Australian College of Veterinary Scientists

Membership Examination

June 2010

Small Animal Surgery

Paper 1

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

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

Answer **four (4)** from the six questions **only.**

All questions are of equal value.

Subsections of questions are of equal value unless stated otherwise.

Paper 1: Small Animal Surgery

Answer four (4) from the six questions only.

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

   a) Write brief notes on the phases of wound healing in a skin incision. (60%)

   b) List **five (5)** host factors that can affect wound healing, and make brief notes on how they affect healing. (20%)

   c) List **five (5)** wound characteristics that can affect wound healing, and make brief notes on how they affect healing. (20%)

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

   a) Write short notes on the clinical signs and pathogenesis of megacolon in the cat.

   b) Write short notes on the clinical signs and pathogenesis for reverse shunting in a dog with a patent ductus arteriosus.

   c) Explain, with the aid of a diagram if you wish, the term 'pseudohyperreflexia' and how it might occur in a dog with a L4-S1 localising spinal lesion.

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

   a) Describe the anatomy and list the functions of the omentum. Give examples of **three (3)** different surgical conditions in which you would consider utilizing the omentum to make use of the functions you have described.

   b) State which canine meniscus is at greater risk of injury associated with cranial cruciate ligament instability in the dog. Provide reasons for your answer. Describe the clinical symptoms that might be associated with meniscal pathology in the dog and how you might confirm such a diagnosis.

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

   a) List the physical forces that must be overcome when stabilizing bone fractures by any means to allow bone to heal. (10%)

   b) Describe the process of bone healing that is expected following the application of a dynamic compression plate (DCP) in compression mode to a closed, mid-diaphyseal, transverse femoral fracture. (45%)

   c) Describe, with the aid of a diagram if you wish, the neuromuscular control of urine storage and voiding. (45%)

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

a) List and briefly describe the different mechanisms of antibiotic action and give an example of an antibiotic for **each** mechanism described.

b) Hypotension is a common perianaesthetic complication in small animal patients. The pathogenesis of hypotension is multifactorial. List **two (2)** factors that may contribute to hypotension in an anaesthetised patient. Describe methods of monitoring blood pressure during surgery in small animals and give an indication of the normal blood pressure range. List **three (3)** actions you may take to correct hypotension during surgery.

c) Briefly describe, with the aid of a diagram if you wish, the anatomy of the parathyroid glands in the dog. Write short notes on the clinical signs that may be associated with a functional parathyroid tumour in the dog.

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

a) Using diagrams, describe the Salter Harris fracture classifications. (20%)

b) The initial intent of the Salter Harris classification system was to give prognostic information. However, this has not proved to be a valid concept. Explain which other important prognostic factors may be considered when dealing with such fractures. (20%)

c) Name the microanatomic zones of the physis. (6%)

d) Indicate in which zone of the physis fractures usually occur. (4%)

e) Define the term 'distraction osteosynthesis' and make notes on what occurs at the cellular level during distraction osteosynthesis. (40%)

f) List **two (2)** different clinical examples of when you would consider using distraction osteosynthesis. (10%)

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Paper 2

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Paper 2: Small Animal Surgery

Answer four (4) from the six questions only.

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

   a) List the tendons that comprise the Achilles mechanism in the dog.

   b) Describe the clinical sign(s) associated with injury to this tendon group.

   c) Describe the ideal properties, and give **one (1)** example, of a suture material you would use to perform an end-to-end anastomosis of an Achilles tendon severed 2 cm proximal to the tuber calcis in a 30 kg dog.

   d) Name and give a brief description or diagram of **four (4)** recommended suture patterns or techniques used in primary tendon repair. Explain which you would choose and why.

   e) Write short notes on your post-operative management of the case described in part c) above. Your answer should demonstrate an understanding of tendon healing and how to optimize this process.

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

   a) List the potential sources of infection associated with septic arthritis. (10%)

   b) Briefly describe the typical cytological features of joint fluid from an infected joint. (20%)

   c) List the more common bacterial isolates associated with septic arthritis in the dog. (20%)

   d) Explain how bacteria can be isolated, for the purposes of culture and sensitivity testing, from dogs with suspected septic arthritis. (20%)

   e) Write brief notes on the medical and surgical treatments for septic arthritis. (20%)

   f) Describe the short and long term prognoses you would give for a 16-week-old boxer puppy in which you have diagnosed elbow joint sepsis. (10%)

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

   a) Describe the typical signalment of perineal herniation in the dog. (10%)

   b) Explain the possible causes of perineal herniation in the dog. (25%)

   c) Describe surgical technique options for the management of a 10-year-old entire male dog with bilateral perineal herniation. (40%)

   d) List **five (5)** possible complications of perineal herniorrhaphy and, for **each** complication, briefly note how you could minimize the risk. (25%)

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

a) Describe the animal and husbandry factors that may be associated with an increased risk of a dog developing gastric dilatation and volvulus (GDV). (20%)

b) Explain how you would determine intra-operatively if a gastric resection is required when performing surgery in a dog that has experienced GDV. Indicate how the need to perform a gastric resection might alter the prognosis for this patient. (25%)

c) List the ideal properties of a suture you would choose for gastric resection surgery. Describe the suture type and suture pattern that you would choose. (20%)

d) Define the term 'gastropexy'. State how gastropexy may or may not alter the rate of GDV recurrence in the dog. (10%)

e) Make brief notes on **four (4)** different methods of gastropexy. Indicate which technique you would recommend, and justify your answer. (25%)

5. Answer **both parts** of this question:

a) Describe the typical signalment and presenting sign(s) for fibrocartilagenous embolism (FCE). List **two (2)** different imaging techniques that may be used to diagnose FCE and briefly describe what you might see from **each**. Describe the clinical features which might help you determine a patient's prognosis.

b) Name the cranial nerve whose branches innervate the intrinsic muscles of the canine larynx. Indicate which muscle(s) is/are primarily responsible for abduction of the arytenoid cartilages. Briefly describe a surgical approach for so-called 'tieback' surgery for treatment of laryngeal paralysis. In your answer, state suture choice and suture placement options within the cartilages. List possible complications of 'tieback' surgery.

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6. Answer **both part a) and b)** of this question:

a) Answer **all parts** of this question:

i. Define 'axial pattern flap' and 'island axial pattern flap'. (5%)
ii. List ways the surgeon can maximise the survival of axial pattern flaps before, during and after their creation. (30%)
iii. Name **four (4)** axial pattern flaps used in the dog and/or cat, and for **each** example given, provide a clinical scenario in which it may be used. (15%).

b) You wish to use an external skeletal fixateur (ESF) to reduce and stabilize a closed, transverse, mid-diaphyseal tibial fracture in an eight-year-old retriever. Answer **all parts** of this question:

i. List, with a brief description or diagram, the **four (4)** main types of linear external skeletal fixators. (10%)
ii. Indicate which ESF you would choose for this case. List your reasons. (15%)
iii. List ways you can maximise the pin/bone interface. (15%)
iv. Explain how and why staged disassembly is sometimes performed with ESF. (10%)

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