

外科 (佔 50 分):

1. 十二歲齡未絕育公犬，21 公斤，之前除雙側髖關節中度退化病變，走路後肢稍微步態僵硬外，身體狀況健康。三日前牠在住家前遭汽車撞傷，造成左後腳跛行，X 光顯示為左側股骨中段複雜性骨折(comminuted fracture)，斷骨形成無法復位(non-reducible)的三個主要斷片，及少許更小的碎骨片。請依優先順序列出你建議的骨折固定方式三種(須包括使用的材料，以及術後照顧方法)，並說明該治療方式之優缺點。(7.5 分)
請舉五種可減小傷口關閉之張力(tension)的方法。(2.5 分)
2. Please list 3 common clinical findings of uveitis in dogs and cats (7.5 分)
3. A 5 year-old male Beagle presented with acute paraplegia with absent deep pain perception in both pelvic limbs. Based on the investigations, acute degenerative disc extrusion causing a focal ventral spinal cord compression over the L3/L4 intervertebral disc space was diagnosed. (7.5 分)
 - (1) How should the patellar reflex in the pelvic limbs present?
 - (2) How should the anal reflex present?
 - (3) How should the cutaneous trunci reflex present? Please explain how you achieve the conclusion.
 - (4) Please predict the current urinary behavior and findings on bladder palpation and manual bladder expression in this dog
 - (5) When performing the withdrawal reflex in the pelvic limbs, which spinal cord segments and nerve are involved?
4. A 9 y/o, neutered male German Shepherd was transferred for gastric dilatation-volvulus. Physical exam revealed HR 200 bpm, RR 65/min, BP 76 mmHg, BT 37.7 °C, CRT >2 s, dry mouth, and weak femoral pulse. Hematologic findings were as follow: PCV 54.5% (ref 37-55%), Hb 18 g/dL (ref 12-18), RBC $8.3 \times 10^6/\mu\text{L}$ (ref 5.5-8.5), Platelet $202 \times 10^3/\mu\text{L}$ (ref 200-500), WBC 13500/ μL (ref 6000-17000), Alb 3.6 g/dL (ref 2.3-3.9), TP 8.0 g/dL (ref 5.2-8.2), Glu 200 mg/dL (ref 74-149), Na 151 mmol/L (ref 150-165), K 3.0 mmol/L (ref 3.5-5.8), Cl 114 mmol/L (ref 112-129).
Please state the pre-surgical and post-surgical treatments for this patient and give rationales for your treatments (10 分)
5. What is interventional radiology (IR) (4 分)?
What are the advantages of IR in veterinary field(4 分)?
Please give an example of the clinical application in IR (2 分).

見背面

6. Which tooth doesn't exist in adult cats (1分)?
(A) 106,
(B) 406,
(C) 207,
(D) 307.
7. What is necessary to accurately diagnose and treat feline tooth resorption(TR) (1分)?
(A) dental probe,
(B) dental chart,
(C) dental radiograph,
(D) dental scaling.
8. Which canine tooth can be taken for radiography without using bisecting angle technique (1分)?
(A) 308,
(B) 204,
(C) 108,
(D) 402
9. A sulcus depth greater than X mm in dogs and Y mm in cats are considered pathologic and called a pocket. Please give the number for X and Y respectively (1分):
(A) 2; 2,
(B) 1; 0,
(C) 3; 2,
(D) 2; 1
10. Stage I periodontal disease is gingivitis only without _____.
(Please fill the blank, (1分))

內科 (估 50 分):

11. Please describe the etiology, sign and treatment of small intestine inflammatory disease and large intestine inflammatory disease (10分).
12. Please describe the clinical signs of hyperthyroidism in cats (7分) and also the associated complications (3分).
13. Please explain the following terminology:
(1) Acanthocyte (3分)
(2) Anisocytosis (3分)
(3) Heinz body (4分)

接次頁

14. 請列出在小動物慢性腎病時會造成貧血的可能原因和機制 (10分)
15. Choose correct answer(s) or select those best-fit statements for each question. There is no deduction for wrong answer. (以下所有選擇題共佔10分)
- (1) Which disease listed below is not indication for Zoladronate?
- (A) Osteosarcoma
 - (B) Mast cell tumor
 - (C) Multiple myeloma with hypercalcemia
 - (D) Mammary gland tumor with bone metastasis
 - (E) Prostatic adenocarcinoma
- (2) Regarding chemotherapy, which statement is TRUE?
- (A) Must use maximum tolerable dose under any circumstance to ensure achieving best tumor killing effects.
 - (B) Dose fractionation is not allowed; always follow the protocol in order to kill tumor cells on time.
 - (C) Once given there is no way to get rid of potential toxicity, so double checking dosage is always a good thing to do.
 - (D) Always use chemotherapy agent with similar toxicity and tumor killing mechanism in order to achieve synergistic effect.
 - (E) All of the above are correct.
- (3) Mast cell tumor has which of the below characteristics?
- (A) Darier's sign indicates increased blood vessels leakage, which is a side effect of steroid.
 - (B) May be having Ras oncogene turned on and which can be used as treatment target.
 - (C) Close margin surgery is the treatment of choice for MCT and usually yielding good result.
 - (D) Treatment of MCT in canine involved multiple modalities and treatment plan should based on clinical staging and histopathology grading.
 - (E) Histopathology evaluation is not necessary since cytology can easily help the diagnosis.
- (4) Statement about lymphoma/leukemia, which is CORRECT?
- (A) Only lymphatic system can have lymphoma development.
 - (B) Acute leukemia usually has smaller lymphocytes and bone marrow is usually not involved.
 - (C) Drug resistance usually developed faster when tumors were treated by steroid first or under improper chemotherapy protocol management.
 - (D) Clinical stages do not predict patient survival; we should focus on initiating treatment as soon as we make the diagnosis.
 - (E) Most common chemoresistance for lymphoma is related to tumor volume.

- (5) Doxorubicin is a very effective chemotherapy agent which statement listed below is INCORRECT?
- (A) Doxorubicin belongs to antitumor antibiotics and is subject to strong allergic reaction potential.
 - (B) The main toxicity is bone marrow and heart.
 - (C) Usually taking weekly administration to enhance its efficacy.
 - (D) Major indications include all type of carcinoma, sarcome, and lymphoma tha is fast growing and malignant.
 - (E) Leukocytes nadir usually happen on the 2nd week from day 10 to day 14.
- (6) Which statement about the cell cycle is TRUE?
- (A) The stage sequence is as $G_0 \rightarrow G_1 \rightarrow S_1 \rightarrow G_2 \rightarrow S_2 \rightarrow M \rightarrow G_0$
 - (B) All cells from the same tumor are derived from the same stem cells, so the cycling rate within different stages of the cell cycles are basically the same.
 - (C) The death of cells includes apoptosis and necrosis.
 - (D) The most chemosensitive stage is G_1 stage, because the active replication during this stage.
- (7) In order to increase the efficacy of chemotherapy and to prevent drug resistance development, which of the following method can be used to accomplish this task?
- (A) Increase total dose used.
 - (B) Reduce dosing frequency.
 - (C) Decrease single dose, increase dosing frequency.
 - (D) Prolong period between dosing to reduce toxicity.
 - (E) Choose different chemotherapeutic agent to treat cells at different cell cycle stage.
- (8) The treatment of choice for low-grade mammary gland tumor in dog is?
- (A) Chemotherapy alone
 - (B) Surgery alone
 - (C) Radical surgery and chemotherapy
 - (D) Complete surgery and close monitoring
 - (E) Radical surgery and chemotherapy
- (9) The event of anaphylactic shock after chemotherapeutic agent treatment can be prevented by
- (A) Administration of the agent in a diluted form.
 - (B) Pre administer glucocorticoid and antihistamine agent.
 - (C) Prolong injection time or use continuous infusion for a slower rate.
 - (D) Gradually increase the dose of the agent, i.e. start with lower dose and gradually increase the dose in subsequent administration.
 - (E) Intradermal testing of chemotherapy agent to prevent this type of reaction.

- (10) About radiation therapy, select all the statement that is TRUE?
- (A) Late effect usually relay to the total dose administered during the entire treatment.
 - (B) Oxygen is required in radiation killing effect.
 - (C) Therapeutic radiation only kills cells that are actively dividing.
 - (D) The mechanism of radiation cytotoxic ability is mainly via protein fixation that interrupts the basic cellular function.
 - (E) The severity of acute effect is related to the frequency of radiation therapy.
- (11) The most valuable prognostic indicator in canine mammary gland tumor is
- (A) Age
 - (B) Birth history
 - (C) Body fat content
 - (D) Size
 - (E) Castration/neuter status
 - (F) Location
- (12) In neutropenia patient, what treatment can you do?
- (A) Because the chance of tumor regrowth is high, chemotherapy should be performed ASAP.
 - (B) Antibiotics treatment should only be given when the patient shows signs of infection, such as pyrexia, swollen nodes, etc.
 - (C) Fluid therapy is necessary which should be the first procedure to be given to the patient to prevent dehydration.
 - (D) After septic episode, the dose of scheduled chemotherapy agent should be reduced 20 to 25%.
 - (E) We should consider increase the frequency of chemotherapy.
- (13) About chemotherapeutic agent, which statement is TRUE?
- (A) Cisplatin belongs to antitumor antibiotics group; the most prominent toxicity is nephrotoxicity.
 - (B) Vincristine is a natural plant alkaloids, which can bind to microtubules and prevent the formation of mitotic spindles and arrest cell before mitosis, and kill cells.
 - (C) Methotrexate is an anti-metabolite that will activate the desire metabolic pathway and release toxic concentration of metabolite to kill the cells
 - (D) Cyclophosphamide will cause sterile hemorrhagic cystitis that can be prevented by single intravenous administration.
 - (E) Chemotherapy agent can be used together with immunomodulator to potentiate the effect

- (14) Regarding feline mammary gland tumors, please select all the TRUE statement(s)
- (A) Better prognosis than MGT in dog.
 - (B) To be treated aggressively because of high frequency of malignancy.
 - (C) Not affected by hormonal influences.
 - (D) 50% chance of being a malignant tumor. 80% of which are adenocarcinoma.
 - (E) Metastasis is rarely seen; surgery alone is enough to cure them.
- (15) Which statement about skin tumor is correct?
- (A) Squamous cell carcinoma usually occurs at pigmented areas.
 - (B) Papilloma usually has strong correlation with viral infection in young dogs.
 - (C) Cutaneous plasmacytoma of dog is responsible for hypercalcemia and hypergammaglobulinemia.
 - (D) Histiocytoma often occurs at older animal and aggressive surgery is required to manage the disease.
 - (E) Mast cell tumor can be managed by surgery alone.
- (16) For mast cell tumor, choose statement(s) that are TRUE:
- (A) Most commonly diagnosed canine skin tumor.
 - (B) The major complication is related to the paraneoplastic syndromes.
 - (C) Melena indicates GI bleeding which is a complication of steroid usage, which can be resolved by stopping steroid usage in mast cell tumor.
 - (D) Serotonin release will cause edema and hypotension shock which is the major paraneoplastic symptoms for high grade MCT.
 - (E) Steroid is better used frequently instead of bolus administration.

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