalaemia

82yrs male renal dialysis patient presents with increasing lethargy and nausea. Venous blood gas reveals serum potassium 6.7



1. Describe this ECG

- Flattened or absent P wave, Peaked T wave consistent with hyperkalaemia

2. List 4 other ECG changes that can occur in hyperkalaemia

- Widened QRS
- Prolonged PR interval
- ST depression
- Bradycardia

3. Describe the emergency treatment of this patient (for drugs include doses)

- 10mL of 10% **calcium gluconate** IV, repeated every 10–20min until ECG normalizes (patients may require up to 50mL)–reduces cardiac excitability.
- Give nebulized **salbutamol** (5mg) to drive K⁺ intracellularly (use lower doses in patients with ischaemic heart disease).
- **50mL 50% glucose with 5U soluble insulin** over 15–30min and monitor blood glucose; this should lower K⁺ for several hours.
- **50–100mL 8.4% bicarbonate IV** via central line over 30min (or 500mL 1.26% peripherally).
- **250mg furosemide** or 5mg bumetanide IV over 1h.
- Polystyrene sulphonate resin enema (Calcium Resonium®) 30g increases gut losses of potassium. Follow with 15g PO tds with regular lactulose. This takes 24h to work.

Question 20-Sepsis/Blood Culture

A 35yrs female presents to ED, she is pyrexial, tachycardic and hypotensive. She had her first dose of chemotherapy treatment for breast cancer 10 days ago.

1. Describe how you would take a venous blood culture

Step one: Skin preparation

- Wash your hands with soap and water then dry.
- Apply a disposable tourniquet (if applicable) and palpate to identify vein.
- Clean skin with a 2% chlorhexidine in 70% isopropyl alcohol impregnated swab and allow to dry.

Step two: Kit preparation

- Label bottles with appropriate patient information. Ensure that barcodes on the bottles are not covered by additional labels and that any tear-off barcode labels are not removed.
- Clean the tops of culture bottles with a 2% chlorhexidine in 70% isopropyl alcohol impregnated swab and allow to dry.

Step three: Taking the blood

A: NEEDLE AND SYRINGE METHOD

- Wash and dry your hands again or use alcohol hand rub and apply clean examination gloves (sterile gloves are not necessary).
- Insert needle. Do not palpate again after cleaning.
- Collect sample and release tourniquet.
- Cover the puncture site with an appropriate dressing.
- Inoculate blood into culture bottles; do not change the needle between sample collection and inoculation; inoculate anaerobic culture first.
- Discard needle and syringe in a sharps container.
- Wash hands after removing gloves.
- Record the procedure with indication for culture, time, site of venepuncture and any complications in the patient's record.

2. Define septic shock

- Septic shock is present when septic patients exhibit hypotension unresponsive to intravenous fluid resuscitation

3. What antibiotics will you use to treat her, give doses and explain your rationale.

First line

- • Tazocin® 4.5g IV tds (or meropenem 500mg IV qds if penicillin allergic) plus
- • Gentamicin 7mg/kg IV od (guided by levels)

Second line

- Vancomycin 1g IV bd (guided by levels) or
- Teicoplanin 400mg IV od (bd for first 24h) if line infection is suspected

Third line Consider amphotericin if fever not settling after 72h esp. in patients with long periods of neutropenia (e.g. AML or BMT patients). Discuss with local haematologists and microbiologists

Indications:

Blood cultures are taken to identify patients with bacteraemia.

- Pyrexia > 38°C
- focal signs of infection
- abnormal heart rate (raised), blood pressure (low or raised) or respiratory rate (raised)
- chills or rigors
- raised or very low white blood cell count
- new or worsening confusion.