



Australian and New Zealand College of Veterinary Scientists

Membership Examination

June 2021

Small Animal Surgery

Paper 1

Perusal time: **Fifteen (15)** minutes

Time allowed: **Two (2)** hours after perusal

Answer **ALL FOUR (4)** questions

Answer **FOUR (4)** questions, each worth 30 marks.....Total: 120 marks

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Paper 1: Small Animal Surgery

Answer all four (4) questions

1. Answer **all** parts of this question:

- a) The shoulder joint of the dog is stabilised by passive (static) and active (dynamic) stabilisers. List all stabilising structures of the shoulder and indicate if they are active or passive. The use of a table may facilitate your response. *(6 marks)*
- b) In your answer booklet, draw a labelled cross-sectional diagram showing the histological layers of adult articular cartilage. *(4 marks)*
- c) Provide a brief definition of osteochondrosis. *(2 marks)*
- d) Provide a brief definition of osteochondritis dissecans (OCD). *(2 marks)*
- e) Describe the proposed aetiopathogenesis of osteochondrosis and OCD. Include in your answer the associated risk factors for OCD and the role of vasculature within the disease. *(12 marks)*
- f) List the **four (4)** synovial joints commonly associated with OCD in dogs and name the anatomical region of each joint that is commonly affected. *(4 marks)*

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2. Answer **all** parts of this question:

- a) Name and briefly summarise the phases of integration of a free mesh skin graft. Include in your answer the expected timeframes for each. *(10 marks)*
- b) Identify the anatomical features of canine and feline skin (in contrast to human skin) that allow for the creation of axial pattern flaps. *(1 mark)*
- c) Name **six (6)** examples of axial pattern flaps in the dog. *(3 marks)*
- d) Answer **both** parts of this sub-question:
 - i. List **four (4)** patient factors that may affect cutaneous wound healing and briefly describe how each factor affects healing. *(8 marks)*
 - ii. List **four (4)** intrinsic (local wound) factors that may affect cutaneous wound healing and briefly describe how each factor affects healing. *(8 marks)*

3. Answer **all** parts of this question:

- a) List the basic principles of surgical arthrodesis. *(4 marks)*
- b) List **four (4)** indications for pancarpal arthrodesis. *(4 marks)*
- c) For **each** of the following modes of bone plate application, provide a brief description of the function of the plate, list the fracture configurations it is appropriate for and state whether it provides load sharing: *(10 marks)*
 - i. bridge plating
 - ii. compression plating
 - iii. neutralisation plating
- d) Describe the advantages of the locking compression plate (LCP) system compared to the dynamic compression plate system for fracture repair. Include in your answer a brief description of the likely mode of failure of each implant system. *(12 marks)*

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4. Answer **all** parts of this question:

- a) List the anatomical components that comprise the common calcaneal tendon. *(3 marks)*
- b) Partial disruption of the common calcaneal tendon is described most commonly in medium-to-large breed dogs. Outline the proposed pathophysiology of this condition. *(5 marks)*
- c) Explain why the digits in the affected limb are flexed when there is hyperflexion of the tarsocrural joint, in a patient with disruption of the common calcaneal tendon. *(2 marks)*
- d) List the **two (2)** main goals of tendon repair. Briefly describe the intra-operative and post-operative considerations that can optimise tendon healing. *(8 marks)*
- e) Name and draw **two (2)** recommended suture patterns described for approximating tendon ends. *(5 marks)*
- f) Identify the suture pattern recommended for apposition of round tendons. *(1 mark)*
- g) With reference to tendon healing, describe the differences between tendons with a paratenon versus tendons with a tendon sheath. Include in your answer an example of each. *(4 marks)*
- h) State the expected strength (as a percentage of normal tendon strength) of a tendon that is primarily repaired:
 - i. at six weeks post-operatively *(1 mark)*
 - ii. at one year post-operatively. *(1 mark)*

End of paper



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Answer **ALL FOUR (4)** questions

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Paper 2: Small Animal Surgery

Answer all four (4) questions

1. You are presented with a five-year-old, male neutered Yorkshire terrier with a four-day history of lethargy and anorexia. His owner has witnessed two episodes of vomiting today and describes the vomitus as yellow liquid. You perform abdominal radiographs as part of your diagnostic process.

Answer **all** parts of this question:

- a) List **four (4)** findings on plain abdominal radiography that would support the diagnosis of a small intestinal foreign body obstruction. (4 marks)

You elect to perform an exploratory laparotomy for suspected small intestinal foreign body obstruction.

- b) List **four (4)** methods by which viability of the small intestine can be assessed during surgery (4 marks). For each method, describe the features that should be assessed to indicate viability or non-viability (4 marks).
- c) Name the layers of the small intestine and identify the strength-holding layer that should be incorporated into your closure. (3 marks)
- d) State **two (2)** methods for augmenting an enterotomy closure. Describe how each of these methods augments closure and, for each method, briefly describe **one (1)** enteric surgical scenario in which the method would be employed. (7 marks)
- e) Name a type of feeding tube that would be appropriate for post-operative nutritional support in this patient. (1 mark)
- f) For the feeding tube type stated in 1 e), briefly describe the specific indications for its use, its contra-indications and the potential complications associated with its placement and use. (7 marks)

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2. Answer **all** parts of this question:

- a) Name the most common surgical approach to the feline middle ear and identify the most commonly noted complication of this procedure. *(1 mark)*
- b) Identify the anatomic difference between the feline and canine middle ear and describe its surgical relevance. *(2 marks)*
- c) List **three (3)** radiographic views that can be used to image the middle ear. *(3 marks)*
- d) Name the imaging modality that is considered to be superior to radiographs for imaging the middle ear. Briefly justify your answer. *(2 marks)*
- e) List **three (3)** indications for a total ear canal ablation and lateral bulla osteotomy (TECALBO) in the dog. *(3 marks)*
- f) In addition to TECALBO, name **two (2)** other external ear canal surgical procedures and provide an indication for each. *(2 marks)*
- g) List **four (4)** complications associated with TECALBO in the dog. Describe the steps that can be taken to avoid each complication, including a description of the relevant anatomy. *(15 marks)*
- h) Justify samples that should be collected intra-operatively during a TECALBO. *(2 marks)*

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3. Answer **all** parts of this question:

- a) Discuss the options available for management of hyperkalaemia in a feline patient with a urethral obstruction. No dosages are required. Where relevant, justify parameters that should be monitored. *(10 marks)*
- b) Name **three (3)** types of radio-opaque uroliths. *(3 marks)*
- c) With respect to **feline** perineal urethrostomy, describe the key intra-operative techniques that reduce the risk of stricture formation. *(10 marks)*
- d) Other than placement of a cystostomy tube, name **two (2)** surgical procedures that could be performed if stricture occurs at a perineal urethrostomy site. *(2 marks)*
- e) Name **one (1)** drug that can be used to manage detrusor atony. *(1 mark)*
- f) Name **four (4)** post-operative complications, other than stricture formation, that can occur following perineal urethrostomy. *(4 marks)*

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4. A 10-year-old, female, spayed German shepherd dog is presented for its annual health check. Routine abdominal palpation reveals a mobile eight-centimetre mass in the tail of the spleen. The remainder of the full history and clinical examination reveal no other abnormalities.

Answer **all** parts of this question:

- a) List **four (4)** differentials for the palpable splenic mass. Identify the most common differential diagnosis in your answer. *(2 marks)*
- b) Discuss the diagnostic testing appropriate to further characterise this patient's disease prior to definitive management. Justify each diagnostic test in relation to this particular case. *(8 marks)*
- c) In this case, an exploratory laparotomy is performed to investigate the splenic mass and, intra-operatively, the liver is found to have multiple nodules throughout its parenchyma. Interpret this finding and describe the action(s) that should be taken by the surgeon. *(6 marks)*
- d) In your answer booklet, draw a labelled diagram showing the gross vascular supply to the spleen. Note on your diagram where you would ligate these vessels for the rapid (non-hilar) splenectomy technique. *(10 marks)*
- e) Name **two (2)** surgical methods, other than suture ligation, that are appropriate to achieve haemostasis of the splenic blood vessels noted in part 4 d). *(2 marks)*
- f) Name the **two (2)** most common types of splenic neoplasia in cats. *(2 marks)*

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