

# Medical Quiz: SBA – Answers

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## Question No. 1: Correct Answer - D

Although a positive gram stain and culture of synovial fluid (SF) confirm the diagnosis of septic arthritis, the absence of organisms on gram stain or a negative subsequent culture does not exclude it. Therefore it has been suggested that the 'gold standard' is the level of clinical suspicion of a physician experienced in the management of patients with musculoskeletal disease. Fresh SF samples should be sent urgently to the laboratory for microscopy, culture and investigation under polarising microscopy. As artificial crystals can form on refrigeration samples should be processed immediately or stored at room temperature prior to analysis. Any hot swollen joint should be considered as septic until proven otherwise. Any physician who is competent in aspirating a native joint can do this. The only exception to this is suspected sepsis of a prosthetic joint, which must be aspirated with full aseptic precautions in an operating theatre by an orthopaedic surgeon. An extremely high white blood cell count (WCC) ( $> 100,000 / \mu\text{l}$ ) may be useful in that only septic arthritis causes such counts (99% specific); however most cases do not cause such a high count (29% sensitive). The SF WCC may be a useful adjunct to decision making in some circumstances but less so than gram stain, culture and sensitivity data. Within an inflamed joint it is thought that the release of proteolytic enzymes into the SF leads to the decreased viscosity generally seen in inflammatory effusions. However in some cases of septic arthritis, particularly when the fluid is frankly purulent, the SF may be viscous.

## Question No. 2: Correct Answer – C

Dark field microscopy of an ulcer swab is the most direct way of diagnosing syphilis but requires a high level of skill and experience. Serological tests despite the presence of HIV remain valid. Usual practice would be to first perform the very sensitive automated EIA; this lacks specificity resulting in false positives. Therefore if positive a second confirmatory test should follow: RPR or VDRL; these tests can be quantified by dilution of the serum so that a positive result at a titration of  $> 1:16$  suggests acute or recent treponemal infection.

## Question No. 3: Correct Answer – E

Flapping tremor is the classical sign of hepatic encephalopathy, but the earliest signs are of mental slowness and reversal of sleep pattern. A degree of intra-hepatic cholestasis is almost universal in patients with

jaundice due to HAV. Hyperplenism due to portal hypertension may occur without the spleen being palpable though its enlargement may be detected by scanning. Idiosyncratic drug reactions are common and are the cause of jaundice in up to 10% of patients; they can occur even after long term exposure. The sicca syndrome of dry mouth and eyes is a common and specific symptom of PBC though the patient may not always complain of it until prompted.

## Question No. 4: Correct Answer – C

The main concerns raised by a thyroid nodule are whether it is malignant or whether it is overactive causing thyrotoxicosis which may not be clinically obvious. Prior to the availability of U/S would have been isotope scintigraphy: localised uptake, confirming a "hot" nodule is amenable to radio-iodine treatment whereas a "cold" nodule requires biopsy. TSH can be used to help decide this step in triage. Now, however, in the great majority the ready availability of U/S makes it the obvious first step which determines whether or what further investigation is required. The finding of multiple tiny nodules in both lobes is invariably benign. Whilst the finding of echogenic material in relatively small nodules is a benign feature the finding of calcification is more suspicious and FNA or biopsy would be recommended.

## Question No. 5: Correct Answer - C

Drug-induced alteration in renal blood flow occurs when the natural prostaglandin-induced state of afferent glomerular arteriolar vasodilatation is inhibited by NSAIDs thereby reducing GFR; likewise reduction of angiotensin II induced vasomotor tone by drugs inhibiting the renin-aldosterone-angiotensin system (RAAS) will have a similar outcome. Damage to the proximal tubular lining cells, which take up aminoglycosides, leads to ATN, a well-recognised risk requiring careful dosage and monitoring. AIN is a hypersensitivity reaction where the offending drug, ciprofloxacin, acts as a hapten; systemic effects such as fever, rash and eosinophilia may accompany it. A large number of drugs may cause vasculitis, including hydralazine, procaineamide and propylthiouracil and the majority will have a cutaneous vasculitis. Penicillamine and gold can cause glomerulonephritis – a problem in the treatment of rheumatoid arthritis. Crystalluria may cause intra-renal obstruction complicating treatment with methotrexate, aciclovir and indinavir (anti-HIV protease inhibitor).