CLINICAL**CHALLENGE**

Questions for this month's clinical challenge are based on articles in this issue. The style and scope of questions is in keeping with the MCQ of the College Fellowship exam. The quiz is endorsed by the RACGP Quality Assurance and Continuing Professional Development Program and has been allocated 4 CPD points per issue. Answers to this clinical challenge will be published next month, and are available immediately following successful completion online at www.gplearning.com.au. Check clinical challenge online for this month's completion date.

Rachel Lee

AFP's CPD activities, clinical challenge and *AFP* in Practice, are available online at the new gplearning website at www.gplearning.com.au.
Access to the new *gplearning* website is free for RACGP members as part of their college membership. If you are not a member, you can access both clinical challenge and *AFP* in Practice for a free 30 day trial.
Cost to nonmembers after the 30 day trial is $365.00. For details of RACGP membership please call 1800 331 626.

SINGLE COMPLETION ITEMS

DIRECTIONS Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the most appropriate statement as your answer.

Case 1 – Lola Parkes

Lola Parkes, 6 years of age, is brought into your Sydney clinic by her mother. Lola is suddenly irritable and crying after playing in the garden. You have seen her mainly for eczema. She is hypertensive and appears to have a painful left foot. You consider spider bite as one of your differential diagnoses.

Question 1

Terminology around spider bites can be confusing. Select the correct definition:

A. toxindrome refers to symptoms and signs of a medically significant spider bite
B. neurotoxic effects are typically caused by toxins released by Loxosceles species
C. cytotoxic effects are typically caused by toxins released by Latrodextus species
D. araneism refers to the local clinical signs resulting from a spider bite
E. arachnidism refers to an irrational fear of spiders.

Question 2

Select the best option about red back spider bite envenomation. Lactrodectism:

A. slows sodium current inactivation resulting in exhaustion of neurotransmitters
B. causes synaptic vesicle exoctyosis resulting in catecholamine release
C. causes severe and rapid life threatening systemic envenomation
D. lasts a median of 1 week with around one-third of cases lasting over 1 month
E. causes noncardiogenic pulmonary oedema in around 70% of children.

Question 3

If Lola does have red bite envenomation when would antivenom be indicated:

A. all children require immediate antivenom
B. antivenom is not suitable or approved for use in children
C. if Lola's pain is not controlled by simple analgesia
D. if Lola has systemic signs of envenomation that are not adequately managed by IV fluids
E. antivenom is not recommended in atopic people as allergy is very common.

Question 4

Lola becomes agitated, is sweating profusely and drooling, and her mother brought in the spider shown as a suspected culprit. Select the best option about this spider and your management of Lola now:

A. envenomation by this spider is usually mild, although it has 88% homology with venom from a more dangerous spider
B. a pressure immobilisation bandage and immediate transfer to hospital is required
C. envenomation by this spider causes similar effects to lacrodectism and should be considered if she fails to respond to red back spider antivenom
D. this spider occurs throughout mainland Australia
E. fasiculations are very rare manifestations of envenomation by this spider.

Case 2 – Michael Tran

Michael Tran, 29 years of age, is an accountant who returned from rural Vietnam 7 days ago. He complains of fever, headache and severe myalgia that started 3 days ago.

Question 5

You note a petechial rash and consider dengue fever as a differential diagnosis. Select the most accurate option about the rash:

A. petechiae indicate dengue haemorrhagic fever which requires hospitalisation
B. petechiae indicate significant thromobocytopenia requiring platelet transfusion
C. petechiae may occur in uncomplicated dengue fever
D. thrombocytopenia occurs in around 75% of cases of dengue fever
E. thrombocytopenia occurs mainly in patients with a past history of malaria.

Question 6

You arrange investigations for Michael. Select the best option:

A. serum dengue PCR can detect virus between day 7 and 14 of the illness

B. serum IgG becomes positive after 4–5 days of infection
C. no cross reactivity occurs between other flavivirus IgG
D. three blood films are important investigations for Michael
E. full blood count is not useful as Michael is already at day 4 of his illness.

Question 7

Michael's IgG and IgM are both positive for dengue, he has mild thrombocytopenia and other investigations are normal. This indicates Michael:

A. is likely to be currently infected with another flavivirus
B. has dengue haemorrhaic fever
C. is immune to dengue and does not currently have the disease
D. has immunity to all four arborvirus serotypes
E. likely has infection by a second dengue serotype.

Question 8

Michael's condition rapidly deteriorates and you arrange transfer to hospital. Which of the following is NOT a 'red flag' that indicates more severe disease:

A. a drop of haematocrit by ≥20% from baseline
B. platelet count <80 000 cells per cubic mm
C. postural hypotension
D. development of severe abdominal pain
E. development of significant bleeding.

Case 3 – Randy Simpson

Randy Simpson, 4 years of age, lives on a local farm. He is brought in by his father with an injured left arm and hand, consistent with an animal bite.

Question 9

Select the correct statement about the background and risk factors for dog bite:

A. <25% are unprovoked attacks
B. >75% are unprovoked attacks
C. >75% are by a dog known to the victim
D. female unsterilised dogs are higher risk
E. children less than 5 years of age are at higher risk.

Question 10

Randy reports his 6 year old sister Maddison inflicted the bites. Select the correct statement:

A. an intercanine distance of 3–5 cm is suggestive of a child bite
B. human bites have higher complication and infection rates than animal bites
C. HIV prophylaxsis should be administered in all human bites
D. hepatitis B immunoglobulin should be administered in all human bites
E. most human bites are complicated by infective endocarditis.

Question 11

You consider the organisms that cause infection with different animal bites. Select the correct statement about the oral flora of the common animal culprits:

A. Staphylococcus aureus are flora of humans and dogs
B. Pasturella aerogenes are flora of pigs and cats
C. Actinobacillus are flora of cows and rodents
D. Clostredium tetani are flora of monkeys
E. Streptobacillius moniliformis are flora of dogs.

Question 12

Certain wounds are at high risk of infection. Which of the following does NOT increase the risk of wound infection:

A. wounds over a prosthetic joint
B. wounds on the trunk
C. wounds with delayed presentation by more than 8 hours
D. puncture and crush wounds
E. wounds to the genitals.

Case 4 – Jacinta Quick

Jacinta Quick, 34 years of age, is a receptionist who presents with itchy macular lesions on her arms and shoulders. You consider bed bug bites.

Question 13

Which of the following is a common sign of bed bug infestation:

A. dark spotting on the bed from blood spillage
B. dark spotting on the bed from faecal deposition
C. presence of the small oval, winged insects themselves
D. typical distribution over trunk and feet
E. typical distribution in lattice pattern.

Question 14

Select the correct statement about reactions to bed bug bites:

A. reactions always occur within 3 days of the bite
B. most bites occur in a linear pattern
C. the classic wheal reaction is <1 cm in diameter
D. bullous eruptions are very uncommon
E. numerous bites can present as urticaria or a erythematous rash.

Question 15

Jacinta worries about the secondary effects on her and her family. You explain:

A. anaphylaxis is a common reaction
B. secondary infection is very uncommon
C. although itchy, ulceration from scratching does not occur
D. fever and malaise may occur in some individuals
E. infections such as malaria and HIV are common sequelae.

Question 16

Jacinta asks about treatment options. You explain:

A. there are no treatments available
B. bed bugs are easily killed with simple home insect sprays
C. symptomatic treatment with antihistamines and topical steroids is useful
D. bed bugs infestations cannot be treated, necessitating all new furnishings
E. commercial personal lice treatment is sufficient in the majority of cases.

ANSWERS TO OCTOBER CLINICAL CHALLENGE

Case 1 – Talay Ozan

1. Answer C
Diabetics with renal disease are among several groups who require yearly screening. Women with gestational diabetes only require monitoring if diabetes persists while pregnant women with pre-existing diabetes require screening during the first trimester. Patients with proliferative DR should be reviewed by an ophthalmologist within 4 weeks, non-proliferative within 3–6 months.

2. Answer B
The commonest mechanism for visual loss in DR is diabetic macular oedema, proliferative disease is less common. Around 6% of patients with type 2 diabetics have DR at the time of diagnosis, around 25% have it overall and 30% ultimately need treatment.

3. Answer A
Duration of diabetes is the strongest predictor of DR. DR is also associated with glycaemic control and systolic blood pressure (BP) although trials have only demonstrated a reduction in DR with BP reduction.

4. Answer E
Hypertensive retinopathy predicts cardiovascular outcomes. Mild forms are characterised by silver wiring and AV nipping. Moderate forms are characterised by cottonwool spots while severe forms can cause optic disc swelling. Although common there is no evidence for regular retinal screening for hypertensive retinopathy.

Case 2 – Alphons Wieczorek

5. Answer C
Visual loss is rarely associated with classic migraine but can cause blurred or tunnel vision. Positive scotoma (such as zigzag lights) is more common, beginning paracentrally and progressing temporally. Atypical cases such as those with occipitobasal headaches warrant further assessment.

6. Answer D
Giant cell arteritis (GCA may) present with systemic symptoms such as unexplained weight loss. It typically causes rapid visual loss with onset over seconds. Visual loss preceded by flashing lights and progressing from the periphery is suggestive of retinal detachment.

7. Answer D
A rule of thumb for the upper limit of ESR in men is half their age. ESR, although useful is less sensitive than CRP and does not exclude GCA in patients with a high clinical suspicion. Thrombocytosis is associated with GCA. Temporal artery biopsy findings are not affected by treatment if performed within 4–7 days of commencing steroids.

8. Answer A
Temporal artery tenderness is suggestive of GCA but is not an indication for a CT brain and orbits. The other examination features are considered indications for CT.

Case 3 – Sydney Bligh

9. Answer A
Retinal pallor may indicate retinal detachment. Dilated vessels and widespread nerve fibre layer haemorrhages are typical of retinal vein occlusion. A cherry red macular indicates ischaemia.

10. Answer C
Subretinal, subhyaloid and retinal haemorrhage typically present as discrete, relatively fixed red, brown or black scotoma. By contrast vitreous haemorrhage tends to be mobile and is often described as a 'shower of black dots.' Haemorrhage is a painless cause of visual loss.

11. Answer E
In retinal artery occlusion it is essential to exclude GCA as an underlying cause. Transthoracic echo, vasculitic screen, fasting bloods and a BP reading would also be important. The other tests may be indicated but aren't first line.

12. Answer B
Central vision indicates the macular is uninvolved so referral and repair is particularly urgent. Retinal detachment is often described as a curtain progressing from the side and requires urgent assessment and referral. Ultrasound is useful if there are media opacities such as cataract obscuring the view of the posterior segment. Retinal tears may be treated in ophthalmology clinic but detachment requires surgical repair.

Case 4 – Tony Romano

13. Answer E
Visual impairment is defined as visual acuity of worse than 6/12 and/or a visual field in the better eye of <20 degrees or a homonymous hemianopia.

14. Answer B
There is a strong association between UV exposure and cortical cataract. There is an association between corticosteroid use, diabetes and trauma with subcapsular cataract formation and only a weak association between smoking and nuclear sclerosis.

15. Answer A
Approximately 2% of ARMD convert from dry to wet forms per year. Early ARMD is asymptomatic and peripheral vision is typically preserved. Dry ARMD involves gradual deterioration of the retinal pigment epithelium with wet forms involving a chroidal neovascular membrane.

16. Answer B
This question is about primary prevention and smoking is the only accepted risk factor increasing risk 2–3 fold. UV protection and omega-3 fatty acids may reduce risk. The Amsler grid may be useful for secondary monitoring of disease progression. Vitamins, zinc and pigment supplements may have a role in tertiary prevention.

AFP CORRESPONDENCE afp@racgp.org.au