Affection of Respiratory system and nasal sinuses

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Anatomy of Respiratory System

- **Upper Res. Sys.**
- **1-nostrils**
- **2-nasal sinuses**
- **3-Pharynx**
- **4-Larynx**
- **Lower Res. Sys.**
- **1-Trachea**
- **2-bronchi**
- **3-lungs**

Anatomy of Respiratory System

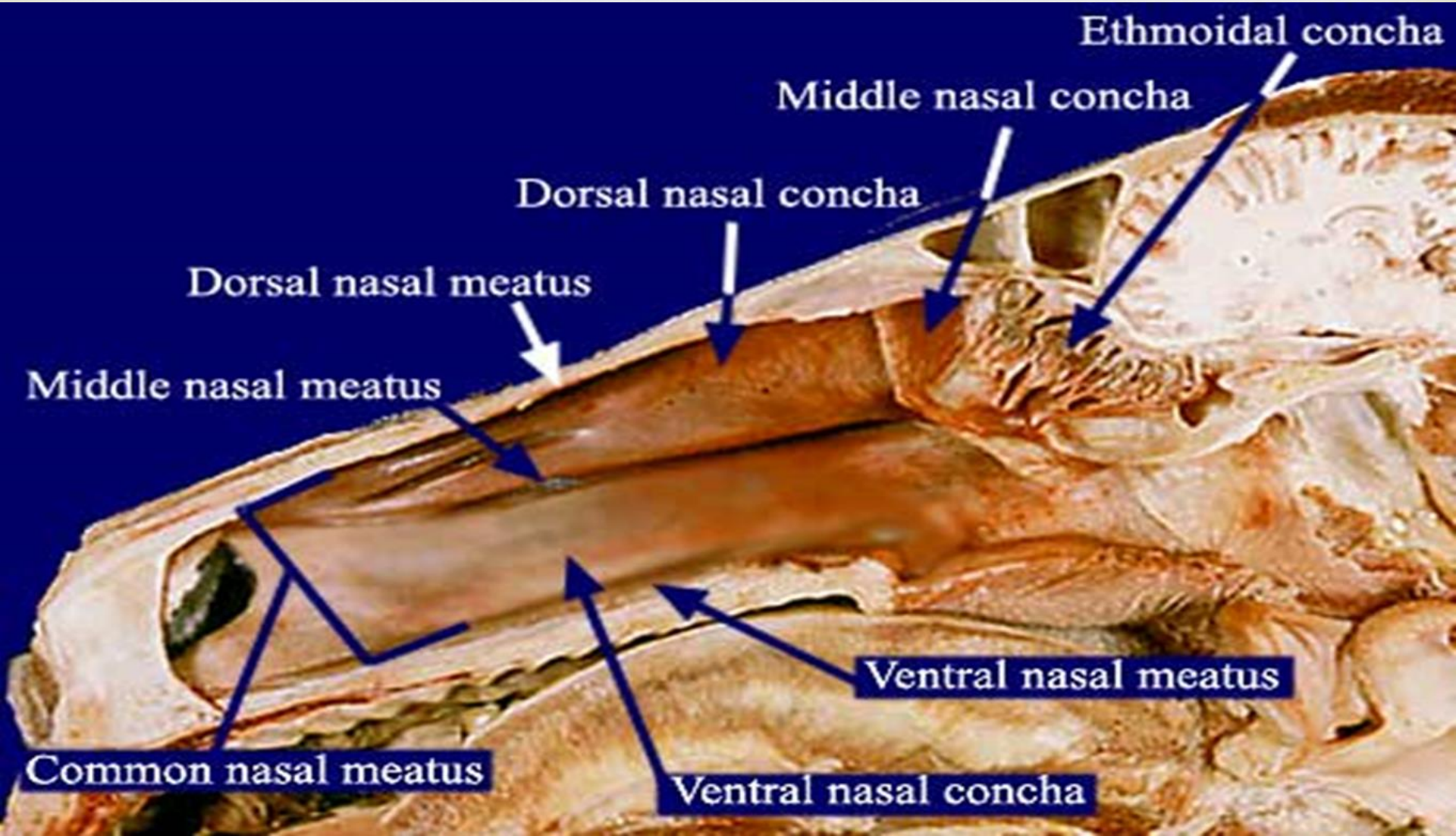
Blood Supply

- Blood Supply
- The lung receives blood from two circulations. The pulmonary circulation receives the total cardiac output from the right side of the heart. The branches of the pulmonary artery carry venous blood to the lung, accompany the bronchi, and form rich capillary plexuses on the walls of the alveoli. Here the blood is arterialized (oxygenation and release of carbon dioxide are two main functions) and returned to the left side of the heart by the pulmonary veins.

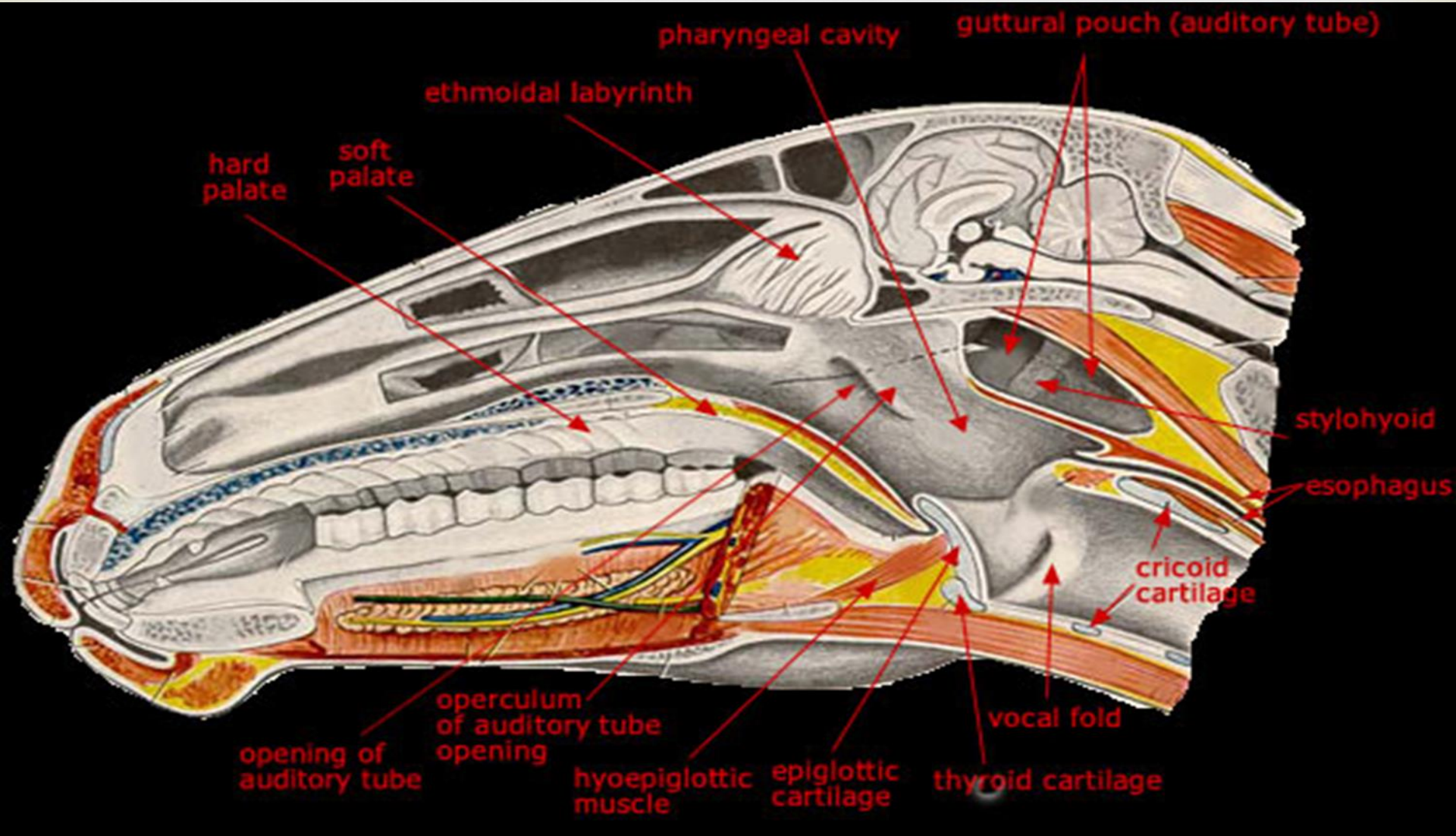
Nerves supply

- The phrenic nerve comes from C3,4,5 cervical nerve roots. It innervates the fibrous pericardium, portions of the visceral pleura, and the diaphragm.
- The lung receives innervation from two main sources: the pulmonary plexus (a combination of parasympathetic and sympathetic innervation) and the phrenic nerve. The pulmonary plexus is at the root of the lung and consists of efferent and afferent autonomic nerve fibers. It consists of branches of the vagus nerve (parasympathetic) and sympathetic fibers—the plexus branches around the pulmonary vasculature and bronchi. The parasympathetic innervation causes constriction of the bronchi, dilation of the pulmonary vessels, and increases gland secretion. The sympathetic innervation causes dilation of the bronchi and constriction of the pulmonary vessels.

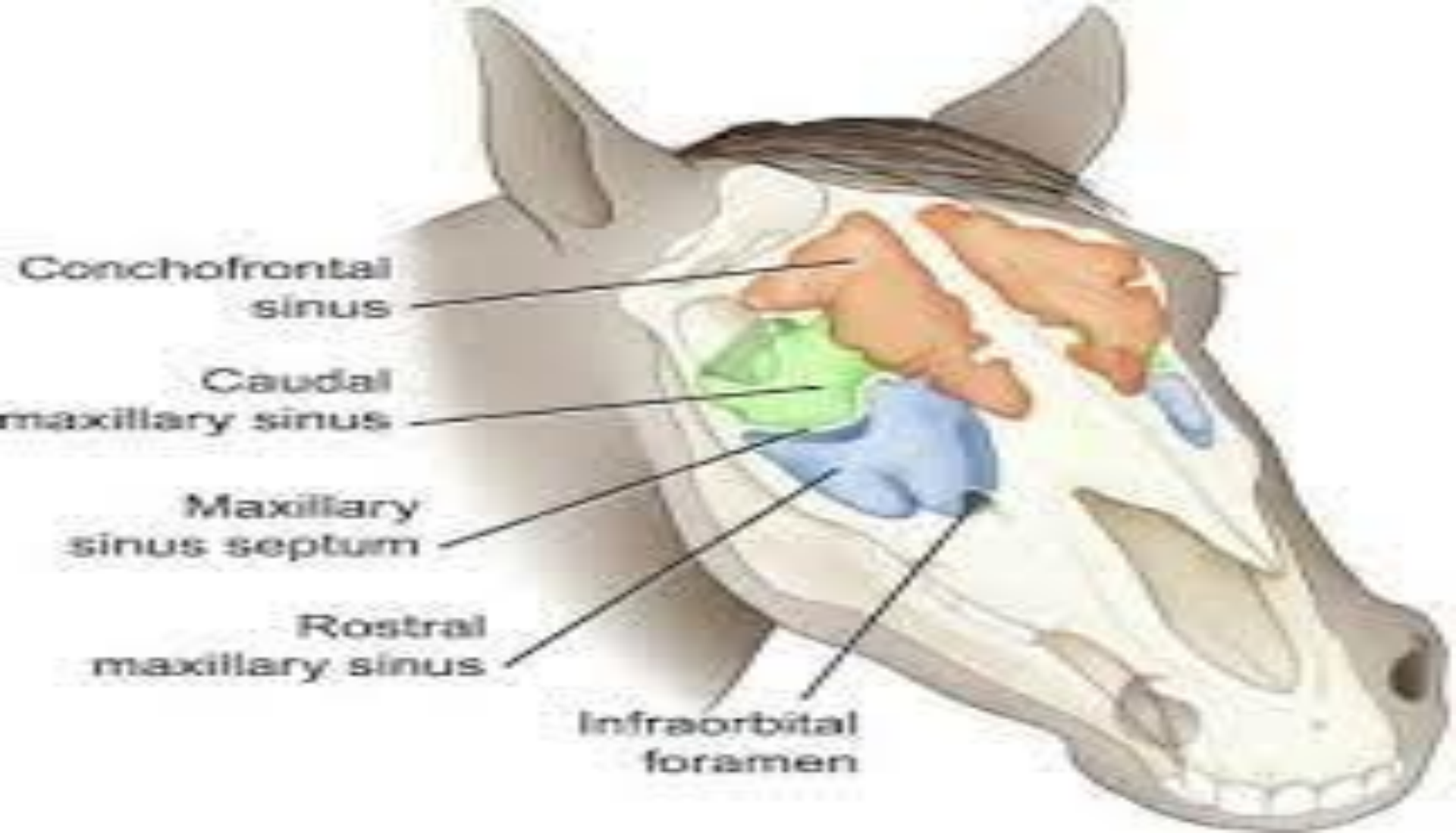
Nasal Cavity



Nasal Cavity



Nasal Cavity

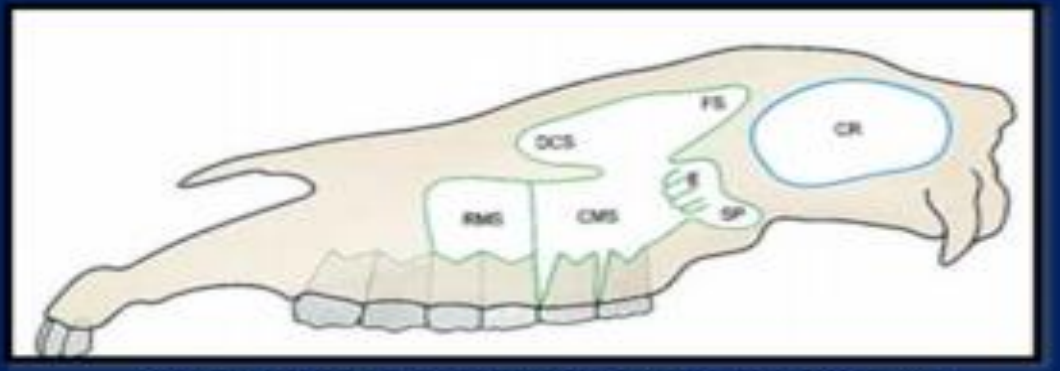


Nasal Cavity

Anatomy of the Paranasal Sinuses

There are 6 paired sinus spaces in the horse:

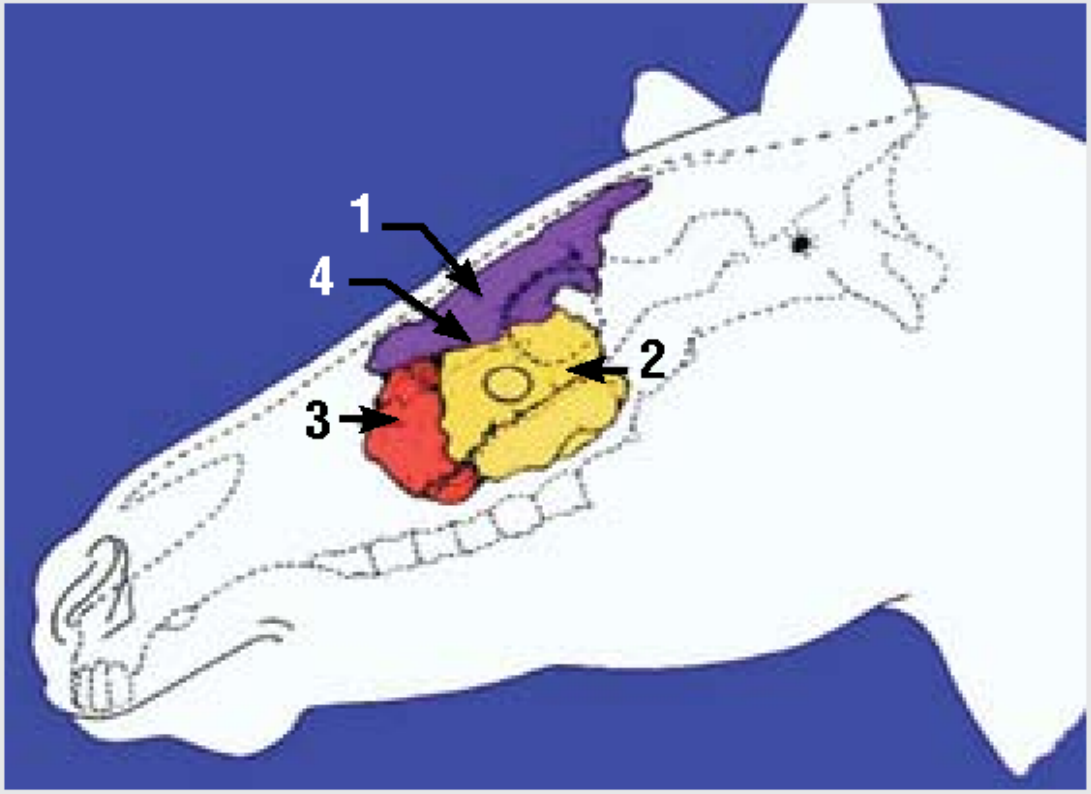
- 1)Dorsal conchal
- 2)Middle conchal
- 3)Ventral conchal
- 4)Sphenopalatine
- 5)Frontal
- 6)Maxillary

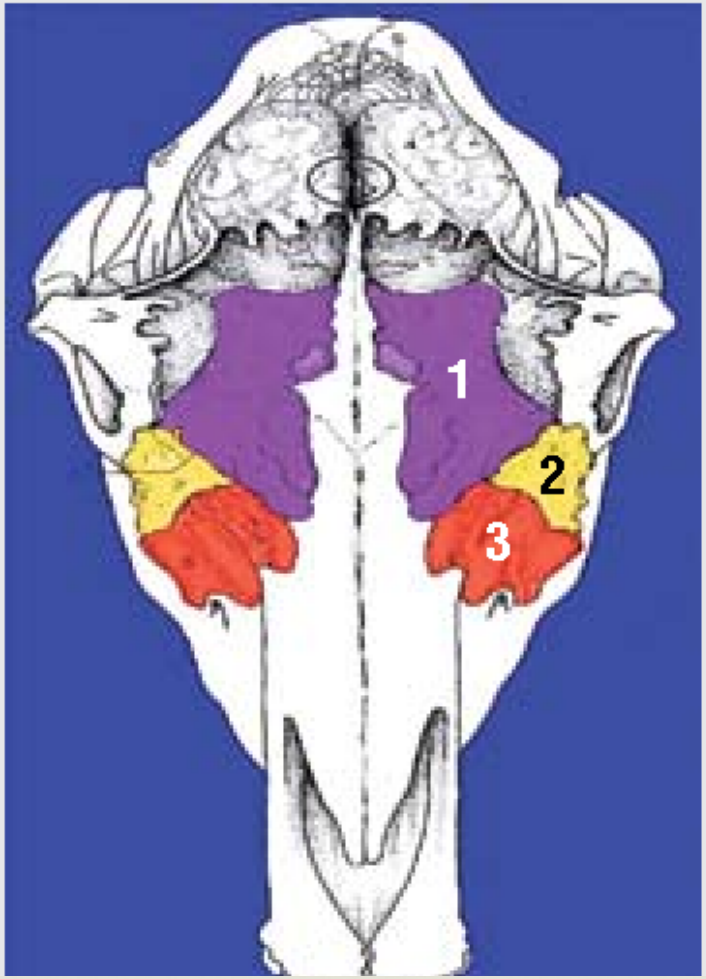


S. Sarakzai. Handbook of Equine Respiratory Endoscopy. Page 120, figure 9-3.

Nasal Cavity

FIGURE 1





Normal anatomy of the major equine paranasal sinuses: conchofrontal sinus (*1*), caudal maxillary sinus (*2*), rostral maxillary sinus (*3*), and

Nasal Cavity

- The nasal cavity is the area between the nostrils and the cribiform plate, one enters the nasal cavity through its narrowest part known as the nasal valve, On the medial side of the nasal valve is the nasal septum while on the lateral side is the alar fold. It is consists
- A: nasal septum ,B: frontal sinus, C:cranial cavity., D: nasopharynx. E: larynx

- Nasal cavity has two turbinates that divide the cavity into three air passages,
- 1-Dorsal nasal meatus: Between the dorsal nasal meatus and the dorsal concha. It leads directly to the caudal nasal cavity.
- 2-Middle nasal meatus: Between the dorsal and ventral nasal conchae, communicates with paranasal sinuses and leads into the caudal nasal cavity.
- 3-Ventral nasal meatus: Between the floor of the nasal cavity and the ventral nasal concha.

Affections of the nasal cavity

- 1-Epistaxis
- Epistaxis means bleeding from the nose. The distinguishing characteristic feature of epistaxis is the pure blood from the nostrils. If the blood is frothy it is usually from the lungs, and if it contains food particles it is probably from the stomach.

2-Parasites of the nasal cavity

- Parasites of the nasal cavity in horse, dogs and sheep cause inflammation of the mucous membrane resulting in a purulent discharge from the nostrils. The parasite found in sheep is the larvae of oestrus ovis and that of the dog is the liguatula rhinaria.

- Fracture of the nasal bones
- Fracture of the nasal bones and septum nasi are mostly caused by a kick or from injury by barbed wire.

- Tumors of the nostrils
- Nasal tumours are mostly common in horses. One of the most common is the polypoid fibromata which occasionally occur just inside the anterior nares. They may be multiple interfering with breathing and causing a respiratory noise. When bilateral they cause more or less dyspnea. Cavernous angiomas of the septum nasi are rarely found. They tend to be usually ulcerated causing bleeding from the nose which can not be stopped.

Atheroma

- Atheroma
- A sebaceous cyst found in the false nostril of the horse. It develops between the mucous membrane lining the false nostril deeply and the skin superficially. Atheromas may occur unilaterally or bilaterally. They vary in size from that of a small pigeon egg to as large as a tennis ball. The content vary. It may be watery or thick, oily and gray material.

Atheroma

Affection of the sinuses

- Empyema of the sinuses and sinusitis
- Sinusitis means inflammation of the sinuses. Empyemia of the sinuses is the purulent inflammation of the sinuses and accumulation of pus in them. The frontal sinus is most commonly affected in cattle and the maxillary sinus in horses.

Empyema of the sinuses and sinusitis

- Fractures of the bone of the face:
- In these cases a spicule of bone may fall into the sinus and act as a foreign body.
- New growthes of the sinuses such as sarcoma and carcinoma are possible causes of pus in the sinuses.

Fractures of the bone of the face

Trephining

- Empyemia of the sinuses, It must be opened again and winded.
- 1-Frontal sinus in equine
- 2-Suprior maxillary sinus in equine
- 3-Inferior maxillary sinus in equine

Trephining

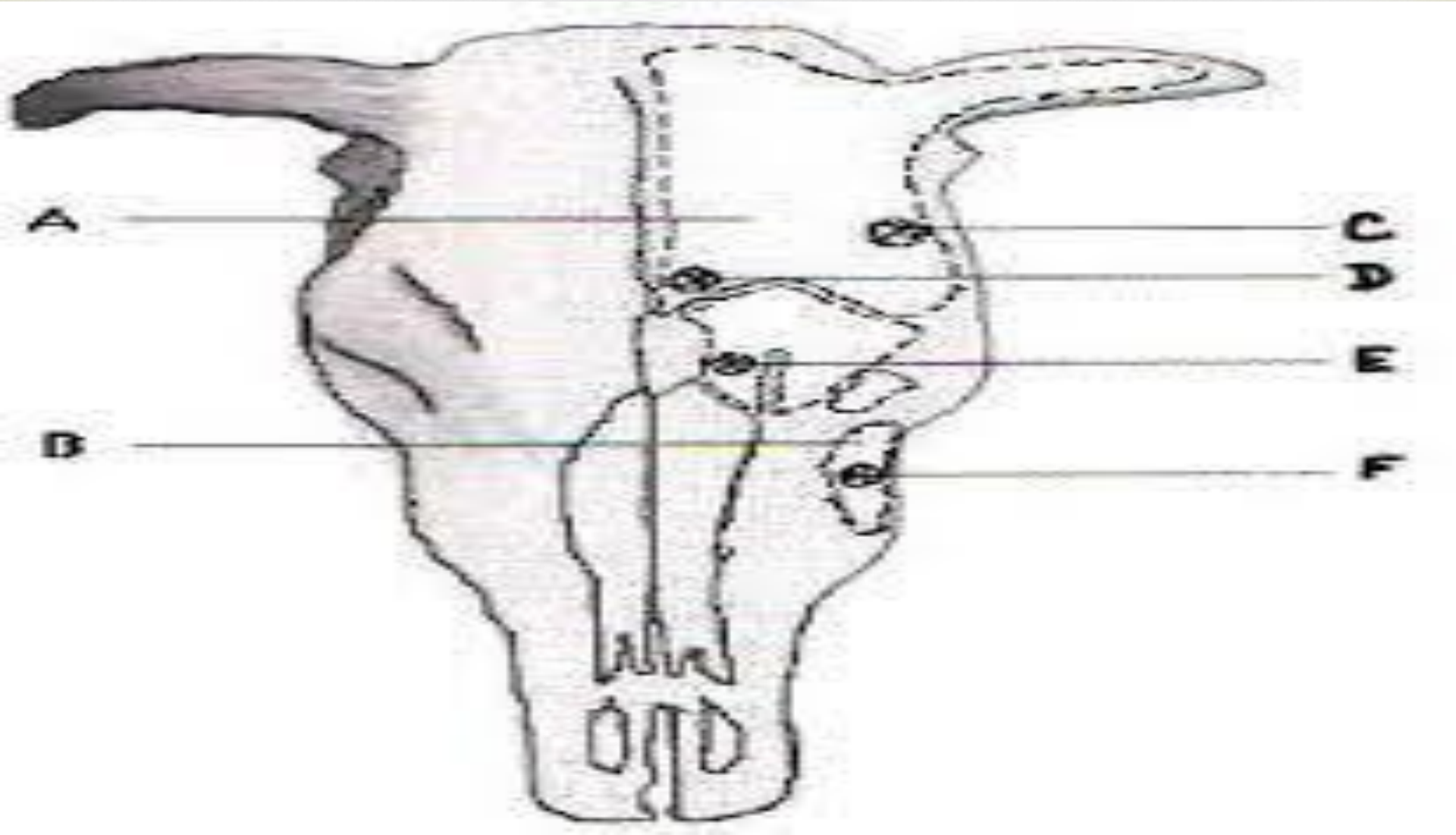

alang

Site for trephining

The point of frontal sinus trephine is placed 2.5cm lateral to the midline of skull on a horizontal line running from the upper border of the orbit across to a similar point on the other side.

In cattle

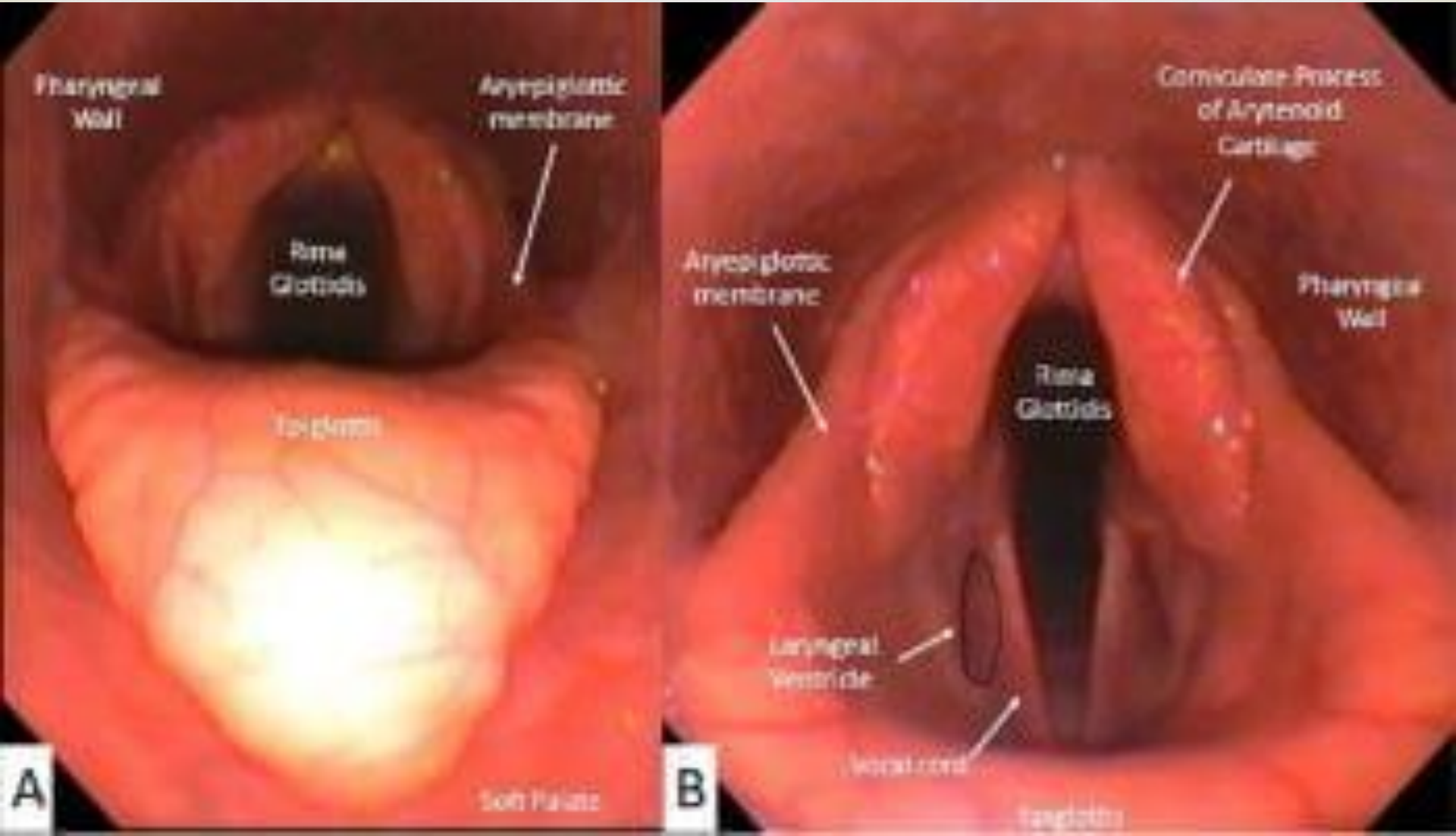
- Postorbital part of the frontal sinus:
- The medial portion of the frontal sinus :
- The turbinate portion of the frontal sinus:
- Maxillary sinus


A
B
C
D
E
F

Affections of the larynx

- Laryngeal hemiplegia roaring
- Characterized by an inspiratory dyspnea due to an inability of the lumen of the larynx to dilate sufficiently during inspiration. The inability of the larynx to dilate results from the relaxation and atrophy i.e. paralysis of the intrinsic muscles of the larynx.

Laryngeal hemiplegia roaring



Affection of Trachea

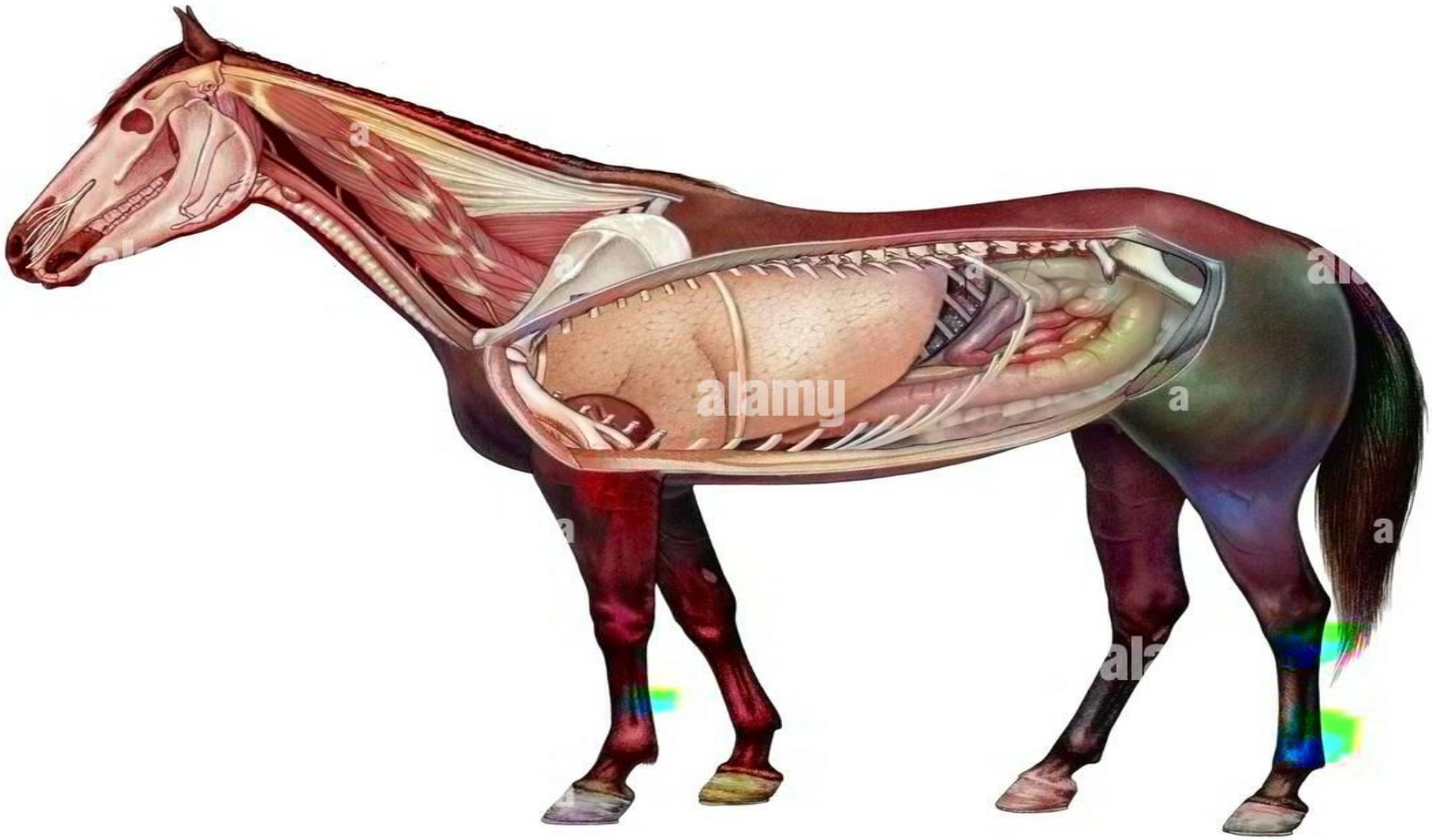
- Tracheal Stenosis
- Tracheal Wound
- Tracheo-bronchial forgion body

Tracheostomy

Thoracic Surgery

- Thoracic surgery is the repair of organs located in the thorax, or chest. The thoracic cavity lies between the neck and the diaphragm, and contains the heart and lungs (cardiopulmonary system), the esophagus, trachea, pleura, mediastinum, chest wall, and diaphragm.

Thoracic Surgery



Thank You

For Listening