

WHEN A **SNOTTY** NOSE ISN'T JUST A **SNOTTY** NOSE

By Dr. J H Stewart

When you arrive at the stable first thing in the morning and notice a discharge from your horse's nostrils your inclination is to grab a cloth and wipe that nose clean, but before you do that you need to take a minute to determine what of discharge is being produced. This will indicate if your horse just has a case of the sniffles or if this is a sign of a more serious illness that requires further veterinary investigation.

A nasal discharge may or may not be 'snotty' – and there are many, varied causes and reasons - acting alone or in combination - for a discharge and whether it is a little snotty, very snotty or not snotty at all.

A nasal discharge can range from a clear discharge (Figure 1) (mild serous); clear or slightly white - Figure 2 (mucoid); thick pus (purulent); a combination of these (mucopurulent); blood or blood-tinged mucous (haemorrhagic) to food material and saliva. Any discharge that is copious /or contains pus material, blood or food indicates a problem.

A common concern is the horse with a persistent discharge on one side of the nostril (unilateral) and because of the complexity of the upper airways, there are multiple causes. The site of the problem affects whether a nasal discharge is unilateral (one side) or bilateral (both sides) and therefore respiratory conditions are divided into those occurring in the upper respiratory tract (the nose, nasolacrimal (tear) ducts, sinuses, throat and trachea) and those that occur in the lower respiratory tract (the lungs). Whether a discharge is uni- or bilateral can shine some light on the source.

IDENTIFYING THE DISCHARGE

ONE SIDED DISCHARGE

Discharge from one nostril (unilateral) usually indicates something going on in that side of the head, nasal cavity or sinuses. Conditions such as sinusitis, nasal foreign bodies, tumours, trauma and ethmoid haematomas usually present with



FIGURE 1: A scant serous trickle

a one-sided discharge. If the discharge is always unilateral, the source is usually the nasal passages or sinuses.

Important information can be gleaned from a description and a history of the discharge - whether one or both nostrils are involved, the nature of the discharge (clear, pus, blood, food), whether other horses are affected; the volume at different times of day and in relation to exercise (the pussy nasal discharge associated with chronic sinusitis and inflammatory lesions of the lower airway may be more profuse after exercise), whether the horse also has concurrent eye secretions/conjunctivitis, a cough or any swollen areas on the head and face.

CLEAR NASAL DISCHARGE

Discharges can be categorised and this helps us diagnose the source and cause. Serous secretions can be uni-or bilateral. Horses that are well and healthy may produce a small amount of clear serous nasal discharge after exercise - that little trickle at the end of the ride or after a long trip in the trailer that goes away without a second thought (Figure 1). ???????

FIGURE 2: Slight mucoid discharge

Snotty noses...



CLEAR OR NEARLY CLEAR

A mucoid or mucus discharge has a thick, sticky consistency between solid and liquid (viscous) due to a higher protein content. The proteins indicate a response to inflammation, which may be occurring due to an early viral infection in the upper and/or lower respiratory tract - anywhere from the nasal cavity to the far reaches of the bronchial tree. Herpes viruses are a common cause of a sero-mucoid nasal discharge in all horses. During the EI outbreak we saw horses with classic, mild to severe symptoms and while herpes is much milder it must be assumed that every horse has and is exposed – and herpes is for life! Once infected, the virus remains with the horse for life, and if stressed or suffering a respiratory infection, horses may show symptoms of herpes again – or during a recurrence, they may remain symptom-free but shed the virus exposing other horses. Foals and aged horses are the most likely to have symptoms from a slight snotty nose to a flu-like illness with fever and cough.

CONTAINING BOTH MUCUS AND PUS

A mucopurulent discharge indicates that white blood cells are present. White blood cells attend to bacterial infections, but they can also be present in viral or fungal infections. Viscous, purulent discharges often have a strong unpleasant smell and contain high numbers of white blood cells. They may be opaque, white, yellow or green and occur with a range of bacterial, viral and fungal infections – but rarely with allergies (dust, mycotoxins, indoor air-quality, surface moisture on arenas, pollen, ammonia, car exhaust gas).

A horrid-smelling discharge is usually the result of sinusitis; dental disease; fungal infections in the nasal cavity or guttural pouch; tumours, or gangrenous pneumonia.

A yellow-ish, bilateral discharge is typical of strangles. Veterinary monitoring is helpful as at least 10% of horses infected with strangles will end up with chronic infections in the guttural pouches. A 'carrier state' can also develop in horses that carry the bacteria in the guttural pouch for months after they have recovered and although they appear clinically well and healthy, showing no signs of infection, they shed bacteria in nasal discharges and are a source of infection for other susceptible horses.

DISCHARGES CONTAINING FOOD MATERIAL AND SALIVA



These are usually bilateral and mostly a sign of swallowing problems (choke, botulism, tumours, foreign bodies, guttural pouch enlargement) which may be located in the throat (pharynx) or oesophagus. Food-containing discharges may also occur in colics with gastric reflux.

A BLOODY DISCHARGE IS A SIGN OF SERIOUS PATHOLOGY

This is a sign of serious pathology. Blood can originate from anywhere within the respiratory tract and careful examination is needed to determine the source of the bleeding. The presence of blood in a bilateral discharge that appears within a few hours of strenuous ridden work, may be a sign of exercise induced pulmonary haemorrhage (EIPH). Although not an emergency, EIPH can occur when tiny blood vessels in the lungs rupture due to large pressure changes and is exacerbated by any concurrent inflammatory airway disease.

There are several veterinary treatments that can help reduce the incidence and effects of EIPH, but very often once a horse has 'bled' it is more likely to bleed again in future.

EIPH is a common cause of poor performance. If a nasal discharge containing blood appears unrelated to exercise and is associated with a muco-purulent nasal discharge it may be caused by guttural pouch mycosis. Blood in a unilateral discharge more often occurs with upper respiratory tract lesions such as progressive ethmoid haematoma (PEH) or to traumatic sinus haemorrhage such as caused by a fall or a kick to the head.

Traces of blood in a unilateral discharge can be a sign of cysts, polyps and masses in the nasal cavity and fungal infections of the sinuses. These can all grow quite large before they are detected. Sometimes the discharge may also contain pus, be copious and smell very unpleasant.

Tumours in the sinuses can produce intermittent, low-grade, unilateral bleeding that may contain pus.

Blood appearing from the nose can be deadly if it is due to a fungal infection in the back of the horse's nasal cavity (guttural pouch mycosis). The fungal infection damages a major blood vessel in

the area and causes it to rupture and the bleeding is usually from both nostrils. Emergency surgery can be life-saving.

Horses can also develop a tumour called a 'progressive haematoma of the ethmoid plate' which can be a source of nasal blood. Although they usually cause a low-grade, unilateral bloody discharge, they can also rupture and cause nasal bleeding. If your horse has even a small amount of blood in a nasal discharge, discuss promptly with your veterinarian as an endoscopic exam can determine its source.

A bilateral clear to frothy, foamy, blood-tinged or brown nasal and/or oral discharge can occur with Hendra virus infection.

TRAVEL SNIFFLES TO PNEUMONIA

Sometimes a discharge can change and this needs to be watched carefully. For example a normal clear nasal discharge after travel can quickly progress to a thick, sticky consistency or pus discharge, and from there to severe and life-threatening pneumonia and/or pleurisy.

The earliest sign of progression with secondary bacterial/viral/fungal invasion and complications is a fever within 20 hours post travel. Early, aggressive treatment is required.

OTHER SIGNS

The presence of other signs, along with a nasal discharge can help in the diagnosis.

Coughing is more common with lower airway disease, except if the cause is a foreign body stuck near the pharynx or larynx or swallowing problems. An increased respiration rate or difficulty breathing usually indicates lung or lower respiratory tract involvement, whereas severe respiratory obstruction and reduced

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airflow through the nose often occurs in horses with sinusitis and nasal masses (tumour, maxillary cyst or ethmoidal haematoma- a mass in the paranasal sinuses).

Horses with obstructive lesions in the pharynx (abscess, tumour) or guttural pouch problems can show signs of respiratory obstruction and a snoring respiratory noise even at rest. Swelling in the throat can be a sign of a tumour or abscess, or of guttural pouch disease.

DETERMINING THE CAUSE

Respiratory tract disorders and diseases can present with a whole range of signs either singly or in combination, including: nasal discharge, flaring of the nostrils, increased effort or rate

of breathing, facial swellings, bad breath, abnormal respiratory noises, coughing and reduced exercise capacity – any one of these symptoms can signal disease or abnormality in the upper and/or lower respiratory system. Determining the cause requires a full veterinary clinical examination and often additional investigations.

NASAL DISCHARGES IN FOALS

In foals, a discharge from both nostrils is common with infections acquired before, during or soon after birth; meconium aspiration (inhalation of birth fluids stools in the fluid during labour); herpes virus infection, and in older foals with rattles or pneumonia.

In foals that have a nasal discharge containing milk soon after birth, congenital defects of the palate, throat (nasopharynx), cysts or oesophagus problems may be the cause.

TYPES & CAUSES OF SOME NASAL DISCHARGES

	DISCHARGE	OTHER SIGNS
Viral rhinitis*	mucoid or mucopurulent, uni- or bilateral	may have a cough
Bacterial rhinitis	mucoid or mucopurulent, uni- or bilateral	may have a cough + fever
Fungal rhinitis	mucoid or mucopurulent +/- blood, uni- or bilateral	few
Turbinate necrosis	purulent +/- blood, uni- or bilateral	may have a fever
Sinusitis	purulent, unilateral (rarely bilateral)	may have facial swelling, nasal obstruction
Maxillary cyst	sometimes have discharge, mucoid or mucopurulent, unilateral	may have facial swelling, nasal obstruction
Nasal tumour	sometimes have discharge, mucopurulent +/- blood, unilateral	may have facial swelling, nasal obstruction
Nasopharyngitis	mucopurulent, bilateral	may have facial swelling, nasal obstruction, pain
Pharyngeal abscess	sometimes have discharge, purulent +/- food, bilateral	may have trouble breathing and swallowing
Cleft or other palate defect	mucopurulent + food, bilateral	trouble eating
Guttural pouch tympany	variable	trouble eating, breathing + throat swelling
Guttural pouch empyema	purulent, usually bilateral	may have trouble breathing and swallowing
Guttural pouch mycosis	mucopurulent + blood +/- food, bilateral	trouble swallowing, head pain, nerve paralysis
Pneumonia, lung abscesses and pleurisy	may have purulent discharge, bilateral	cough, fever, respiratory distress, pain
Worms in lungs	may have purulent discharge, bilateral	cough, respiratory distress
Oesophageal lesions	Variable, food + saliva, bilateral	trouble swallowing, excess salivation +/- swelling in neck
Allergies, ammonia	serous, uni or bilateral	may have conjunctivitis or cough
Nutritional secondary hyperparathyroidism (bighead/osteoporosis)	may have serous/mucoid discharge, uni- or bilateral	may have respiratory noise due to narrowing/obstruction of nasal passages from excess proliferation of fibrous tissue, difficulty passing stomach tube or endoscope
Dental issues	fractured or infected teeth can result in nasal discharge unilateral unless there are multiple teeth on both sides of the mouth are affected.	may have excessive salivation or bloody discharge from the mouth



Recently on Thoroughbred and Trakehner studs in Australia and overseas, Chlamydia (a disease that can be transmitted from animals to people) spilled over from birds, causing pneumonia in vets, horses and farmers; a serous nasal discharge in adult horses; premature birth and abortions in mares, and acute respiratory distress with clear to mucus and pus combined nasal discharge in new-born foals. Biosecurity and personal protective equipment is needed when dealing with Chlamydia-associated respiratory disease.

INTERNAL PARASITES

Several gastro-intestinal parasites can also be a problem in foals and young horses. Roundworms (ascarids) are a real and present danger to horses from two months to four years old – partly due to increasing resistance to common wormers. The larvae of roundworms migrate through the lung tissue and occupy the airways - causing a nasal discharge (which may contain worms). Once lung tissue is damaged by the roundworms, viral or bacterial infections can occur. Threadworms (strongyloides) can also cause respiratory signs and a nasal discharge when they enter through the skin and migrate to the lungs. And although donkeys are the primary host of lungworms, they are rarely affected by lungworms – but horses paddocked with donkeys can become infested with lungworm (dictyocaulus). This parasite spends its adult life in the lungs, lays eggs that are coughed up and swallowed, then passed in the manure. With all of these parasites, it is the migration through the lung tissue that does the damage.

SINUSES

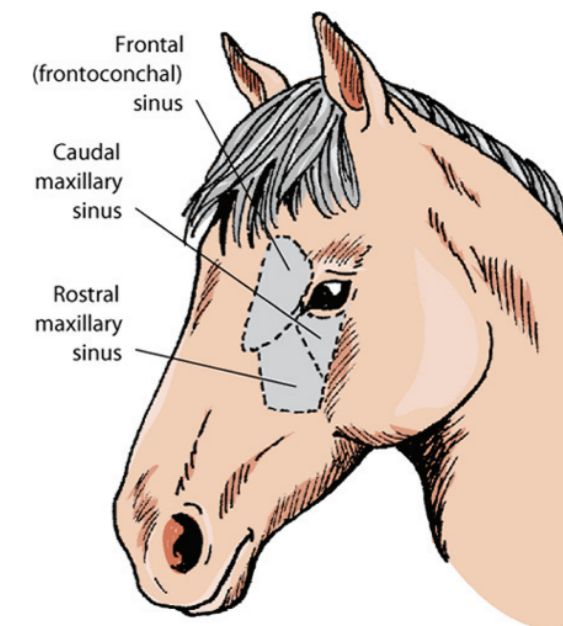
In all horses, the sinuses are a common source of nasal discharge – and the most common sign of sinusitis (either primary or secondary) is nasal discharge.

The discharge usually occurs on the side of the affected sinus (unilateral). A bilateral discharge is rare unless sinuses on both sides of the head are involved. The appearance and nature of the discharge varies but is typically clear-to-yellow and may contain pus or blood, with or without an odour.

Primary sinusitis is usually bacterial and in cases where veterinary diagnosis and treatment is delayed, primary sinusitis easily progresses to chronic osteitis (bone infection), destruction of soft tissue and bone, and deep-seated abscesses.

Secondary sinusitis. The most common underlying causes are dental disease followed by sinus cysts. In horses under five years of age, the sinuses are largely filled with embedded parts of the third to sixth cheek teeth and any disease in these teeth can progress into the sinuses. In young Welsh mountain and smaller breed ponies, the reserve tooth crowns can project further into the sinus cavities and cause firm, painless, bilateral swellings in the

THE PARANASAL SINUSES IN THE HORSE



nasal bones that should not be confused with injuries or disease. Deciduous caps can make their way into nasal cavities, causing pus, unilateral discharge.

Horses with Cushing's disease and some adrenal tumours seem to be predisposed to sinusitis and secondary nutritional hyperparathyroidism can produce swellings and nasal discharge. A veterinary examination will help differentiate sinus diseases from diseases of the nasal passages or guttural pouches.

A nasal discharge may be of little importance – or it could be an important, early sign of a problem somewhere in the respiratory tract. Finding the source and cause of a nasal discharge may require a range of laboratory tests, examinations and imaging techniques. This set of diagnostics may sound complicated for a simple 'snotty' nose, but some of the causes of nasal discharge are not simple problems. Although a nasal discharge is rarely missed, the significant underlying diseases causing it can easily be missed. Most routine respiratory cases resolve with minimal treatment and no permanent damage. With others, it's a mistake to take them lightly and timely veterinary intervention is needed for the best outcome.

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Dr Jennifer Stewart CEO
BVSc BSc PhD Dip BEP
Equine Veterinarian and
Consultant Nutritionist.

Dr Jen Stewart has been an equine veterinarian for more than 40 years and an equine nutritionist for more than 10 years. Jen has been developing premium formulas for studs, trainers and feed companies in Australia and around the world and regularly consults to leading international studs and trainers in various countries.

Jen has spent a fair bit of time researching and being involved in nutritional management of developmental orthopaedic diseases, colic, tying-up, laminitis, performance problems, post-surgery and other conditions. She is currently the only practicing equine veterinarian and clinical nutritionist in Australia. Jen's promise is to continue to BRING SCIENCE TO YOUR FEED BIN.

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