



# Australian and New Zealand College of Veterinary Scientists

## Fellowship Examination

June 2015

## Small Animal Surgery Paper 1

Perusal time: **Twenty (20)** minutes

Time allowed: **Three (3)** hours after perusal

Answer **ALL FOUR (4)** questions

All four questions are of equal value.

Answer **FOUR** questions each worth 45 marks .....total 180 marks

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# Paper 1: Small Animal Surgery

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Answer all four (4) questions

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

- a) Describe how healthy cortical diaphyseal bone responds to forces that result in both simple oblique and highly comminuted fractures. Include in your answer discussion of the biomechanical properties that influence fracture configuration. *(15 marks)*
- b) Describe the biochemical and cellular events of normal bone healing. Include in your answer discussion of how biomechanical factors influence bone healing. *(20 marks)*
- c) Discuss the biologic and mechanical factors that influence repair of an open, comminuted, diaphyseal fracture of the femur in a dog. *(10 marks)*

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

- a) The 'cascade' or 'waterfall' model of coagulation has recently been questioned. Explain the deficiencies of the cascade model and why an alternative model was proposed. *(5 marks)*
- b) Give a detailed description of the cell-based model of coagulation. *(15 marks)*
- c) List the endogenous inhibitors of coagulation **and** the mechanisms that prevent 'inappropriate coagulation'. *(10 marks)*
- d) Briefly describe the role of von Willebrand's factor (vWf) in normal coagulation. *(5 marks)*
- e) For a patient with confirmed vWf deficiency, outline your preoperative **and** postoperative strategies to minimise the risk of excessive haemorrhage. *(10 marks)*

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3. Regarding chylothorax:

- a) Describe the anatomy of the flow of chyle from its source at the intestine to its entry into the systemic circulation. Include in your answer the variation between dogs and cats, **and** between individual animals of the same species. (7 marks)
- b) Briefly describe the pathophysiology of chylothorax in the dog and cat, including an explanation of the changes that can occur with chronic disease. (8 marks)
- c) List **five (5)** possible aetiologies for chylothorax in the dog. State which is the most common. (3 marks)
- d) Briefly describe the gross, cytological and biochemical features of pleural fluid that allow a presumptive **and** definitive diagnosis of chylothorax. (5 marks)
- e) Compare and contrast the use of recently reported diagnostic techniques that can be used to assess the anatomy of the thoracic duct in a patient with pleural effusion. (7 marks)
- f) Discuss surgical treatment options available for treating chylothorax in dogs and cats. Include in your answer the proposed mechanism by which **each** technique may be effective. Select **one (1)** technique **you** would choose to manage this condition. Justify your choice with reference to the recent literature. (15 marks)

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4. Regarding portosystemic shunts in dogs and cats:
- a) List the common anatomical variations of congenital extra-hepatic portosystemic shunts. Describe briefly how different anatomical variations may alter clinical symptoms. (5 marks)
  - b) List the diagnostic imaging techniques available to determine the location of a portosystemic shunt. Briefly discuss the accuracy and morbidity of the techniques you have listed. (10 marks)
  - c) Describe the pathophysiological changes that occur with congenital portosystemic shunting. What medical therapies would you instigate prior to shunt attenuation in the dog and cat? Explain how **each** therapy addresses these changes. (15 marks)
  - d) A variety of materials and devices have been proposed for portosystemic shunt attenuation in the dog: (15 marks)
    - i. List **four (4)** examples of attenuation materials or devices.
    - ii. For **each** material or device, briefly describe its properties.
    - iii. For **each** material or device briefly explain how it achieves vascular attenuation or closure in the short and long term.

**End of paper**



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## Small Animal Surgery

## Paper 2

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Time allowed: **Three (3)** hours after perusal

Answer **ALL FOUR (4)** questions

All four questions are of equal value.

Answer **FOUR** questions each worth 45 marks .....total 180 marks

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# Paper 2: Small Animal Surgery

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Answer all four (4) questions

1. Bray et al. (2014) reported on a large retrospective series of dogs and cats treated with hemipelvectomy and subsequently reported a modified hemipelvectomy technique.

Answer **all** parts of this question:

- a) List **three (3)** indications for hemipelvectomy in dogs and cats. *(3 marks)*
- b) List **six (6)** distinct types of hemipelvectomy and for **each** describe the indications for that particular surgical option. *(12 marks)*
- c) List the recommended steps for the diagnosis, clinical staging, surgical preparation, and perioperative management of hemipelvectomy patients. *(12 marks)*
- d) Describe the surgical approach and dissection technique for the most commonly performed hemipelvectomy technique as reported by Bray et al. (2014). *(12 marks)*
- e) List the potential intraoperative and postoperative complications associated with hemipelvectomy in dogs and cats. *(6 marks)*

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2. A 6-year-old, 4 kg, body condition score 7/9, intact male Pomeranian is referred for tenesmus, anuria and a ventral perineal swelling. The dog has a 4-month history of a right perineal swelling that fluctuates in size, and intermittent tenesmus. In the last 36 hours the dog has become lethargic and has been unsuccessfully attempting to urinate. The perineal swelling is much greater in size than previously observed and is now also ventral to the anus.

Answer **all** parts of this question:

- a) State the most likely diagnosis. Include in your answer both a diagnosis for the more chronic underlying condition(s) **and** the acute presentation. (3 marks)
- b) For the diagnosis stated in 2a), describe the pathogenesis, at a cellular level, of the chronic underlying condition. (5 marks)
- c) Describe the expected acute physiological derangements in this patient **and** how you would attempt to correct these derangements prior to the induction of anaesthesia. (7 marks)
- d) Create an anaesthetic protocol for this patient. Include in your answer the fluid therapy and analgesic requirements. (10 marks)
- e) Discuss the surgical options for correction of both the acute abnormality and the underlying condition. With reference to the literature, include in your answer the recommended timing of the procedure(s) and a comparison of different surgical techniques. (15 marks)
- f) With reference to the literature, briefly discuss the risk factors associated with recurrence of the underlying condition. (5 marks)

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3. Regarding caudal cervical spondylomyelopathy in dogs (CCSM):
- a) Define the abbreviated terms DAWS and OAWS. (2 marks)
  - b) Compare the typical signalment of a dog affected by DAWS to one affected by OAWS. In your answer, include a brief explanation of the pathogenesis of **each** condition. (8 marks)
  - c) Compare the use of computed tomography (CT) myelography and magnetic resonance imaging (MRI) in the diagnosis of CCSM. Include in your answer the role of imaging the cervical vertebral column whilst in traction. (10 marks)
  - d) With reference to the literature, discuss the surgical techniques recommended for the treatment of DAWS. For **each**, state whether it is a direct decompression or an indirect decompression technique. Include in your answer evidence for the use of **one (1)** surgical procedure over any other. (15 marks)
  - e) Based on current evidence, compare surgical versus non-surgical management of DAWS in a canine patient with ambulatory paraparesis, mild forelimb ataxia and intermittent neck pain. (10 marks)

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4. A 12-month-old Golden retriever is presented for management of thoracic limb lameness associated with unilateral fragmented coronoid process of the ulna. With reference to the literature:
- a) Discuss elbow incongruence as it relates to the development of medial coronoid disease in the dog and the value of diagnostic imaging modalities in its assessment. *(15 marks)*
  - b) Discuss the choice of arthroscopic, or open focal treatments and their anticipated impact on long-term joint health and elbow function in this dog. *(15 marks)*
  - c) Discuss the role of surgery in the management of this case if grade four (modified Outerbridge scale) cartilage wear of the medial compartment was encountered during joint exploration. *(15 marks)*

**End of paper**