

A MASS OBSTRUCTION

Our expert



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





Ethmoid haematomas, which occur in horses' nasal passages, cause serious problems, but thankfully they aren't common. Vet Nancy Homewood from Hook Norton Veterinary Group explains what they are and what to look for

An ethmoid haematoma is a benign mass filled with blood that can be found in the thin scrolls of bone in the back of the nasal passages, called the ethmoid turbinates. These little bones have an extensive blood supply and are involved in humidifying, cleaning and warming inhaled air as it passes through the nasal passages towards the larynx. The ethmoid turbinates are next to the paranasal sinuses, which consist of six pairs of air-filled cavities

that sit at the front of the skull, and sometimes ethmoid haematomas develop in this region, too.

Ethmoid haematomas can develop at any age, but are more common once horses reach middle age. There appears to be no significant difference between their occurrence in mares or geldings. They can affect any breed, although Thoroughbreds and Arabs seem to be more susceptible. However, the higher number of cases in these breeds may be due to the fact that there are large populations of each.

Colour key

-  Ventral conchal sinus
-  Maxillary sinus (rostral part)
-  Dorsal conchal sinus
-  Frontal sinus
-  Maxillary sinus (caudal part)
-  Sphenopalatine sinus
-  Ethmoid turbinates
-  Middle conchal sinus



What causes them?

Their exact cause isn't fully understood, but it's thought that they may result from a small bleed within the soft tissue that sits below the lining of the ethmoid turbinates. This bleed causes the tissue to stretch, which then thickens and forms a capsule containing the blood, causing the haematoma. Further bleeds in the area cause the haematoma to become progressively larger.

They can grow aggressively, filling the cavity they are growing in, invading adjacent sinuses, and distorting and destroying the surrounding soft tissue and bone. Eventually, the haematoma may grow to such a size that it fills the airway and causes an obstruction, making breathing difficult.

Paranasal sinuses in the horse

There are six pairs of sinuses in the horse – the frontal sinus, the maxillary sinus, the sphenopalatine sinus, the dorsal conchal sinus, the middle conchal sinus and the ventral conchal sinus. Together they are described as the paranasal sinuses.

Could it be something else?

A nosebleed doesn't always mean your horse could have an ethmoid haematoma – they are actually fairly rare. Other conditions that cause nosebleeds include...

Guttural pouch mycosis Fungal erosion of an artery adjacent to the guttural pouch that causes a sudden, severe nosebleed. This is a veterinary emergency.

Skull fracture Usually caused by external trauma, such as a stable or lorry accident, or a kick from another horse.

Foreign body Although unusual, foreign bodies such as sticks and thorns can become lodged within the horse's nasal passages, larynx or trachea. There is more commonly a cough associated with these cases, as the object irritates and causes inflammation.

Paranasal sinus cyst/infection This can produce a blood-tinged nasal discharge, usually from one nostril.

Ethmoidal neoplasia Tumours that can be benign or malignant, and may aggressively invade tissues within the skull.

What to look out for

As the haematoma grows in size, it causes the surface of the capsule to ulcerate. This leads to the key symptom of ethmoid haematomas – a slight, intermittent nosebleed from one nostril. In most cases, only one nostril is affected because the haematoma usually only affects one side of the nasal cavity. However, it is possible for both sides to be affected, which will cause a slight bleed in both nostrils. The bleed can occur either at rest or after exercise, when there has been increased airflow through the nasal passages.



The blood may also be accompanied by nasal discharge if the pressure from the haematoma is causing damage to the surrounding structures and, over time, this discharge may develop a very unpleasant smell. Other, less common symptoms include swelling of the face, headshaking, reluctance to have his head handled and abnormal respiratory noise.

Some horses may not show any symptoms if the mass isn't yet progressive, and the haematoma is only found during endoscopy or X-ray of the skull to investigate another problem. ➔



The key symptom of ethmoid haematomas is a slight, intermittent nosebleed from one nostril. However, sometimes a bleed can be seen from both nostrils if both sides of the nasal cavity are affected

When to call the vet

Being flight animals, horses are prone to the odd knock and because the ethmoid turbinates have such an extensive blood supply, a nosebleed can be common following head trauma. A mild, one-off bleed may not warrant immediate veterinary attention, as long as there are no signs of external trauma or asymmetry of the face. However, if it occurs more than once or your horse is displaying any of the other symptoms described on p81, it would be sensible to ask your vet examine your horse.



X-ray is useful for determining the size and extent of the haematoma

Deciding on the diagnosis

When your vet arrives, he'll ask you for any relevant history before examining your horse carefully, then he may advise endoscopy, X-ray or a CT scan to have a closer look at what's going on.

● **Endoscopy** involves passing a fibre-optic camera into your horse's nostril so that his upper airways can be examined. An ethmoid haematoma has a very distinctive appearance, so it is easily identified via endoscopy, and it varies in colour from green-yellow to purple-red, or a combination of these colours. It may obscure part or all of the nasal cavity, so both nasal passages are usually scoped to help determine the size of the mass, although it may not be possible to assess its true extent in this way, particularly if the paranasal sinuses are affected. A biopsy is not usually taken because of the risk of bleeding.

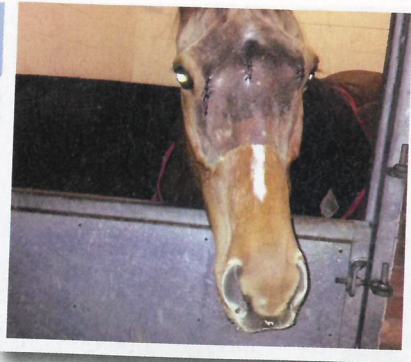
● **Radiography** is a useful diagnostic tool to assess whether the haematoma has affected the paranasal sinuses. It is also useful for helping to determine the size and extent of the lesion, which will help your vet make any decisions about your horse's treatment and assess his prognosis.

● **Computed tomography (CT)** provides cross-sectional views of the skull, so is fantastic for assessing exactly where the mass is and the extent of the tissue involvement. This information is paramount when determining how best to treat ethmoid haematomas. CT scanning can be performed with the horse under sedation, but its availability is a problem because only a limited number of referral centres have the equipment. If CT scanning is an option for your horse, it is advisable to check your insurance policy to see if your insurance company will pay for a CT scan as part of the diagnostic testing. ➤

Treatment options

If an ethmoid haematoma is left untreated, the prognosis for the horse is not particularly good, because as the mass grows, it may completely block the airway and damage the nasal passage. Also, the smaller the mass, the more successful treatment tends to be, so the earlier the haematoma is recognised and treated, the better.

There are several treatment options for this condition, however, the location and extent of the mass makes some options more suitable than others.



Surgical resection

Surgical removal of ethmoid haematomas allows a good view of and easy access to the mass. The surgery involves making a bone flap in the skull and lifting it to access the cavity where the haematoma is. The mass is then carefully dissected from the surrounding tissue.

Because the haematoma is highly vascularised, there is often a lot of bleeding from the nasal cavity during surgery, so the paranasal sinuses may need to be flushed out to remove any clots and debris after the operation. The most common complication is excessive loss of blood during surgery and in some circumstances a blood transfusion may be required.

Post-operatively, swelling can occur around the larynx, which may obstruct the upper airways, requiring a temporary tracheostomy. Following surgical removal, the recurrence rate is unfortunately relatively high.

Cryosurgery

Cryosurgery uses extreme cold – usually in the form of liquid nitrogen – to destroy diseased or abnormal cells. It can be used to freeze small portions of the haematoma, before surgically removing the frozen portions using a technique similar to surgical resection (see above).

The main advantage of cryotherapy is a reduction in blood loss, as frozen tissue only bleeds a small amount. However, it does carry a small risk of damage to the cribiform plate (the structure that separates the nasal cavity and the area of the skull containing the brain) and, therefore, damage to the brain. One of the limits of this procedure is obtaining good access to the mass to aid precise targeting of the cryosurgery.

Laser excision

Surgical lasers can be used to treat ethmoid haematomas. The laser is passed down a channel

within an endoscope and a high level of laser energy is directed at the mass. Depending on the location and extent of the haematoma, it can be accessed via the nasal passages or through a circular hole in the skull over the paranasal sinuses, which is created by a procedure called trephining.

Laser excision is very accurate and has fewer complications compared to other methods, but sometimes multiple treatments are needed for the problem to be resolved. Complications associated with this method of treatment include haemorrhage and substantial swelling.

Formalin injection

Formalin is a solution of formaldehyde that breaks down the proteins within the haematoma. The formalin is injected directly into the mass via an endoscopy-guided catheter, and it causes the tissue to die and slough away between five and 10 days after injection. The procedure is repeated at regular intervals until the haematoma has resolved or can no longer be injected. If the mass is in the paranasal sinuses, then it may be necessary to create a bone flap to access it.

The use of formalin has a variable success rate, although a lot of horses have a significant reduction in size of the haematomas. Formalin injections can cause significant and serious side effects, and nasal discharge is common following treatment. There have been reports of severe neurological disease and, on occasion, death due



to formalin reaching the brain, because the mass has caused damage to the cribiform plate. This highlights the importance of using appropriate diagnostics to assess the haematoma's progression – a CT scan would be useful for assessing the cribiform plate prior to treatment.

In the long term...

Prognosis improves with treatment, although it is not yet clear which treatment provides the best prognosis. The rate of recurrence is unfortunately relatively high, regardless of the type of treatment, but to help avoid recurrence, the mass should ideally be removed in its entirety.

With the treatments available, it may be possible for the affected horse to return to normal function and athletic performance, however, this is greatly dependant on response to treatment. Recurrence can occur weeks or years after treatment, so regular endoscopic examinations are advised to monitor the horse carefully. ■