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Summary:

Surgical affections of larynx

Roaring (laryngeal hemiplasia)

Laryngeal hemiplegia is a common respiratory disorder of equines when arytenoid cartilage in the larynx becomes paralyzed due to degeneration of the recurrent laryngeal nerve that innervates the muscles of the larynx, preventing the arytenoid cartilage from opening properly and interferes with the flow of air from the trachea. Laryngeal hemiplegia usually only affects one arytenoid, especially the left side in 95% of cases.

Causes

The specific cause of the nerve degeneration is unknown but there is likely genetic and acquired causes including
1-injuries from medication injection
2-plant poisoning
3-lead and other heavy metal poisoning
4-pathological stretching of recurrent laryngeal nerve as it courses around aorta

(95 % of roaring involve left side)

Clinical signs

The two main signs of laryngeal hemiplegia are upper respiratory noise during exercise on inspiratory phase and poor performance.

Diagnosis

1- Clinical signs and auscultation especially the whistling and roaring sounds are fairly distinctive.
2- Confirmation of the disorder can be done using endoscopy

Treatment

Laryngeal hemiplegia is typically a surgical condition that could be corrected via adapting several surgical options

1.A prosthetic laryngoplasty, "tie-back," procedure.

A small incision is made in the throat latch and the paralyzed cartilage is tied back into an open position through the incision. Two strong sutures are placed through the arytenoid cartilage and attached to one of the other laryngeal cartilages. The sutures help to abduct the arytenoid cartilage thus opening up the airway.

2.laryngeal ventriculectomy: This procedure removes the ventricle on affected paralytic side in order to widen the airway

3.Arytenoidectomy: This surgery is usually reserved for horses who have already had a failed prosthetic laryngoplasty, and it is the complete removal of the paralyzed arytenoid cartilage.

Guttural poaches

Guttural pouches connect the pharynx to the middle ear occupying the area posterior to the mandible. This critical position of guttural pouches that contain important nerves, arteries, and blood vessels making any infection or tumors become serious problems when they occur. Also nerves in this area are responsible for crucial body functions, such as breathing, swallowing, and chewing.

The most popular affections of guttural pouches are:

A. Guttural pouch tympany

It is a large, firm air-filled swelling in the throatlatch area of the neck due to distention of the guttural pouches with pressurized air (In some instances air accumulation is accompanied by fluid accumulation). Most commonly the condition affects an individual pouch, but it may occur bilaterally. It develops in foals shortly after birth and up to 1 year of age.

Clinical sings

1-Distension of the affected guttural pouch with air to form a non-painful, elastic swelling in the parotid region that can extend across the neck and give the impression of bilateral involvement.

2-Severe distention can cause dyspnea, dysphagia, inhalation pneumonia, and secondary empyema is not uncommon. Because the consequences of the guttural pouch distention are detrimental, it is important to relieve the tympany as quickly as possible.

B. Guttural pouch mycosis

It means the development of fungal plaques within the mucosal walls of the guttural pouches. These are most commonly located on the roof of the medial compartment but can also be seen on the lateral wall of the lateral compartment. They are usually closely associated with underlying vascular structures. Fungal colonization leads to erosion of underlying vascular structures or inflammatory injury to adjacent nerves.

The exact etiology and pathogenesis of the condition is not known. There is no apparent age, sex, breed.

Clinical signs

Noticed when there is vascular or neurological compromise.

1- A single or repeated mild epistaxis is the most common sign associated with vascular compromise.

2-Neurological signs associated with the condition reflect the affected nerves.

Diagnosis and treatment

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The condition may be suspected on the basis of the clinical signs but confirmation requires endoscopic identification of a fungal plaque within the guttural pouch.

- Endoscopic examination should not be attempted soon after an episode of epistaxis as the plaque may be difficult to visualize if the pouch is full of blood and there is a risk of dislodging a clot to induce another episode of hemorrhage.

- Treatment depends on the stage of the disease. Medical treatment which usually consists of topical and parenteral antimycotic drugs can be attempted if the condition is in the early stages and the clinical signs are not yet marked.

- Frequently a combination of surgical and medical therapy is required with surgery aimed at occlusion of the affected vessels. Supportive care and anti-inflammatories are important in cases s

he cause of guttural pouch mycosis is unknown, although Aspergillus spp. can frequently be identified in the lesion. Aspergillus fumigatus is the most common isolate and can be identified more readily in direct examination of biopsies than by culture

C.Guttural pouch empyema

the presence of pus in the pouches caused by bacterial growth, often occurs following an infection of the pharynx. The most common organism involved is Streptococcus equi, but other organisms and fungi can cause erosion of the blood vessels and nerves leading to internal bleeding often revealed by intermittent bleeding from the nostril.

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Symptoms

1-External swelling of the pouch area.

2-Nasal discharge, often creamy in consistency and intermittent bleeding from one nostril.

3-Difficulty eating and swallowing because of nerve damage.

Treatment

1-Aggressive flushing of the pouch by placing specialized catheters in the affected pouch.

2-Surgery may be necessary to drain the pouch**.**

SURGICAL DRAINAGE OF THE GUTTURAL POUCH

The following approaches can be used to open the guttural pouch for removal of pus, mycotic plaques, and foreign bodies and to establish drainage.

Hyovertebrotomy

A 10-cm-long incision is made 2 cm craniad to and parallel with the wing of the atlas (see Fig. 45-14). The dense parotid fascia is incised, and the parotid gland and overlying parotidoauricularis muscle are reflected cranially. The guttural pouch lining is exposed beneath a covering of areolar tissue and grasped with rat-toothed or Allis tissue forceps. It is punctured with the closed tips of scissors or a hemostat, and this opening is enlarged by spreading its edges with a hemostat or the fingers. To establish ventral drainage, the pouch is opened ventrally through an incision in Viborg's triangle, guided by a finger within the pouch. The hyovertebrotomy can be closed or left partly open for infusion of irrigating solutions.

Viborg's Triangle Approach

Viborg's triangle is bordered by the tendon of the sternocephalicus muscle, the linguofacial vein, and the vertical ramus of the mandible (see Fig. 45-14). A vertical or horizontal incision is made in this area, taking care to avoid the parotid duct and branches of the vagus nerve along the floor of the guttural pouch. The incision is usually kept open with a soft rubber drain to establish ventral drainage.

Whitehouse Approach

With the horse in dorsal recumbency, a skin incision is made on the ventral midline over the larynx (Fig. 45-14). Dissection is continued between the paired

sternohyoideus inserted into the medial compartment. A fixed structure, such as the stylohyoid bone, should be used as a guide for deep dissection. The mucosa should not be incised with sharp instruments, and retractors should be applied with care to avoid nerve damage. Because all approaches enter the pouch cavity in the same approximate area, none provide less risk of nerve damage than others. Open incisions in the guttural pouch are cleaned daily, and the guttural pouch cavity should be flushed daily with a nonirritating solution. Open incisions close spontaneously within 14 days, and the infection should also resolve within this time. Postoperative antibiotics can be given.

a- Trachea

The lesions that may restrict the tracheal air flow may results from

1-congenital abnormalities

2-traumatic lesions (fractured tracheal rings)

3-infectious diseases

4-post surgical stenosis

Diseases of trachea is uncommon however, they may include

1-intraluminal tracheal lesions (space occupying lesions within tracheal lumen itself), stenotic cicatrix formation or granulation following tracheostomy, penetrating lesion into tracheal lumen, neoplastic diseases.

2-diseases of cartilaginous tracheal rings

3-peritracheal lesions that compress trachea (extra luminal tracheal lesion)

Clinical signs

1-noise production

2-exercise intolerance

2-dyspnea

Diagnosis

1-external palpation

2-auscultation

3-endoscopy

4-x-ray

Treatment

1-intraluminal lesion removed surgically, the wound leave open to heal by 2nd intention

2-extraluminal lesions surgically removal and closure of wounds

Tracheal collaps (flatting)

Tracheal collapse is a common cause of airway obstruction especially in dogs. It is characterized by marked dorsoventral flattening of the tracheal lumen

Causes

1-external trauma

20sequele of tracheostomy

3-fracture of tracheal rings (when healing is occur in mal alignment

4-swelling or distortion of tissue surrounding the trachea or mediastinal lymph node abscessation

Signs and Symptoms:

harsh dry cough that sounds like a goose honking

difficulty breathing

exercise intolerance

coughing or turning blue when excited

abnormal noise during breathing

treatment

according to cause

tracheostomy

Most cases of tracheal collapse are treated with cough suppressants, bronchodilators, corticosteroids (to control inflammation), and/or antibiotics.

If medical management produces no response in two weeks, or if severe signs compromise the pet's functionality, surgery is recommended. Various surgical techniques have been described, but the application of prosthetic polypropylene rings to the outside of the trachea is the current treatment of choice,

Affections of the Chest wall

1- **Fractured ribs** and sternum
Fractures of the ribs are uncommon however, it occur in 6-11 ribs.

Causes → Direct violenc e.g.falls, kicks, and pinetrating foreign bodies

Singns: → shallow breathing, pain, swelling, and crepitus sound during percution.

Complication → 1-haemothorax or pnemothorax

2-injury to heart, lung, and blood vessels

3-injury to intercostal blood vessels with serous haematoma

4-costal fistula

Treatment → simple fracture by adhesive plaster

→ Compound fracture by fixation

2- **Costal fistula**: It could be due to 1-necrosis of ribs
2-fracture of ribs

Symptoms → discharge from the opening
Treatment → costectomy may be required

3- Sternal Fistula

This is a sinus of the sternum, due to necrosis following injury or infection of the bone or cartilage. It may be a sequel to compouned fracture of the sternum or foreign body lodged in its vicinity

Signs:

Inflammetory swelling, the persisting purulent orifice and probe inserted through the latter coming in contact with the bone are characteristic.

Treatment:

1- Caustic may be tried at first

Operation to open up largely the sinuses for the removal of the diseased tissues

Varies with the region of the chest wall injuried and the amount of displacement of the rib end.

1- Cranial rib are usually not involved, but when such fractures do occur, brachial nerve plexus injury can expected.

2- Swelling

3- Penetration of the pleura or peritoneum by a fragment of rib may be associated with visceral organ damage. Pneumothorax or hemothorax may result from such an internal injury or from an open wound to the outside.

4- A persistant costal fistula may follow compouned fractures

Treatment

1- Uncomplecated fracture of the ribs are not treated, except by rest

2- Open wounds of the thorax or abdominal cavity are always serious and must be handled as emergencies

3- Costal fistula can be treated by surgical resection of the diseased rib

4- Compouned fracture is treated on general principal

Complications

1- Hemothorax, or pneumothorax

2- Injury of heart, lung,blood vessels

3- Injury of intercostal blood vessels with serous hematoma

4- Costal fistula

Open Chest Wound

Caused in various ways and may be non-penetrating or penetrating wounds

Sings:

When a penetrating wound is very narrow, it is impossible to see the opening into the chest. But, only by the hissing noise caused by passage of air between the pleural sac and the exterior probing to assist diagnosis.

Complications:

1- Collapse of the lung

2- Pneumothorax

3- Pleuricy

4- Penetration of the lung, heart, and large vessels

5- Hemorrhage from opening of an intercostal artery

6- Penetration of the abdominal cavity

Treatment:

The same lines as tose recommended for wounds in general.

Intercostal Fistula

A sinus or purulent fistula on the thorax wall due to, necrosis of rib, orpresence of a foreign body embedded deeply in an intercostal space

Signs: The same as in sinus

Treatment:

Remove sequestrum or foreign body when present, or currette a caried surface. The subsequent treatment is that of an open wound. Should the foregoing treatment fail in the case of extensive disease of a rib, costectomy is indicated.

Sternal Fistula

This is a sinus of the sternum, due to necrosis following injury or infection of the bone or cartilage. It may be a sequel to compouned fracture of the sternum or foreign body lodged in its vicinity

Signs:

Inflammetory swelling, the persisting purulent orifice and probe inserted through the latter coming in contact with the bone are characteristic.

Treatment:

1- Caustic may be tried at first

2- Operation to open up largely the sinuses for the removal of the diseased tissues.