

A 63-year-old female presents with a one day history of confusion with headaches.

On examination she is confused, with a Glasgow coma scale of 13 and a temperature of 39.5°C.

She has nuchal rigidity and photophobia.

CSF examination reveals a glucose of 0.5 mmol/l (3.3-4.4), a white cell count of 2500 per mm and Gram positive cocci in pairs.

Which of the following is correct?

(Please select 1 option)

☐	A characteristic rash would be expected
☐	Nerve deafness would be a common complication in this case
☐	Rifampicin should be given to close contacts
☐	The most likely infective organism is <i>Staphylococcus aureus</i>
☐	The organism is likely to be penicillin resistant

This patient has pneumococcal meningitis, caused by the Gram positive coccus *Strep. pneumoniae*.

This is the second commonest cause of bacterial meningitis (commonest in the elderly) and is associated with the highest mortality (20%) and highest morbidity, such as deafness which may occur in 50%.

Contacts do not require treatment and there is no rash associated with pneumococcal meningitis.

Meningococcus is Gram negative.

In most cardiac arrest situations 1mg of adrenaline (epinephrine) is given intravenously every three minutes.

What is the correct volume and concentration of the adrenaline?

(Please select 1 option)

- | | |
|----------------------------------|----------------------|
| ☐ | 0.1 ml of 1 in 100 |
| ☒ | 1 ml of 1 in 1000 |
| ☐ | 1 ml of 1 in 10,000 |
| ☐ | 10 ml of 1 in 1000 |
| ☐ | 10 ml of 1 in 10,000 |

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A 1 mg dose of adrenaline (epinephrine) would be administered with 0.1 ml of 1 in 100, 1 ml of 1 in 1000 and 10 ml of 1 in 10,000.

However, 10 ml of 1 in 10,000 is the recommended dose and concentration and is considered the optimum volume of adrenaline during cardiac arrest, and is recommended by the UK Resuscitation Council.

In adult basic life support which of the following is the correct ratio of chest compressions to ventilations?

(Please select 1 option)

☐	5 to 1
☐	8 to 1
☐	10 to 1
☐	15 to 2
☐	30 to 2

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Fifteen compressions to two breaths was the recommended ratio regardless of the number of rescuers performing basic life support, but the recent guidelines now suggest 30:2.

Which of the following is currently recommended as the drug of choice in treating refractory ventricular fibrillation or pulseless ventricular tachycardia?

(Please select 1 option)

☐	Adenosine
☐	Amiodarone
☐	Bretylium
☐	Lidocaine
☐	Magnesium

300 mg of amiodarone made up to 20 ml with 5% dextrose given as an intravenous bolus is the drug of choice.

100 mg of lidocaine may be given intravenously when amiodarone is unavailable.

Historically 5 mg/Kg of bretylium was given, but it is no longer recommended.

Which of the following is correct concerning a precordial thump?

(Please select 1 option)

- | | |
|-----------------------|--|
| ☐ | Can be delivered up to twice during a cardiac arrest |
| ☐ | Can be given following an unwitnessed cardiac arrest |
| ☐ | Is more successful with pulseless VT than VF |
| ☐ | Should be administered after a warning has been given to the patient |
| ☐ | Should be aimed at the position of V4 on the anterior chest wall |

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The 2010 ALS guidelines state that if a patient has a monitored and witnessed VF/VT arrest in hospital, a single shock should be given. Chest compressions should be started immediately after, with a compression to ventilation ratio of 30:2 for 2 minutes. Three quick successive (stacked) shocks are no longer recommended, unless the arrest occurs in the immediate post-operative period following cardiac surgery or when the patient is already attached to a manual defibrillator.

A precordial thump can be successful if given within seconds of the onset of a shockable rhythm. Delivery should not delay calling for help, or accessing a defibrillator, but would be indicated here whilst awaiting the defibrillator. Chest compressions should start immediately if it is unsuccessful. Only one thump should be delivered over the lower third of the sternum. The ulnar edge of a tightly clenched fist is used to deliver a sharp impact from a height of about 20cm, then retract immediately (thereby creating an impulse-like stimulus). Repeating a precordial thump is not recommended.

Warning a patient who has arrested will serve little purpose.

It is important to remember that a precordial thump has a very low success rate for cardioversion. In general it delivers approximately 7-10 joules of energy, but this is operator dependent and references vary to this regard. There is more success with pulseless VT than with VF.

References:

Resuscitation Council (UK). [Advanced Life Support](#).

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An 18-year-old woman is admitted after taking drugs at a night club.

Which of the following features suggest she had taken Ecstasy (MDMA)?

(Please select 1 option)

☐	A pyrexia of 40°C
☐	Hypernatraemia
☐	Hypokalaemia
☐	Metabolic acidosis
☐	Respiratory depression

Submit answer

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Features of the amphetamine MDMA abuse include:

- Hyponatraemia
- Tachycardia
- Hyperventilation
- Hyperthermia.

A 26-year-old woman presented at 35 weeks of pregnancy with profuse vaginal bleeding. She had suffered two previous miscarriages.

She had a pulse of 95 beats per minute, blood pressure of 110/84 mmHg and no fetal heart sounds were audible.

Investigations revealed:

Haemoglobin	9.8 g/dL	(11.5 - 16.5)
Platelets	$66 \times 10^9/L$	(150 - 400)
Prothrombin time	21 sec	(11.5-15.5)
APTT	52 sec	(30-40)
Fibrinogen	0.5 g/L	(2-4)

What is the most appropriate next step in management?

(Please select 1 option)

☐	Antithrombin III infusion
☐	Fibrinogen replacement infusion (cryoprecipitate)
☐	Intravenous heparin
☐	Platelet transfusion
☐	Transfusion of two units group O rhesus D negative blood

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The clinical picture is disseminated intravascular coagulation.

When bleeding is the major problem, the aim is to maintain the prothrombin and activated thromboplastin time at a ratio of 1.5 times of the control and the fibrinogen level above 1 g/L.

Platelet transfusion is recommended if the count is less than $50 \times 10^9/\text{L}$.

Anaemia is not very severe so in this case fibrinogen replacement would be the appropriate first choice with blood transfusion in addition if bleeding continues and patient develops hypovolaemic shock.

Which of the following is correct in malignant hyperpyrexia?

(Please select 1 option)

- ☐ A mortality rate of 20% may be expected
- ☐ Elevation of serum creatine kinase and myoglobinuria is diagnostic
- ☐ Muscle biopsy may be histologically normal
- ☐ The only available specific treatment is sodium dantrolene, which has a neutral pH
- ☐ The predisposing gene is thought to be on chromosome 9

Submit answer

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Malignant hyperpyrexia (MH) is characterised by increased temperature and muscle rigidity during anaesthesia, which results from abnormal skeletal muscle contraction and increased metabolism.

The predisposing gene is thought to be on chromosome 19, close to the gene for the ryanodine/dihydropyridine receptor complex.

Known triggering agents include the volatile anaesthetic agents and suxamethonium. Patients show different sensitivity to the triggering agents and the reaction can be delayed by several hours.

Intravenous dantrolene (up to 10 mg/kg) is the only available specific treatment and care must be taken when administering as the solution has a pH of 9-10.

The prognosis of malignant hyperpyrexia is good when the appropriate treatment is instigated early, mortality being less than 5% (prior to dantrolene the mortality was 80%).

Serum creatine kinase elevation and myoglobinuria are suggestive but not diagnostic of MH. Myoglobin and creatine kinase are both known to increase after giving suxamethonium to normal patients.

Contracture tests using caffeine and halothane are the investigations of choice.

Muscle biopsies may appear histologically normal.

Which of the following would be expected to reduce maternal mortality when given in eclampsia?

(Please select 1 option)

- | | |
|-----------------------|-------------------------------|
| ☐ | Insulin and dextrose infusion |
| ☐ | Low dose dopamine infusion |
| ☐ | Magnesium infusion |
| ☐ | Phenytoin infusion |
| ☐ | Salbutamol infusion |

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Magnesium has been shown significantly to reduce maternal mortality in eclampsia and a favourable outcome may also be expected in pre-eclampsia.

None of the other agents has been associated with a reduced mortality in eclampsia.

A 22-year-old woman complains of haemoptysis, abdominal pains and pyrexia for a month.

She is admitted to hospital and found to be afebrile and haemodynamically stable. There are numerous crusted, linear lesions on her forearms.

What is the most likely diagnosis?

(Please select 1 option)

☐	Acute intermittent porphyria
☐	Factitious disorder
☐	Systemic lupus erythematosus
☐	TB
☐	Wegener's granulomatosis

Submit answer

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This lady warrants further investigation, but the question asks you what the most likely diagnosis is. The history is very vague and on clinical examination she has no clinical features other than a rash. She is afebrile on this occasion, and the fact she is haemodynamically stable rules out prolonged significant haematemesis. Linear lesions are rarely caused by organic disease, and should make you query dermatitis artefacta especially when the lesions are in accessible locations such as the forearms.

Porphyria may be expected to have vesicles on sun exposed regions, such as the face, forearms and legs. However, the history is too long for acute intermittent porphyria. Attacks typically present with autonomic disturbance and sympathetic overactivity, and often with neurological signs, none of which are present here.

The history could fit with TB, if the patient has risk factors for exposure. Early morning sputum or urine could be examined to help exclude this diagnosis. A chest radiograph may be indicated.

Systemic lupus erythematosus can present in a variety of ways, and can occur in this age group. A more detailed history would be required, and testing ANA (anti-nuclear antibodies) may be helpful.

Wegener's granulomatosis typically has a more acute presentation than this, with evidence of hard clinical signs. Shortness of breath is usually evident if pulmonary haemorrhage has developed. Sinus symptoms are often also present.

A 42-year-old woman presents following an episode of confusion associated with vomiting and abdominal pain.

She had a one month history of weight loss and receives thyroxine for hypothyroidism which was diagnosed five years ago.

On examination she appeared unwell, with a temperature of 37.5°C and her blood pressure was 100/50 mmHg.

Investigations revealed:

Sodium	130 mmol/L	(137-144)
Potassium	4.8 mmol/L	(3.5-4.9)
Urea	7.6 mmol/L	(2.5-7.5)
Glucose	2.7 mmol/L	(3.0-6.0)
Free T4	9 pmol/L	(10-22)
TSH	1 mU/L	(0.4-5)

Which one of the following given intravenously would be the most appropriate initial management?

(Please select 1 option)

☐	10% dextrose infusion
☐	Cefuroxime
☐	Glucagon
☐	Hydrocortisone
☐	Tri-iodothyronine

This woman presents with classical features of Addison's disease and the most appropriate and lifesaving therapy is steroids given intravenously.

The abnormal thyroid function tests are often encountered in association with acute hypoadrenalism.

Giving thyroxine may actually exacerbate the condition.

A 14-year-old boy bangs heads with an opponent during an unofficial football game. He is knocked out for 30 seconds and is amnesic for the event. He recovers quickly and continues playing.

Two hours later he complains of headache, begins vomiting then loses consciousness. He had a full term normal delivery with no neonatal complications. His immunisations are up to date. There is no FH/SH of note.

On examination he responds only to deep pain. He is afebrile with respiratory rate of 10/min (irregular), pulse of 40/min. He has a large bruise in the right temporal area.

What is the most likely diagnosis?

(Please select 1 option)

☐	Cerebral contusion
☐	Contrecoup injury
☐	Extradural haematoma
☐	Subdural haematoma
☐	Tonsillar herniation

The history is of a closed head injury, followed by a lucid period followed by decreasing level of consciousness.

The time course suggests an extradural haematoma, where there is arterial bleeding which accumulates rapidly outside the dura causing raised intracranial pressure. Subdural haematoma in infants may accompany massive axon injury in 'Shaken baby syndrome', and presents acutely. Retinal haemorrhages are often present. (Chronic subdurals due to birth trauma can present much later due to the open fontanelle.)

Epidural haematoma, typically from a torn middle meningeal artery and associated with skull fracture, accumulates much more rapidly.

There may be apparent recovery from the initial concussion, but deterioration is usually within 15-30 minutes.

A 45-year-old man attends the Emergency department with symptoms suggestive of community acquired pneumonia.

On examination he is pyrexial at 38.0°C and has a respiratory rate of 32/min, with a blood pressure of 85/55 mmHg.

Which of the following combination of features are not necessarily an indication for urgent hospital admission?

(Please select 1 option)

☐	BP of 85/55 mmHg and respiratory rate of 32/min
☐	BP of 85/55 mmHg and urea of 7.5 mmol/l
☐	Confusion and BP of 85/55 mmHg
☐	Pyrexia of 38.0°C and serum urea of 7.5 mmol/l
☐	Respiratory rate of 32 and blood urea of 7.5 mmol/l

This patient has community-acquired pneumonia (CAP).

The severity of each case of CAP should be assessed using the CURB-65 tool in conjunction with clinical judgement. Patients score 1 point for each of:

- Confusion
- Urea 7mmol/L
- Respiratory rate $\geq 30/\text{min}$
- Blood pressure: systolic < 90 or diastolic $\leq 60\text{mmHg}$
- Age ≥ 65 years

A CURB-65 score of 0 or 1 are at low risk of death, and can be treated at home if the social circumstances are compatible. A score of 2 usually indicates inpatient treatment is required, but hospital-supervised outpatient treatment can be considered. Patients who have a CURB-65 score of 3 or more are at high risk of death. Those with scores of 4 and 5 should be considered for treatment in a critical care unit (HMU, ITU).

In this question, option four has a CURB-65 score of 1 and outpatient treatment can therefore be considered. All the others are indications for inpatient treatment.

Clinical judgement must still however be used particularly if only one feature is present or if there is co-morbidity such as age over 50 years or chronic cardiac, respiratory or renal disease.

References:

British Thoracic Society. [Pneumonia Guidelines](#).

A 27-year-old female presents to the surgical intake with abdominal pain and a five day history of vomiting.

Over the last three months she has also been aware of a 6 kg weight loss.

On examination, she is pale, has a temperature of 38.5°C, blood pressure of 90/60 mmHg and pulse rate of 130 in sinus rhythm. The chest is clear on auscultation but she has a diffusely tender abdomen with no guarding. Her BM reading is 2.5.

Initial biochemistry is as follows:

Sodium	124 mmol/l	(137-144)
Potassium	6.0 mmol/l	(3.5-4.9)
Urea	7.5 mmol/l	(2.5-7.5)
Creatinine	78 µmol/l	(60-110)
Glucose	2.0 mmol/l	(3.0-6.0)

What is the probable diagnosis?

(Please select 1 option)

☐	Abdominal migraine
☐	Acute appendicitis
☐	Acute cholecystitis
☐	Addison's disease
☐	Insulinoma

This patient has clinical features of hypoadrenal crisis with abdominal pain, vomiting and shock with hypoglycaemia, hyponatraemia and hyperkalaemia. In the United Kingdom this is commonly due to autoimmune destruction of the adrenal glands (Addison's disease).

Rarer causes are TB, HIV adrenal haemorrhage or anterior pituitary disease.

Patients classically present with weight loss, abdominal pain, lethargy and nausea and vomiting. Addison's disease is also associated with oral pigmentation (due to excess ACTH and therefore MSH), and other autoimmune disease (including thyroid disease and vitiligo).

Patients such as this need emergency fluid resuscitation, steroid administration (prior to this urgent cortisol measurement), and careful search for occult infection.

None of the other options explain the biochemical findings.

A 19-year old girl has been brought to the Emergency department by her friends following a night out at a party. Her friends comment that she has been talking to herself about 'irrelevant things'. She seems agitated and restless.

On examination, her reflexes are increased and an electrocardiogram (ECG) demonstrates ventricular ectopics.

What kind of substance abuse do you suspect at this point?

(Please select 1 option)

☐	Alcohol
☐	Barbituate
☐	Cannabis
☐	Ecstasy
☐	Glue sniffing

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This is a case of [ecstasy overdose](#).

Ecstasy (3,4-methylenedioxymethamphetamine, MDMA) stimulates the central nervous system.

It causes:

- Increased alertness and self-confidence
- Euphoria
- Extrovert behaviour
- Increased talkativeness with rapid speech
- Lack of desire to eat or sleep
- Tremor
- Dilated pupils
- Tachycardia and
- Hypertension.

More severe intoxication is associated with:

- Excitability
- Agitation
- Paranoid delusions
- Hallucinations with violent behaviour
- Hypertonia and
- Hyperreflexia.

Convulsions, rhabdomyolysis, hyperthermia, and cardiac arrhythmias may also develop.

In severe cases of MDMA poisoning:

- Hyperthermia
- Disseminated intravascular coagulation
- Rhabdomyolysis
- Acute renal failure and
- Hyponatraemia

are observed.

Hepatic damage has also been reported.

Rarely, poisoning due to amphetamines may result in intracerebral and subarachnoid haemorrhage and acute cardiomyopathy; these complications may be fatal.

Hyperthyroxinaemia may be found in chronic amphetamine users.

A patient has just received intravenous ceftazidime. He immediately became flushed and wheezy, with a blood pressure of 80/40 mmHg.

Which of the following is the most appropriate immediate management for this patient?

(Please select 1 option)

☐	Chlorphenamine 10 mg IV
☐	Epinephrine 0.2 ml of 1:1000 IV
☐	Epinephrine 0.5 mg IV
☐	Epinephrine 0.5 mg IM
☐	Hydrocortisone 100 mg IV

Submit answer

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Immediate treatment of anaphylaxis includes cessation of whatever caused it.

Then give oxygen, fluids and adrenaline/epinephrine 0.5 mg intramuscularly or subcutaneously.

Checking concentrations of adrenaline is very important especially in high pressure situations. Intravenous adrenaline is potentially hazardous unless diluted appropriately.

A 22-year-old female is admitted very distressed and short of breath.

Examination reveals a respiratory rate of 35/min, a pulse of 120 beats per minute, a blood pressure 110/70 mmHg, oxygen saturations of 90% and a peak expiratory flow rate <50% predicted.

The emergency medical services have administered salbutamol 5 mg (twice) and face mask oxygen.

Which of the following is the most appropriate next action in this patient?

(Please select 1 option)

☐	Arterial blood gas analysis
☐	Intensive care referral
☐	Oxygen 35%
☐	Prednisolone 40 mg
☐	Salbutamol 5 mg and ipratropium bromide 0.5 mg

Submit answer

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This patient fits the criteria for acute severe asthma. In such cases β 2-agonists should be administered as soon as possible, preferably nebulised driven by oxygen. Repeat doses should be given at 15-30 minute intervals, or continuous nebulisation can be used where there is inadequate response to bolus therapy. Nebulised ipratropium bromide should be added for patients with acute severe or life threatening asthma, or those with a poor initial response. Its addition produces significantly greater bronchodilation than a β 2-agonist alone.

Oxygen should be given to maintain saturations at 94-98%. Patients with saturations less than 92% on air should have an ABG to exclude hypercapnia. However, starting treatment should not be delayed to do the ABG. Initially high-flow oxygen is used, and then weaned to maintain adequate saturations. Unless you suspect COPD there is not a need to be cautious with oxygen therapy.

Steroids reduce mortality, relapses, subsequent hospital admission and requirement for β 2-agonists¹. The earlier they are given in the attack, the better the outcome. A dose of 40-50 mg should therefore be given once oxygen and nebuliser therapy has been established. This should be continued for five days, or until recovery, and can then be stopped abruptly unless the patient has taken long term oral corticosteroids.

Failure to respond to the above treatment steps may warrant the use of intravenous magnesium sulphate and aminophylline. However, these should not be used without discussion with your senior colleagues.

Intensive care is indicated for patients with severe acute or life threatening asthma who are failing to respond to therapy. Consider it in patients with deteriorating peak flow, persisting or worsening hypoxia, hypercapnia, acidosis, exhaustion or altered conscious state. All patients who are transferred to an intensive care unit should be accompanied by a doctor who can intubate if necessary.

As an aside, chest radiographs are not indicated unless you suspect pneumothorax or consolidation, or there is life-threatening asthma, a failure to respond to treatment or a need for ventilation.

Further Reading:

Scottish Intercollegiate Guidelines Network. [British Guideline on the Management of Asthma](#)

A 22-year-old male is admitted wheezing with a respiratory rate of 35/min, a pulse of 120 beats per min, blood pressure 110/70 mmHg, peak expiratory flow rate <50% predicted.

The emergency medical services have administered salbutamol 5 mg (twice), ipratropium 0.5 mg and face mask oxygen.

His arterial blood gas reveals:

pH	7.42	(7.36-7.44)
PaCO ₂	5.0 kPa	(4.7-6.0)
PaO ₂	22 kPa	(11.3-12.6)
Base excess	-2 mmol/l	(+/-2)
SpO ₂	98	

Which of the following is the most appropriate action for this man?

(Please select 1 option)

☐	Chest x ray
☐	Intensive care referral
☐	Ipratropium
☐	Magnesium 1-2 g
☐	Oxygen 35 %

This patient fits the criteria for life threatening asthma.

A normal PaCO_2 in an asthmatic is a warning of impending respiratory failure as the patient becomes too tired to ventilate adequately.

Initial treatment has been given: β_2 -agonists should be administered as soon as possible, preferably nebulised driven by oxygen. Repeat doses should be given at 15-30 minute intervals, or continuous nebulisation can be used where there is inadequate response to bolus therapy.

Nebulised ipratropium bromide should be added for patients with acute severe or life threatening asthma, or those with a poor initial response. Its addition produces significantly greater bronchodilation than a β_2 -agonist alone.

Oxygen should be given to maintain saturations at 94-98%. Patients with saturations less than 92% on air should have an ABG to exclude hypercapnia. However, starting treatment should not be delayed to do the ABG. Initially high-flow oxygen is used, and then weaned to maintain adequate saturations. Unless you suspect COPD there is no need to be cautious with oxygen therapy.

This gentleman is receiving adequate ipratropium and oxygen, and repeating/increasing these are unlikely to help the situation markedly.

Failure to respond to the above treatment steps warrants the use of intravenous magnesium sulphate (or aminophylline, but this is not an option here). Magnesium has been shown to result in bronchial smooth muscle relaxation.

Intensive care is indicated for patients with severe acute or life threatening asthma who are failing to respond to therapy. Consider it in patients with

- Deteriorating peak flow
- Persisting or worsening hypoxia
- Hypercapnia
- Acidosis
- Exhaustion or
- Altered conscious state.

All patients who are transferred to an intensive care unit should be accompanied by a doctor who can intubate if necessary. This would be considered if this gentleman fails to respond to magnesium, and in a clinical setting you would want to discuss him with your ITU colleagues whilst the magnesium was being given.

Chest radiographs are not indicated unless you suspect pneumothorax or consolidation, or there is life threatening asthma, a failure to respond to treatment or a need for ventilation.

As an additional point, steroids reduce mortality, relapses, subsequent hospital admission and requirement for β_2 -agonists¹. The earlier they are given in the attack, the better the outcome.

A dose of 40-50 mg should therefore be given once oxygen and nebuliser therapy has been established. This should be continued for five days, or until recovery, and can then be stopped abruptly unless the patient has taken long term oral corticosteroids.

A 25-year-old male presents after being bitten on the hand by a terrier. The wound appears deep and is associated with swelling.

After the wound is cleaned and he has received tetanus immunisation.

Which of the following antibiotic regimes would be most appropriate for this patient?

(Please select 1 option)

☐	Co-amoxiclav oral
☐	Doxycycline oral
☐	Flucloxacillin oral
☐	Penicillin G IM
☐	Trimethoprim oral

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The use of prophylactic antibiotics in [dog bites](#) is controversial although evidence supports their use in deep wounds, bites to the hands and signs of infection.

The antibiotic of choice would be oral Augmentin.

Further Reading:

Patient.co.uk. [Human and Animal Bites](#).

NHS Choices. [Bites, human and animal - Treatment](#).

A 40-year-old man is admitted to the Emergency department after being involved in a house fire. He is extremely drowsy but you notice on examining him that he seems well perfused, with his cheeks looking almost pink.

His BP is 100/60 mmHg and his pulse is 95 and regular. Blood gas analysis reveals a CO level of 12% and a metabolic acidosis with a pH of 7.15.

Which of the following is the most appropriate next intervention?

(Please select 1 option)

☐	100% oxygen by mask
☐	Hyperbaric oxygen
☐	IV mannitol
☐	IV sodium bicarbonate
☐	Nebulised salbutamol

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The answer is 100% oxygen by mask.

Hyperbaric oxygen is recommended by some countries including the United States, although because of a lack of randomised control evidence it is not standard practice in the United Kingdom as there appears to be no significant improvement in outcome versus high flow oxygen alone.

Sodium bicarbonate is not indicated, and IV mannitol is used only if there is suspicion of cerebral oedema. Key to prognosis is removal from the source of carbon monoxide as quickly as possible, and instigation of high flow oxygen treatment.

At a level of 12%, long term psychological disturbance or memory loss is possible.

A gentleman attends the Emergency department with a stroke.

On the ward his stroke is starting to resolve and the likely diagnosis is a transient ischaemic attack (TIA).

Which is the next best course of action?

(Please select 1 option)

- | | |
|-----------------------|--|
| ☐ | CT head and duplex as an outpatient |
| ☐ | Discharge and follow up in TIA clinic |
| ☐ | Discharge and GP follow up |
| ☐ | Urgent carotid endarterectomy |
| ☐ | Urgent CT head and carotid duplex whilst inpatient |

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NICE guidelines on [Stroke \(CG68\)](#) state that a patient with a TIA should receive a CT / MRI head and carotid duplex within a week and then surgery if necessary within two weeks.

Department of Health guidelines go further and state that surgery should occur within 48 hours of arrival.

A 75-year-old lady attends the Emergency department with a stroke affecting her left arm and leg.

A CT scan confirms that there is a right CVA. Carotid scanning shows stenosis of 80% on the right and 90% on the left.

What is the best course of action?

(Please select 1 option)

☐	Bilateral carotid endarterectomy
☐	Discharge and GP follow up
☐	Discharge and outpatient follow up
☐	Urgent carotid endarterectomy on the left
☐	Urgent carotid endarterectomy on the right

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Although there is limited information available in this case, there is probably an indication for intervention in this patient. Carotid artery atherosclerosis is an important cause of ischaemic stroke. The left-sided neurological signs in this patient indicate the symptomatic carotid is on the right side.

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients who are shown to have carotid artery stenosis. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery.

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within one week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis.

* Please note for this explanation we have used the North American Symptomatic Carotid Endarterectomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

References & Further Reading:

1. National Institute for Health and Clinical Excellence. [Stroke \(CG68\)](#).
2. Chambers BR, et al. [Carotid endarterectomy for asymptomatic carotid stenosis](#). *Cochrane Database Syst Rev*. 2000;(2):CD001923.
3. Brott TG, et al. [Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis](#). *N Engl J Med*. 2010;363:11-23.

A 75-year-old lady attends the Emergency department with a stroke affecting her left arm and leg.

A CT scan confirms that there is a right CVA. Carotid scanning shows stenosis of 50% on the right and 90% on the left.

After a couple of days of physiotherapy her symptoms are much improved. What is the best course of action?

(Please select 1 option)

☐	Bilateral carotid endarterectomy
☐	Discharge and GP follow up
☐	Discharge and urgent outpatient follow up
☐	Urgent carotid endarterectomy on the left
☐	Urgent carotid endarterectomy on the right

Submit answer

Skip question

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Carotid artery atherosclerosis is an important cause of ischaemic stroke. The left-sided neurological signs in this patient indicate the symptomatic carotid is on the right side.

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery.

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within 1 week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis.

Please note for this explanation we have used the North American Symptomatic Carotid Endarterectomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

References & Further Reading:

1. Brott TG, et al. [Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis](#). *N Engl J Med*. 2010;363:11-23.
2. Chambers BR, et al. [Carotid endarterectomy for asymptomatic carotid stenosis](#). *Cochrane Database Syst Rev*. 2000;(2):CD001923.
3. NICE. [Stroke \(CG68\)](#).

An 80-year-old man attends the Emergency department with falls.

On history taking you find that he had a stroke affecting his left arm and leg a year ago.

A CT scan confirms that there is an established infarct in the right parietal region. Carotid scanning shows stenosis of 80% on the right and 90% on the left.

What is the best course of action?

(Please select 1 option)

☐	Bilateral carotid endarterectomy
☐	Discharge and GP follow up
☐	Discharge and outpatient follow up
☐	Urgent carotid endarterectomy on the left
☐	Urgent carotid endarterectomy on the right

Submit answer

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This is a difficult question. The gentleman has obviously had a stroke which could be attributed to his carotid atherosclerosis. However, it is a significant period since he had his symptoms.

The benefit of carotid endarterectomy is therefore less clear.

It is not indicated urgently and should be discussed with a specialist to weigh up the risks and benefits.

References & Further Reading:

1. Brott TG, et al. [Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis](#). *N Engl J Med*. 2010;363:11-23.
2. Chambers BR, et al. [Carotid endarterectomy for asymptomatic carotid stenosis](#). *Cochrane Database Syst Rev*. 2000;(2):CD001923.
3. NICE. [Stroke \(CG68\)](#).

A 90-year-old lady attends the Emergency department with a dense stroke affecting her left arm and leg.

She is hemiplegic and confused. A CT scan confirms that there is a right CVA. Carotid scanning shows stenosis of 75% on the right and 90% on the left.

What is the best course of action?

(Please select 1 option)

☐	Admit but no surgical intervention
☐	Bilateral carotid endarterectomy
☐	Discharge and GP follow up
☐	Urgent carotid endarterectomy on the left
☐	Urgent carotid endarterectomy on the right

Submit answer

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This patient has a symptomatic carotid stenosis on the right that would be appropriate for surgery if this were a TIA or resolving stroke.

Unfortunately, with dense strokes, if there is no recovery, the benefits are greatly reduced due to end-organ damage.

Revascularisation would have the risk of reperfusion haemorrhage.

The benefit of endarterectomy is prevention of future stroke.

A 40-year-old gentleman attends the Emergency department with a stroke affecting his left arm and leg.

A CT scan confirms that there is a right sided infarct. Carotid scanning shows 85% occlusion of the right carotid and 50% stenosis on the left.

What is the best course of action?

(Please select 1 option)

☐	Bilateral carotid endarterectomy
☐	Discharge and GP follow up
☐	Discharge and outpatient follow up
☐	Urgent carotid endarterectomy on the left
☐	Urgent carotid endarterectomy on the right

Submit answer

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Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients who are shown to have carotid artery stenosis. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within 1 week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis.

Please note for this explanation we have used the North American Symptomatic Carotid Endarterectomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

References & Further Reading:

Brott TG, et al. [Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis](#). *N Engl J Med*. 2010;363:11-23.

Chambers BR, et al. [Carotid endarterectomy for asymptomatic carotid stenosis](#). *Cochrane Database Syst Rev*. 2000;(2):CD001923.

NICE. [Stroke \(CG68\)](#).

A 50-year-old gentleman attends the Emergency department with weakness affecting his left arm and leg.

Carotid scanning shows 70% stenosis of the right carotid artery.

Which of the following statements is correct?

(Please select 1 option)

☐	Carotid endarterectomy should be performed
☐	Carotid endarterectomy should not be performed
☐	Carotid stenting is associated with lower rates of stroke than surgery
☐	Carotid stenting is proven to be safer than carotid endarterectomy
☐	Carotid stenting should be performed

Submit answer

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There is an indication for intervention in this patient. Carotid artery atherosclerosis is an important cause of ischaemic stroke. The left-sided neurological signs in this patient indicate the symptomatic carotid is on the right side.

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients who are shown to have carotid artery stenosis. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery.

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within 1 week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis.

Please note for this explanation we have used the North American Symptomatic Carotid Endarterectomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

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Chambers BR, et al. [Carotid endarterectomy for asymptomatic carotid stenosis](#). *Cochrane Database Syst Rev*. 2000;(2):CD001923.

NICE. [Stroke \(CG68\)](#).

An 80-year-old gentleman attends the Emergency department with a stroke affecting his left arm and leg. He has had radiotherapy to the neck and there is a lot of scarring present. Carotid scanning shows 70% stenosis on the right side.

Which statement is correct?

(Please select 1 option)

☐	Carotid endarterectomy is contraindicated
☐	Carotid stenting is contraindicated
☐	Carotid stenting is associated with lower rates of stroke than surgery
☐	Carotid stenting is proven to be safer than carotid endarterectomy
☐	Carotid stenting should be performed

There is an indication for intervention in this patient.

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients who are shown to have carotid artery stenosis. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery.

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within 1 week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis. In this situation previous radiotherapy may make endarterectomy difficult, and stenting may be preferred.

Please note for this explanation we have used the North American Symptomatic Carotid Endarterectomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

References & Further Reading:

Brott TG, et al. [Stenting versus Endarterectomy for Treatment of Carotid-Artery Stenosis](#). *N Engl J Med*. 2010;363:11-23.

Chambers BR, et al. [Carotid endarterectomy for asymptomatic carotid stenosis](#). *Cochrane Database Syst Rev*. 2000;(2):CD001923.

NICE. [Stroke \(CG68\)](#).

A 75-year-old lady attends the Emergency department with amaurosis fugax on the left.

Carotid scanning shows stenosis of 80% on the right and 90% on the left.

What is the best course of action?

(Please select 1 option)

☐	Bilateral carotid endarterectomy
☐	Discharge and GP follow up
☐	Discharge and outpatient follow up
☐	Urgent carotid endarterectomy on the left
☐	Urgent carotid endarterectomy on the right

Submit answer

Skip question

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Carotid artery atherosclerosis is an important cause of amaurosis fugax. The left-sided neurological signs in this patient indicate the symptomatic carotid is on the left side.

Carotid endarterectomy has been established as an effective treatment for both symptomatic patients and asymptomatic patients who are shown to have carotid artery stenosis. It reduces the risk of disabling stroke or death by 48% in a person with severe symptomatic carotid stenosis (>70%) who has had a TIA. The peri-operative risk of disabling stroke or death is approximately 3%. Current UK guidelines recommend endarterectomy for symptomatic patients with greater than 70% stenosis, based on the North American Symptomatic Carotid Endarterectomy Trial which showed clear benefit. The endarterectomy should be performed as soon as the patient is fit for surgery, preferably within two weeks of a TIA.

The benefit is marginal for symptomatic patients with 50-69% stenosis, but may be greater in male patients. NICE recommends these patients are also considered for endarterectomy. There is significantly less benefit for asymptomatic patients, even those with greater than 60% stenosis. Patients with less than 50% stenosis should not be considered for carotid surgery.

Recurrent stenosis can occur in 1-20% of patients following endarterectomy, and re-operation is needed in 1-3% of cases. Ipsilateral strokes occur in 9% of patients following endarterectomy, and 26% of those treated with medical management alone (within 2 years).

All patients with suspected non-disabling stroke or TIA who are considered as candidates for carotid endarterectomy should have carotid imaging within 1 week.

Carotid endarterectomy is also indicated following a non-disabling stroke. However, if the patient has had a disabling stroke there is no real benefit in them undergoing the procedure.

Carotid stenting is increasingly being used as an alternative to endarterectomy. This is a less invasive revascularisation strategy, and uses an embolic protection device. There seems to be a similar early risk of death or stroke, and similar long-term benefits. Risk is higher in elderly patients, possibly due to vascular tortuosity and calcification. The procedure is currently indicated in selected cases, such as restenosis.

* please note for this explanation we have used the North American Symptomatic Carotid Endarterectomy Trial (NASCET) criteria, as opposed to the European Carotid Surgery Trialists' Collaborative Group (ECST) criteria. See NICE guidelines for the difference - carotid imaging reports will state which criteria are being used.

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Chambers BR, et al. [Carotid endarterectomy for asymptomatic carotid stenosis](#). *Cochrane Database Syst Rev*. 2000;(2):CD001923.

NICE. [Stroke \(CG68\)](#).

A 75-year-old lady attends the Emergency department with dizziness and fainting. She has fully recovered. Neurological examination is normal.

Carotid scanning shows stenosis of 80% on the right and 90% on the left.

What is the best course of action?

(Please select 1 option)

☐	Bilateral carotid endarterectomy
☐	Discharge and GP follow up
☐	Discharge and outpatient follow up
☐	Urgent carotid endarterectomy on the left
☐	Urgent carotid endarterectomy on the right

Submit answer

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This lady has presented with vague symptoms, and does not have any residual neurology on examination. It is possible this presentation has been caused by a posterior circulation transient ischaemic attack, but it could also have been due to a vasovagal or postural hypotension. Investigations have demonstrated significant carotid artery disease, but as this classically results in anterior circulation symptoms it is unlikely this has caused the symptoms in this case.

The advice regarding management of asymptomatic severe carotid artery disease varies, and it would be prudent in this situation to arrange timely outpatient review with a specialist to discuss this.

A 50-year-old man returns to your clinic three weeks after Botox treatment for horizontal forehead furrows. He now complains that his eyebrows are drooping (eyebrow ptosis).

What is the cause of his complaint?

(Please select 1 option)

☐	Increased forehead skin laxity
☐	Paralysis of corrugators
☐	Paralysis of frontalis
☐	Paralysis of procerus
☐	Paralysis of zygomaticus major

Submit answer

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Botox is a neurotoxin derived from the bacteria, *Clostridium botulinum*. It blocks neuromuscular transmission inhibition of acetylcholine release at the presynaptic membrane. The end result is that the muscle contraction is inhibited.

The action of Botox is not permanent because collateral axonal sprouting establishes new neuromuscular junctions, restoring muscle function.

Botox does not affect skin laxity, hence this answer option is wrong.

Corrugator and procerus are both muscles that depress the eyebrow, therefore paralysis of these muscles would cause the opposite to eyebrow ptosis, hence paralysis of corrugators and paralysis of procerus are wrong.

Zygomaticus major elevates and retracts the angle of mouth and does not affect the eyebrows, hence paralysis of zygomaticus major is wrong.

Frontalis is a quadrilateral muscle found on the forehead that elevates the eyebrows; hence paralysis of this muscle can lead to eyebrow ptosis.

A 51-year-old homeless man is seen in the Emergency department with a two day history of a painful left little finger. He speaks little English and a history is difficult to establish.

On examination he has fusiform swelling of the finger with a small laceration on the pulp which looks old. The finger is held in flexion, there is pain on passive extension of the finger and tenderness on the volar aspect of the finger. Examination of the other fingers was unremarkable.

What is the diagnosis?

(Please select 1 option)

☐	Acute paronychia
☐	Cellulitis
☐	Flexor sheath infection
☐	Interphalangeal joint septic arthritis
☐	Palmar space infection

Submit answer

Skip question

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Flexor sheath infection or infectious flexor tenosynovitis results from a microorganism (commonly *Staphylococcus aureus*) multiplying in the closed space of the flexor tendon sheath and culture-rich synovial fluid medium. This is usually secondary to penetrating trauma to the hand.

The septic process and this inflammatory reaction within the tendon sheath quickly interfere with the gliding mechanism, leading to adhesions and scarring. The ultimate consequences are tendon necrosis, disruption of the tendon sheath, and digital contracture.

Physical examination reveals Kanavel signs of flexor tendon sheath infection, which are:

- Finger held in slight flexion
- Fusiform swelling
- Tenderness along the flexor tendon sheath, and
- Pain with passive extension of the digit.

Treatment is urgent surgical washout of the flexor sheath and intravenous antibiotics.

Septic arthritis of the interphalangeal joints is extremely rare and usually presents with pain, swelling, and reduced range of motion of an individual joint.

Acute paronychia often presents with a history of minor trauma to the fingertip. The presenting complaints are pain, tenderness, and swelling in one of the lateral folds of the nail and not along the finger.

Palmar space infection is an infection of one or all the fascial compartments of the hand. It may result from untreated flexor sheath infection. It presents with pain and swelling of the entire hand with pain on massive movement of all digits. The patient in the scenario experienced pain on movement of the little finger only.

Cellulitis of the hand presents with generalised swelling, erythema and pain. The skin looks shiny and is warm to touch. Generally there is no exacerbation of pain with finger movement.



A 30-year-old male metal worker was referred to the plastic surgery department with a three day history of a painful right index finger.

On examination he has a red, swollen index finger with a small puncture wound on the tip of his index finger. All movements in his finger were normal. An x ray of his finger is shown.

What is the diagnosis?

(Please select 1 option)

☐	Foreign body
☐	Mallet finger
☐	Osteomyelitis of the distal phalanx
☐	Paronychia
☐	Undisplaced fracture of the distal phalanx

The radiographs of the patient's finger shows a foreign body which is most likely a metal splinter embedded beneath the nail bed. This has most likely given rise to a local infection. Therefore, foreign body is the correct answer.

The management would entail antibiotics and removal of the foreign body as a source of infection.

Mallet finger is loss of extensor tendon continuity at the distal interphalangeal joint (DIPJ) which causes the joint to rest in an abnormally flexed position. Mallet finger cannot be the diagnosis as all finger movements were normal.

Osteomyelitis is an infection of bone. x Ray features of osteomyelitis do not usually become apparent until several weeks after the onset of disease. x Ray features may include bone remodelling, sclerosis, and thickening. Therefore osteomyelitis of the distal phalanx is not the correct answer.

No fractures are present on the radiograph; hence undisplaced fracture of the distal phalanx is not the correct answer.

Paronychia is a soft tissue infection around a fingernail. Although a paronychia is possible given the clinical findings, the x ray demonstrates a foreign body as the cause of the symptoms.



A 38-year-old policeman presents to the Emergency department with a painful left ring finger after attempting to arrest a criminal.

On examination his finger is flexed at the distal interphalangeal joint (DIPJ) and he is unable to straighten it actively. Passively the DIPJ can be moved freely. Examination of the rest of the hand is normal.

An x ray of his finger is shown.

What is the diagnosis?

(Please select 1 option)

☐	Central slip rupture
☐	DIPJ dislocation
☐	Flexor digitorum superficialis rupture
☐	Mallet finger
☐	Volar plate injury

The x ray demonstrates a small avulsion fracture from the base of the distal phalanx where the extensor tendon attaches. Given the clinical findings and x ray the diagnosis is mallet finger.

A flexion force on the tip of the extended finger jolts the DIPJ into flexion. This may result in a stretching or tearing of the tendon substance or an avulsion of the tendon's insertion on the dorsal lip of the distal phalanx base.

The central slip is part of the extensor expansion on the dorsal aspect of the finger. The central slip inserts onto the middle phalanx as is causes extension at the proximal interphalangeal joint (PIPJ). Hence, this option is incorrect.

A DIPJ dislocation is not likely as the joint moves freely on examination and is congruent on the x ray.

Flexor digitorum superficialis is a flexor of the proximal interphalangeal and metacarpophalangeal joint.

The volar plate forms part of the floor of the joint capsule at the PIPJ. It separates the joint from the flexor tendons. Dislocations at the PIPJ can damage this structure and lead to pain, swelling and reduced movement at the PIPJ. In the above case the pathology is at the DIPJ.