Question

The 1-year old female spayed Siamese cat in the picture shown below presents for ataxia and quiet mentation. On physical exam, the cat is quiet and responsive. She has a dome-shaped head and is ataxic when walking. Which of the following is a treatment option for the condition affecting this cat?

- Thiamin supplementation
- Clindamycin
- Furosemide
- Surgical closure of open fontanelle
- Phenobarbital

Explanation - The cat in the picture has hydrocephalus. The cause can be **genetic**, particularly in Siamese cats or due to exposure to toxins, such as **griseofulvin during gestation** or exposure to the **feline panleukopenia virus** during gestation.

Treatment is aimed at reducing the formation of CSF. Medical treatments include **prednisolone**, **furosemide**, **oral carbonic anhydrase inhibitors**, and surgical placement of a shunt from the ventricles of the brain into the peritoneal cavity. Anti-convulsant drugs may be recommended if seizures occur.

Question

A 5-week old domestic short hair kitten is presented for **ataxia** and **tremors**. The owner notes that the kitten was found several weeks ago and has always had tremors and difficulty keeping its balance. On physical exam, the kitten is ataxic, hypermetric, has a wide based stance, and head tremors. The kitten is otherwise normal on physical exam. What is the neuroanatomic location of the kitten's lesion?

- Brainstem
- Cerebellum
- Pons
- Cerebral cortex

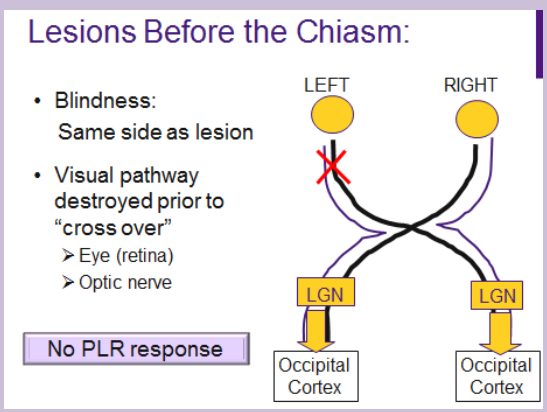
Explanation - The correct answer is cerebellum. **Cerebellar dysfunction** results in inability to regulate and measure motor function. Clinical signs of cerebellar lesions include ataxia, dysmetria, vestibular signs, delayed postural reactions, and sometimes upper motor neuron signs in the limbs. In utero or perinatal infection of kittens with **feline panleukopenia virus** often results in **cerebellar hypoplasia**, leading to the clinical signs mentioned in the question.

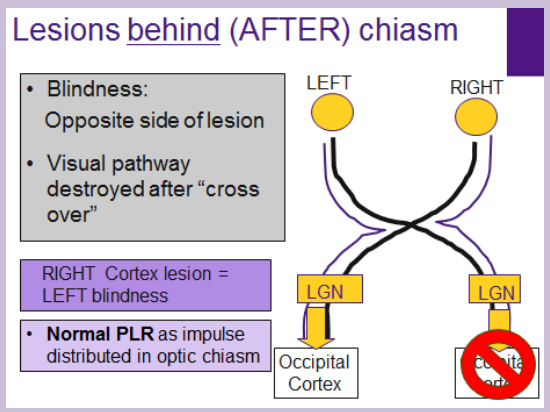
Question

The swinging flashlight test is often used in ophthalmologic exams to check pupilary responses in each eye. A positive Marcus Gunn sign is considered pathognomic for diagnosing a unilateral prechiasmal lesion. Which of the following is observed?

- When light is directed into the abnormal eye, the pupil in the normal eye stays dilated
- When light is directed into the normal eye, the pupil in that eye stays dilated
- When light is directed into the abnormal eye, the pupil on that side will constrict
- When light is directed into the normal eye, the pupil in the abnormal eye will stay dilated

Explanation - Normally, when light is directed into the eye, the signal is transferred from the retina, through the optic nerve, past the chiasm and down the optic tract. From there, it is directed to both oculomotor nerves to cause pupil constriction bilaterally. When there is a pre-chiasmal lesion, light shining in the abnormal eye will have an interrupted signal that cannot get past the chiasm and both pupils stay dilated. When light is shone into the normal eye, both pupils will constrict due to cross-over fibers that stimulate the oculomotor nerve of the abnormal eye.





Question

An 8-year old female spayed Siamese cat shown in the picture below presents for a right-sided head tilt and a horizontal nystagmus with the fast phase to the left. On physical exam, the cat has the described head tilt and nystagmus. She is circling to the right and her mentation is normal. What is your next step?

- Magnetic resonance imaging (MRI) of the head
- Radiographs of the head
- Complete blood count and chemistry panel
- Computed tomography (CT) of the head
- Otic exam

Explanation - Any dog or cat that presents with vestibular signs such a head tilt, nystagmus, and circling should have an **otic exam** as part of its physical exam.

Vestibular disease can be central or peripheral in origin. Although, advanced imaging such as a MRI or CT scan of the head is often recommended for vestibular disease to better characterize the brain and inner ear, an otic exam is the least invasive way to evaluate the patient and should be the next step, even prior to running blood work.

Hypothyroidism can mimic peripheral vestibular disease so it is an important rule out in differential diagnosis process.

Also, it is important to **check blood pressure** in an animal presenting with vestibular disease. Hypertension and vascular accident can be an important cause to rule out. It is a good idea to get the blood pressure before you draw the blood to minimize stress during the blood pressure readings.

Question

A cat is having a dental procedure and you notice some debris in the ears. You flush the ear canals gently and clean away the debris. Upon recovery from anesthesia, you notice the cat has a protrusion of the right nictitating membrane and the right pupil is miotic. The left eye appears normal. What is the most likely cause of these clinical symptoms?

- Trauma to spinal cord between T1-T4 while under anesthesia
- Rupture of tympanic membrane
- Vascular accident from anesthesia induced hypertension
- Inner ear polyp

Explanation - Horner's syndrome occurs from a disruption of the sympathetic innervation to the eye. In addition to the clinical signs mentioned, a droopy upper eyelid, enophthalmos, nystagmus, and sometimes a head tilt can occur. Because this cat was normal before the procedure, the likely cause of the Horner's syndrome is a **tympanic membrane (eardrum) rupture** or trauma that occurred during the ear flush. This is because the sympathetic innervation to the eye runs through the middle ear. An inner ear polyp could also cause this syndrome; however, because it came on acutely after an ear flush, a ruptured ear drum is most likely.
Anesthesia typically causes hypotension, not hypertension, so a vascular accident is very unlikely to occur in a young healthy cat.
A spinal cord lesion at T1-T4 could also cause this syndrome due to the sympathetic preganglionic cell bodies located in this area, but a significant trauma would have to occur for this to result in Horner's syndrome, and it is less likely in this anesthetized cat.

Question

A 6-year old female spayed stray cat presents to you with a two day history of progressive lethargy, vomiting, and inappetence. Upon physical examination, the patient has a temperature of 103.9, a small abscess forming on her right lateral trunk, and is showing aggressive behavior towards the clinical staff members and other animals (see picture below). What is your top differential for this patient and what is the next appropriate step you should take?

- Rabies, euthanasia with submission of the head (refrigerated) for direct fluorescent antibody testing (dFA)
- Staphylococcus aureus, sedate the patient, flush the abscess, and administer a Convenia injection

- Actinomyces, anesthetize the patient using an induction agent, lance the abscess, and prescribe oral Clavamox
- Rabies, euthanasia with submission of the brain (frozen) for enzyme-linked immunosorbent assay (ELISA)
- Pasturalla multocida, anesthetize the patient using an induction agent, lance the abscess, and prescribe oral Amoxicillin

Explanation - There are two phases associated with rabies infection in canines and felines. The initial phase is called the prodromal phase and often consists of vague clinical signs (including vomiting, lethargy, inappetence, and fever) along with furious or psychotic behavior. Cats in particular may develop erratic behavior such as anxiousness, staring, wild/spooky/blank appearing eyes. When confined to a kennel, they may strike or attack moving objects, including people. Other common clinical signs seen in cats are muscle tremors, ataxia, and weakness. This phase of the disease may last from 1-4 four days.

The second phase of rabies is called the dumb phase and may develop around day five of disease (if the cat has not succumb to the disease already). Clinical signs are often neurological and include LMN paralysis (especially if a limb is injured), CNS signs, or generalized paralysis.

According to the CDC, rabies testing should be performed in a qualified laboratory in accordance with the established national standardized. Euthanasia should be performed in such a way as to maintain the integrity of the brain so that the laboratory can recognize the anatomical parts. **Submission of the entire head or brain is acceptable for a small animal but must be kept refrigerated or on wet ice and never frozen**. Chemical fixation of the submitted tissues should be avoided.
The gold standard for diagnostic test for rabies is the **direct fluorescent antibody test (dFA)**. This test is performed on brain tissue from animals suspected of being rabid and can only be performed post-mortem. This is the test that all qualified rabies laboratories present in the United States perform on animals suspected of having rabies.

Question

A cat arrives at your clinic after being attacked by a raccoon. This cat is unvaccinated. What should you do?

- Euthanize immediately or quarantine for 6 months, and vaccinate 1 month before release
- Euthanize immediately
- Euthanize immediately or vaccinate immediately and quarantine for 45 days
- Quarantine for 8 months and vaccinate 3 months prior to release
- Vaccinate immediately and quarantine for 45 days

Explanation - The correct answer is to euthanize immediately or quarantine for 6 months and vaccinated 1 month before release. You could vaccinate the cat immediately and have the cat quarantined for 45 days only if the cat's rabies vaccination is current.

Question

An unvaccinated domestic short hair is brought to your clinic after biting a human. What is the best course of action?

- Vaccinate the cat immediately and quarantine it for 10 days
- Vaccinate the cat after a 6 month quarantine
- Vaccinate the cat immediately and quarantine it for 45 days
- Confine the cat and observe for 10 days
- Quarantine the cat for 10 days, or euthanize it and test it for rabies

Explanation - The best answer is to quarantine for 10 days, or euthanize it and test it for rabies. You may confine the cat and observe it for 10 days if it is vaccinated.

Question

You shine a light in a cat's right eye and see that the right eye constricts but not the left eye. You then shine a light in the left eye and the left eye does not constrict but the right eye constricts. Where is there a lesion in the pathway?

- Afferent to left eye
- Afferent to right eye
- Efferent to left eye
- Efferent to right eye

Explanation - The correct answer is efferent to left eye (Oculomotor nerve, CN III) because no matter which eye the light is shined in, there is no motor (or efferent) response in the left eye.

Question

A 4-year old FS indoor/outdoor cat presents for two seizure episodes over the last few days. Physical exam reveals aqueous flare in both eyes and a temperature of 103.5F. There are no other cats in the household, and the owner is feeding a raw meat diet. A comprehensive blood panel is submitted and results are as follows: FeLV/FIV/FCV negative, Heartworm antibody negative, Toxoplasma IgM 1:1024, IgG 1:512, Cryptococcus negative, neutrophils 28,000/uL, chemistries all WNL. The cat is current on vaccinations including Rabies. Which of the following medications is indicated?

- Thiamine
- Doxycycline
- Clindamycin
- Phenobarbital
- Fluconazole

Explanation - The neurologic symptoms and uveitis in this cat are being caused by the protozoan Toxoplasma gondii. Cats are the definitive host for this organism. The cat was likely infected

through **eating raw meat or infected prey**. An elevated **IgM** titer shows active infection with the organism.

The most common symptoms are lethargy, decreased appetite, and fever. The disease can cause diarrhea, upper respiratory symptoms, inflammation of the eyes, and neurologic disease. The treatment for this infection is the antibiotic **Clindamycin**.

Doxycycline is an antibiotic used in treating other infections in cats such as Hemobartonella and Mycoplasma.

Thiamine deficiency can occur and lead to seizures in cats fed a diet deficient in this vitamin. Because this is an outdoor cat with capability of predation, a thiamine deficiency would be unlikely. There is a test for thiamine levels if deficiency is suspected. Further questioning of this cat's raw diet would be helpful.

Fluconazole is an anti-fungal medication used in treating Cryptococcus neoformans, Coccidioides immitis, and other fungal diseases.

Phenobarbital would only be indicated if the seizures become frequent or severe. It is best to treat the underlying cause of the seizures first.

Question

A cat presents to your clinic after she was missing for three days. The cat smells like a skunk. You notice several penetrating wounds resembling that of a skunk encounter. You check your medical record and find out that the cat is up to date on her vaccinations. What should you do?

- Euthanize immediately or quarantine for 6 months and vaccinate 1 month before release
- Quarantine for 8 months and vaccinate 3 months prior to release
- Euthanize immediately
- Euthanize immediately or vaccinate immediately and quarantine for 45 days
- Vaccinate immediately and quarantine for 45 days

Explanation - The correct answer is to vaccinate immediately and quarantine for 45 days. You can euthanize or quarantine for 6 months and then vaccinate 1 month prior to release if the cat is not vaccinated.

Question

The cat in the image below presents for lethargy, depression, and weakness. The cat can't seem to lift his head (as seen in this image). You recommend running a chemistry panel on the cat. What potential finding explains can explain the findings?

- High urea nitrogen
- Low potassium
- Low calcium
- High glucose
- Low phosphorus

Explanation - The cat in the image is exhibiting cervical ventroflexion, which is a general sign of weakness. The most common cause for this presentation is **hypokalemia** (low potassium), which can be caused by a variety of reasons (**such as chronic renal failure**).

This weakness can also be caused by a number of different problems other than low potassium, including

myasthenia gravis;

polymyopathies caused by **toxoplasmosis**, **immune-mediated disease**, or **hyperadrenocorticism**; and

neuropathies caused by **organophosphate poisoning**, **thiamine deficiency**, or **botulism**.

Question

You are examining the eyes of a cat and find it has no dazzle reflex, menace response and is not visual out of one of its eyes, but it does have a palpebral reflex. Where is the lesion?

- CN V
- CN II
- CN VII
- Visual cortex

Explanation - The correct answer is CN II. The presence of a palpebral indicates normal function of CN V and VII. The dazzle reflex examines CN II separate of the visual cortex (an animal with a cortical lesion will still have a dazzle reflex). Therefore the lesion is in CN II.

Question

A cat presents in status epilepticus. The cat is moving violently and it will be difficult to place an IV catheter. What is the best treatment option for this cat to stop the seizure?

- Phenobarbital sublingually
- Diazepam intramuscularly
- Diazepam rectally
- Pentobarbital intravenously

Explanation - The correct answer is diazepam rectally. Diazepam is a benzodiazepine that is very effective at suppressing seizure activity. Intramuscular diazepam is absorbed very slowly and would not be a good option for this actively seizuring cat. This is a controversial question, and you may argue that diazepam has been associated acute hepatic necrosis in cats.

Question

Which is not a clinical sign of Horner's syndrome?

- Prolapsed third eyelid
- Miosis
- Enophthalmos
- Conjunctivitis
- Ptosis

Explanation - The correct answer is conjunctivitis. Horner's syndrome is caused by disruption of the sympathetic trunk. The prolapsed third eyelid occurs as a result of enophthalmos.

Question

A stray tomcat attacked and bit a human. The cat does not seem to be exhibiting any neurologic signs or other signs of illness. What is the correct course of action?

- Vaccinate immediately and quarantine for 10 days
- Vaccinate immediately and quarantine for 45 days
- Vaccinate after 6 month quarantine
- Euthanize and test

Explanation - The correct answer is to euthanize and test. Because the animal is a stray, it must be euthanized and tested, regardless of the presence of clinical signs of rabies.

Question

When performing a perineal urethrostomy which nerve must you preserve?

- Hypogastric nerve
- Sciatic nerve
- Femoral nerve
- Pudendal nerve
- Ulnar nerve

Explanation - The correct answer is pudendal nerve. This is the main nerve in the region of the surgery that is at risk of being severed. Severing the nerve could result in urinary incontinence due to loss of somatic innervation to the urethral sphincter. Just to review...the **pudendal nerve** will supply somatic innervation to the external sphincter of the bladder and also to striated muscle on the urethra. The **hypogastric nerves** are those responsible for sympathetic innervation and parasympathetic innervation is via the **pelvic nerve**.

Question

What can be said about the cat in the photograph?

- The cat is mydraitic OU
- The cat has anisocoria
- The cat has uveitis
- The cat has Horner's syndrome

Explanation - The correct answer is the cat has anisocoria.
In this case, the cat was hit by a car and suffered head trauma.

Question

A 10-year old female spayed calico has presented for further evaluation of a previously diagnosed mass in the neck region. The mass had been diagnosed as a thyroid carcinoma and has now abscessed. Chest radiographs show a bronchial pattern with no obvious evidence of metastasis. Blood work shows a slightly decreased T3 and T4. Which of the following is a likely complication from this mass?

- Horner's syndrome
- Hypertrophic cardiomyopathy
- Renal failure
- Hypercalcemia

Explanation - The correct answer is Horner's syndrome. This is likely as a result of direct disruption of the sympathetic trunk traveling along the neck. Any time there is a neck mass

present, it is important to evaluate the patient for the possibility of Horner's syndrome. Additionally, disruption of the recurrent laryngeal nerve should be considered as this will result in laryngeal paralysis.

Hypercalcemia of malignancy is always a possibility with any mass; however, it is not reported commonly with thyroid adenocarcinomas in cats.

Hypertrophic cardiomyopathy can be a feature of hyperthyroidism, which is usually secondary to a thyroid adenoma. Based on this patient's blood work, there is no evidence of hyperthyroidism.

Renal failure is not a reported cause.

Question

A 5-year old female spayed domestic short haired cat presents for a right sided head tilt, vertical nystagmus, and circling to the right. Where is the lesion in this cat?

- Left peripheral vestibular disease
- Right peripheral vestibular disease
- Left central vestibular disease
- Right central vestibular disease

Explanation - The correct answer is right central vestibular disease. Vertical nystagmus is seen only in central vestibular disease. Head tilt and circling are usually toward the side of the lesion (unless the animal has paradoxical vestibular disease in which case the head tilt and circling is away from the lesion).

Question

A vaccinated Persian cat arrives at your clinic two days after biting a human. What is your course of action?

- Vaccinate after 6-month quarantine
- Euthanize and test
- Confine pet and observe for 10 days
- Vaccinate immediately and quarantine for 45 days

Explanation - The correct answer is to confine and observe the cat for 10 days. You would only need to euthanize and test if the cat is a stray. If the cat was not up to date on vaccinations, you would either euthanize and test, or quarantine for 10 days in an approved facility.

Question

A 10-year-old female spayed DSH presents for dropping food and drooling from the left side. She has no history of trauma but recently has had thick ocular discharge which the owner has had to

clean regularly. You perform a neurologic exam and find the following (see image). The rest of the exam is within normal limits. What do you inform the owner?

- The recommended treatment is a ventral bulla osteotomy
- The cause is most likely idiopathic and it typically resolves over time
- The other side may start to show the same signs within a few weeks to months
- Treatment involves corticosteroid administration but prognosis for recovery is still guarded

Explanation - This patient has the classic finding associated with **unilateral facial nerve paresis**. Unfortunately, **it is most commonly idiopathic**; however in cats it can sometimes be caused by things such as nasopharyngeal polyps, neoplasia and trauma.

Prognosis for recovery is guarded and the clinical signs are **typically permanent**. The unaffected facial nerve can become affected as well.

Treatment for idiopathic disease is supportive including eye lubrication and management of corneal ulcers. Drooling usually resolves over several weeks. Steroids have been used in humans but it has not been shown to be effective in animals.

Otitis media-interna and chronic ear disease can make animals at higher risk for nerve paralysis and a CT of the bulla is recommended rather than radiographs. Bulla osteotomy may be recommended for animals with middle ear disease or those prone to chronic otitis media-interna.

In dogs, facial paralysis has been seen with hypothyroidism.