Medical Tests
AAVSB-VTNE
American Association of Veterinary State Boards: Veterinary Technician National Examination

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Question: 1

Veterinary nurses/technicians play vital roles in veterinary pain management. All of the following discuss key responsibilities that help develop and administer a pain management plan except:

A. Inform clinicians of patient pain scores and inappropriate pain management
B. Allow the veterinarian to determine the appropriate pain management protocol
C. Routinely assess post-op patients for pain
D. Log controlled drugs properly

Answer: B

Explanation:
Of course, ultimately, the veterinarian must decide upon the appropriate pain management plan for each individual patient. Each veterinarian often has their own preferences and choices for certain cases. However, a veterinarian who ignores a technician's suggestions or observations about a patient's anxiety level before surgery, previous experience with pain management with the pet, and other factors may not be in the pet's best interest.
Technicians interact with the pets before the vets. They see how anxious the pet is on arrival and how painful they may be before, say, a cranial cruciate surgery. They may know the pet, have previously given them medications, and have seen that the pet became very dysphoric on a certain drug dose. Thus, both technicians and veterinarians should design the pain management plan when warranted.
A technician's role is to assess patients and identify or anticipate pain. Techs should be able to provide comfort and care to patients, both pharmacologically and via other methods, such as calming them down, providing extra padding, massage, or other modalities. They need to be able to differentiate stress from pain from dysphoria. They need to be able to properly assess for drug side effects and report them promptly to the veterinarian. They must communicate well with clients to explain signs of pain in animals and much more. They must be comfortable evaluating pets postoperatively and reporting any concerns to the veterinarian. Finally, they must ensure all drugs are logged properly, including maintaining controlled drug logs as the law requires.

Question: 2

You are monitoring a patient under anesthesia with concerns about ventilation status. The patient has been under anesthesia for almost 3 hours at this time. Your capnograph is out for repair, and you realize you heavily relied upon it when evaluating CO2 levels in the past. However, you have an arterial catheter in place and obtain a blood gas. The CO2 levels come back significantly elevated.
This signifies which of the following conditions?

A. Decreased oxygenation
B. Respiratory alkalosis
C. Hyperventilation

D. Hypoventilation

Answer: D

Explanation:
When evaluating a blood gas, the oxygen levels define a patient's oxygenating ability, while the CO2 levels depict ventilation status.
• A blood gas with elevated CO2 levels defines a patient with hypoventilation and respiratory acidosis.
• A blood gas with decreased CO2 levels is consistent with hyperventilation and respiratory alkalosis.
• The oxygenation level is not assessed by the CO2 concentration.
One can increase ventilation to a higher minute volume to treat the acidosis component caused by hypoventilation. This can be achieved by either increasing the tidal volume or respiratory rate.
Hypoventilation and anesthesia commonly occur. It can happen for any reason that causes the blood CO2 levels to drop. We commonly see hypoventilation, even apnea, during induction due to the respiratory depressant effects of many of the medications we use. It can also happen with excessive anesthetic depth, even respiratory arrest. When hypoventilation is noted, immediately inform the veterinarian, assess vital signs, check the anesthetic depth and assess additional parameters such as performing a blood gas. You may need to breathe for the patient 2 to 10 times per minute until normal respirations resume. The lower range we use when apnea is present after induction and the latter due to hyperventilation to allow the CO2 levels to normalize.

Question: 3

When positioning and prepping a patient with a fractured limb, you need to consider what position will provide the best access to the affected leg and allow for the most sterile preparation of the entire limb. Which of the following would be the appropriate position for an animal who needs a humeral repair?

A. Dorsal recumbency, affected leg along the side
B. Lateral recumbency, affected side up
C. Dorsal recumbency, affected leg hanging
D. Lateral recumbency, affected leg up

Answer: D

Explanation:
When working on the humerus, the surgeon will need the patient on their side with the fractured humerus up, lying on their good side.
A patient with a radius-ulna fracture would be placed in dorsal recumbency (on their back) with the affected leg along the side.
A patient with a tibia-fibula fracture would be placed in dorsal recumbency, and the affected leg hanging.
Finally, a patient with a femur fracture would be placed in lateral recumbency with the fractured limb on the affected side facing up.

Question: 4

An owner presented to the hospital with her six-month-old puppy for a routine spay and retained lower canine deciduous tooth extraction. The owner wants to know all of the pain management techniques you will be using to ensure her baby remains pain-free.
You let the owner know that you will be using a combination of all of the following except:

A. Mandibular nerve block
B. Local line block
C. Injectable opioid
D. Topical analgesia

Answer: D

Explanation:
In a routine spay and deciduous tooth removal, commonly used pain management techniques for a combined multimodal approach may include a local line block (the use of a local injectable anesthetic) along the incision line in the skin and an injectable opioid as a premedication, and then post-operatively as warranted. Additionally, a rostral mandibular (mental nerve) block may be used for tooth extraction for further pain management.
While additional pain management options may be included, topical anesthetics would not be effective for visceral or dental pain. Topical anesthetics treat pain on surface skin or mucosal pain associated with minor, short-lived painful situations such as wound suturing, venipuncture, and nasal gastric tube placement.

Question: 5

You are about to prep a patient for surgery. You are working at a veterinary practice as a relief technician and unsure of what they use routinely as part of their surgical protocol. Which of the following antiseptic/disinfectant agents would not be satisfactory as a preoperative scrub?

A. Chlorhexidine detergent or solutions
B. Povidone-iodine detergent or solution
C. Glutaraldehyde
D. Isopropyl alcohol-chlorhexidine gluconate mixture

Answer: C

Explanation:
Glutaraldehyde is a phenol used in cold sterilization and is not intended to be used on living tissue. It is effective against bacteria, yeasts, spores, viruses, and fungi. But, if placed on the skin, it can cause irritation and has no residual activity. Historically, phenols (carbolic acids) were used as disinfectants and antiseptic agents; however, they have since been abandoned in favor of safer and more effective products. Additionally, toxicity to various species leads to the need to utilize safer products.
Chlorhexidine products are widely used in veterinary medicine. Classified as a biguanide, it has low-level action but is an efficient antiseptic and disinfectant for cleaning cages and treating superficial wounds and skin infections. When used as a surgical scrub, its residual activity may persist for up to 24 hours. It

can also be used to lavage wounds when used at a 1:40 dilution (2% solution), and the dilution prevents cytotoxicity.
Alcohols are fast-acting, leave no residue, are non-corrosive, and are effective against MRSA. They are ineffective against bacterial spores or fungi. Isopropyl alcohol is most commonly used in medical applications but can come in various preparations. Additionally, products on the market may combine this with chlorhexidine for preoperative skin preparation. Still, because of cytotoxicity and pain, alcohol-based products should not be used on open wounds.
Finally, povidone-iodine, also commonly used as either a surgical hand scrub or preoperative patient prep, effectively destroys most bacteria except mycobacteria and spores and is also effective against viruses, yeast, and fungi, protozoa. It is fast-acting with residual activity lasting about 4-6 hours. However, it is inactivated by organic debris and alcohols. It may be combined with alcohol for preoperative skin prep as a one-step solution. This combination product has a rapid onset but extends the residual activity to at least 1 day.

Question: 6

A veterinary technician suspects that a cow's pain is due to mastitis. Which of the following signs would suggest this cause?

A. The cow is kicking at its udder
B. The cow is standing with its abdomen tucked
C. The cow is anorexic
D. The cow is acting restless

Answer: A

Explanation:
When a cow kicks at its udder, it is a sign of mastitis. Other signs of mastitis include a stilted gait, unwillingness to move, and redness and swelling of the udder. NSAIDs and antibiotics are used to treat this painful condition.
The remaining answer options are incorrect, though they all may be signs of pain in cattle. Signs of general pain in a cow may include restlessness, anorexia, or standing with a tucked abdomen, but kicking at the udder is more specific to pain in that area.

Question: 7

What is the mechanism of action and purpose of diuretic medications?

A. Exert osmotic forces in the kidney to decrease fluid accumulation, such as edema and effusion
B. Strengthen heart muscle contractions to treat cardiac disease
C. Increase the volume of and thin respiratory respiratory secretions, making them easier to clear with coughing
D. Decrease smooth muscle tone in blood vessels to lower blood pressure

Answer: A

Explanation:
The most commonly used diuretic in veterinary medicine is furosemide.
Expectorant medications increase the volume and decrease the tenacity of respiratory secretions, making them easier to clear with coughing. Guaifenesin is an example drug. Positive inotropic medications, such as digoxin, and inodilators, such as pimobendan, increase myocardial contractility (strength of heart muscle contractions). Vasodilators decrease smooth muscle tone in blood vessels to lower blood pressure. Amlodipine is a commonly used medication within this class.

Question: 8

All of the following are true when considering the dehiscence of a surgical site, except:

A. Separation of surgical incisional layers due to suture breakage can cause dehiscence
B. Separation of surgical incisional layers due to excess activity by the patient can cause dehiscence
C. Dehiscence is an uncommon but potential complication of any wound repair or surgical incision
D. Seroma formation is a precursor to dehiscence

Answer: D

Explanation:
A seroma is a collection of serum that accumulates under the incision, usually in the superficial skin layer. A seroma is non-painful but flocculent and must be differentiated from a hematoma or break in the body wall. It often occurs because animals are not sufficiently exercise-restricted. Still, it can also happen when surgery requires excessive dissection of the nearby tissue or if the tissue planes are not adequately and sufficiently opposed. Seromas can take time, but usually heal without intervention or with warm compresses +/- bandaging in some instances and depending on the type of surgery/location of the abnormality.
Unlike a seroma, however, an incisional dehiscence is a more major complication that warrants intervention.
Dehiscence refers to the breakdown of all surgical incisional layers (or surgically repaired wounds). It is an uncommon but potential complication of any wound repair or surgical incision. Further, it can increase the risk of developing evisceration (for abdominal surgeries) and/or sepsis. Dehiscence can result for various reasons, including:
• Separation of surgical incisional layers due to excess licking by the patient, often due to owners who fail to put the e-collar on when advised and when not with the patient. Proper education is required. No owner can watch their pet 100% of the time, and just because they do not lick in our presence doesn't mean they will not when unattended.
• Separation of surgical incisional layers due to excess activity by the patient. Failing to restrict exercise as directed by the veterinarian can lead to stretching and pulling on the incision, leading to breakdown and increasing the risk of dehiscence and other complications.
• Suture breakage, improperly tied sutures and knots that slip, or poor surgical technique.

Question: 9

What is the correct medical term used to describe abnormal positioning of the teeth?

A. Masticatory myositis
B. Malocclusion
C. Enamel dysplasia
D. Stomatitis

Answer: B

Explanation:
Malocclusion is a general term used to describe teeth that are crowded, rotated, and/or misaligned. Malocclusion is usually a genetic condition resulting in abnormal development of the maxilla and/or mandible. Far less commonly, it may be a result of trauma, such as a mandibular fracture resulting in maxillomandibular asymmetry. Malocclusions cause problems from the abnormal contact between teeth of the maxilla and mandible, or teeth and the mouth's soft tissues.
• Class I malocclusions (neutroclusion) occur when one or more teeth are in an abnormal position (misaligned), but the maxilla and mandible are in a normal relationship with each other. A Class I tooth may be pointing in the wrong direction or rotated. Common examples include rostral crossbites and linguoversion (also called base-narrow canines).
• Class II malocclusions (distoclusion) occur when the mandible is abnormally caudal to the maxilla. Other names include brachygnathism, parrot mouth, or overbite. These are most commonly observed in dolichocephalic dogs (long and narrow skulled dogs).
• Class III malocclusions (mesioclusion) occur when the mandiblular teeth are abnormally rostral to the maxillary teeth (maxillary retrognathism). Other names include prognathism and underbite. These are commonly observed in brachycephalic dogs. Note for brachycephalic breeds: they are considered to have this type of occlusion as part of the breed standard.
Enamel dysplasia is a developmental abnormality of the enamel surfaces on the crowns, either quantity or quality. Stomatitis is inflammation of the gingiva and oral mucosa. Masticatory myositis is a condition in which an animal's immune system develops antibodies that attack only the jaw muscles involved in chewing.

Question: 10

Which of the following should occur as soon as possible after gastrointestinal surgery?

A. Urinary catheterization
B. Walking
C. Feeding
D. Warming

Answer: C

Explanation:
Food is required for the gastrointestinal tract's cellular health and proper function. Most animals eat within 6-24 hours following gastrointestinal surgery. If the patient holds down a small amount of water, a small amount of easily digestible food should be offered. Concern may arise if the patient hasn't eaten but the timeframe of concern varies with each species.

Walking, urinary catheterization, and warming are not postoperative treatments specific to gastrointestinal surgery recovery.

Question: 11

What is a common therapeutic use of drugs with the suffix -caine?

A. Inhalant anesthesia
B. Diuresis
C. Antimicrobial
D. Blocks nerve signal conduction

Answer: D

Explanation:
Drugs with the suffix -caine are sodium channel blockers, commonly used for local anesthesia. Examples include lidocaine, bupivacaine, and mepivacaine. These drugs are very effective and relatively inexpensive anesthetic drugs across multiple species.
These drugs are not used as inhalant anesthetics, antimicrobials, or diuretics.

Question: 12

In order to ensure that an intravenous catheter remains patent, it should be flushed regularly with which of the following solutions?

A. Sterile water
B. 5% dextrose solution
C. Heparinized saline
D. EDTA

Answer: C

Explanation:
To ensure intravenous catheters remain patent, they should be flushed regularly with heparinized saline. Heparin is an anticoagulant agent that helps prevent clots. The use of heparinized saline will prevent blood clots from forming in intravenous catheters so they remain open and free-flowing. Normal saline can also be used to flush catheters.
EDTA, 5% dextrose solution, and sterile water are not used to maintain catheter patency.

Question: 13

In small animal and exotic veterinary practice, proper handling and restraint are paramount when evaluating pet birds. Which of the following would not be considered appropriate when discussing restraint and handling of one of these birds?

A. Darken the room, speak softly, and go slowly
B. Hold around the sternum while holding the wings against the body
C. Allow the bird in the carrier to step up onto your arm or a perch before just grabbing them
D. Catch small birds from behind with a small towel or one's bare hand.

Answer: B

Explanation:
Commonly kept pet birds generally fall into the order of psittaformes (psittacines). Psittacines include cockatoos, lories, budgies, cockatiels, and parrots, including the large macaw species.
Birds, in general, have much thinner and more delicate skin than mammals. Feather fluffing conserves heat like that of piloerection in mammalian species. Because of the ability to fly, they have pneumatic (hollow) bones, such as the humerus and femur. These are very lightweight in nature. Additionally, they have air sacs in direct contact with proximal bones.
Further, to enable flight, birds have one coelomic cavity; thus, they have no diaphragm. The trachea has complete cartilaginous rings throughout. Knowing this helps explain why restraint can be so easily deadly and why care is needed to ensure a bird's safety.
Birds naturally use the flight component of fight or flight. Because of this, going slowly, speaking softly, and darkening the room or covering their eyes may help ease their stress. Additionally, you never want to reach into a carrier and directly grab a bird. This can easily provide stress and hurt them. You want to either allow them to fly in the room, take them from a perch, or, if trained, have them step up onto your arm so you can catch them easily and safely. With both small and larger birds, you can gently take hold from behind the head using a small towel or your bare hand. However, you never want to hold them by the sternum because of their lack of a diaphragm, respiratory oxygen exchange physiology, thinner skin, and more. You want to prevent squeezing of the coelomic cavity.
Once you have caught the bird, two hands can be used with small birds, with one restraining the head and the wings and the other hand, the legs. For larger birds, it's most common to use a towel to control the head and beak. The feet can be secured with the remaining hand, but you must ensure with all birds that the wings are restrained without restricting the keel's movement.

Question: 14

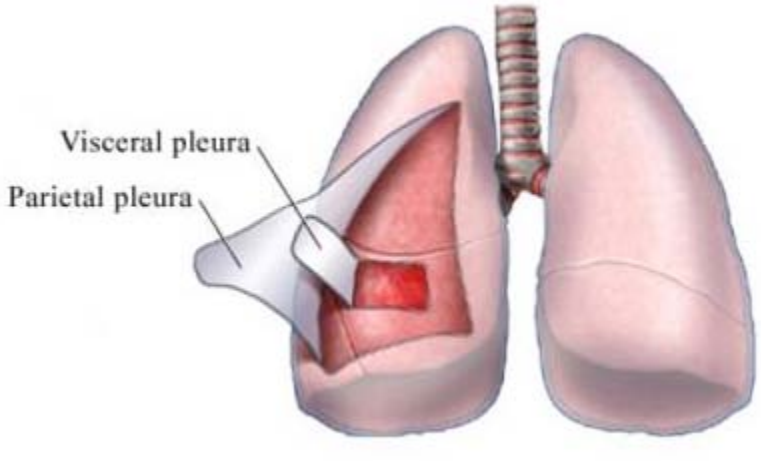
Where is the visceral pleura found?

A. Covering the lungs
B. Lining the abdominal cavity
C. Covering the heart
D. Lining the thoracic cavity

Answer: A

Explanation:
The visceral pleura is the protective membrane covering the lungs.

The parietal pleura is attached to the inner wall of the thorax. The space between the visceral and parietal pleura is called the pleural space. The pericardium is the membrane that covers the heart. The peritoneum is the membrane that lines the abdomen.



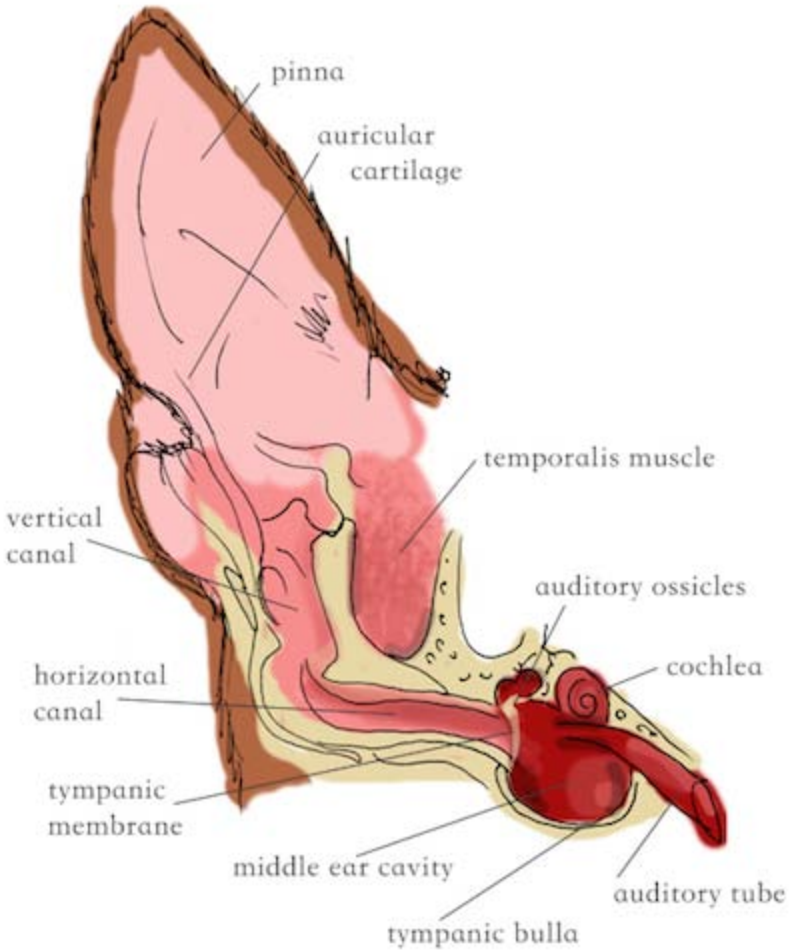
Question: 15

The pinna is what area of the body?

A. Lower lip
B. Bottom eyelid
C. Top eyelid
D. Outer ear

Answer: D

Explanation:
The pinna is the flap of skin around the ear and is made up of cartilage and skin. What we can see visibly with the naked eye makes up the pinna. The purpose of the pinna is to collect vibrations of sound waves and direct them into the auditory canal that leads to the middle and inner ears. The pinna in dogs, for example, can stand up straight in the air (like with a German Shepherd, or remain floppy, as with a Labrador Retriever). In many species, this portion of the ear is very mobile and they can consciously move the ears towards the sound.
The bottom and top eyelids are referred to as the inferior and superior eyelids. The lower lip is referred to as the labium inferius oris.



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