

FACT SHEET

Understanding Hives in Horses

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Alleviating these unsightly skin lesions proves challenging in many cases



Hives mainly occur on the horse's neck, back, flanks, eyelids, and legs.

The sudden appearance of multiple raised eruptions on a horse's skin with no apparent underlying cause can be alarming for owners. That distress often leads to disappointment and frustration when owners learn many cases of hives (aka urticaria or wheals) become chronic in nature and challenging and expensive to treat.¹

Hives can develop on any part of the body but mainly occur on the horse's back, flanks, neck, eyelids, and legs. In some advanced cases they might develop on the gums, nose, around the eyes (conjunctiva), rectum, and vulva. Often the hair stands up over these swellings and they become itchy, causing the horse to scratch his body and damage the skin. Horses might also become excited or restless when the lesions appear.²

Potential Causes of Hives

Urticaria itself is not indicative of a specific disease. Instead, hives are a clinical manifestation of an underlying disease process. Causes include:¹

1. Immunologic (allergic) causes.
2. Physical insults.
3. Infectious and parasitic diseases.
4. Stress or psychogenic disorders.
5. Chronic idiopathic (unknown) cases.

The immunologic group is one of the most common causes of urticaria and includes:

- Insect bite hypersensitivity due to *Culicoides* spp or other insect bites (flies, chiggers, etc.).
- Atopic dermatitis—an inflammatory and pruritic (itchy) skin disease occurring in genetically susceptible animals in response to food or environmental allergens. These can include molds, spores, endotoxin, pollens, and other microscopic particles.
- Adverse reactions to eating a vitamin/mineral or other supplement, hay, cereal, or pasture.
- Reactions to medications such as antibiotics,

anthelmintics/dewormers, anti-inflammatory drugs, vaccines, and blood transfusions/blood products.

To complicate the matter, hives' nonimmunologic causes can range from pressure, heat, and exercise to stress or sunlight.¹ Skin infections caused by viruses, bacteria, or protozoa and even intestinal parasites or ectoparasites can cause urticaria. A horse can also develop hives after coming in physical contact allergens such as plants (e.g., stinging nettle), chemicals, cleaners, fly sprays, and shampoos.²

Type 1 Hypersensitivity

When caused by an allergy, hives are typically the result of a type 1 hypersensitivity reaction—the same class of allergic reaction as anaphylaxis. Unlike the classic picture of anaphylaxis in humans with a peanut allergy, which can result in the patient's almost immediate demise, hives are a much milder anaphylactic reaction and rarely life-threatening in horses.

A hypersensitivity reaction results from an overzealous immune response. In the case of type 1 reactions, allergens stimulate the production of proteins called immunoglobulin E (IgE). IgE molecules bind to mast cells and basophils in the skin, stimulating the release of histamine and other inflammatory mediators.³ This inflammatory "wave" or "storm" results in the formation of papules and plaques—the classic raised appearance of hives.¹

Swelling (angioedema) due to fluid accumulation beneath the skin can also occur with type 1 hypersensitivity reactions. It can be widespread, affecting the face (especially the lips, muzzle, and around the eyes), body, genital region, or legs. Swelling is more serious than hives. If it extends to the airways, the condition can become life-threatening. Luckily, this occurs rarely in horses.

Managing Horse With Hives

Hives typically resolve once the horse is no longer exposed to the offending allergen or other underlying cause. In cases of acute urticaria, hives can resolve spontaneously within 24 to 48 hours. Chronic cases of hives—those lasting six to eight weeks or longer—prove more challenging to manage.

In cases of chronic urticaria, the underlying cause or trigger must be identified and eliminated to "cure" the condition. To begin this process, veterinarians typically gather a complete history and evaluate the horse's environment, diet, and stressors.

If the treating veterinarian suspects a food allergy, he or she might recommend removing treats, supplements, or other specific components of the diet. Expect to wait approximately six weeks after each elimination or change in ration (e.g., trying a new type of hay or grain) before evaluating the horse's response. Only make one change in diet at a time.

For insect bite hypersensitivity, use insect repellents, fans in the stable, mosquito netting or other physical forms of protection, and restrict grazing at times of high insect activity.

Veterinarians deem the underlying cause of hives to be idiopathic (unknown) in up to 75% of cases.¹ Therefore, chronic hives might be lifelong and can negatively affect both the horse's and caregiver's quality of life.⁴

Medical Treatments

For immediate relief of hives and their associated itching, veterinarians often prescribe affected horses glucocorticoids (steroids) and antihistamines.^{1,5} Steroids, however, have important side effects—such as laminitis in horses that have foundered previously and immune suppression—

that must be considered, especially when used long term.

Antihistamines block the effects of histamine, a potent proinflammatory molecule released from mast cells following IgE binding.^{1,5} In horses the most common antihistamines are hydroxyzine, diphenhydramine, and cetirizine. Oral diphenhydramine is affordable and widely available, and doses routinely used in horses are 1-2 mg/kg by mouth two to three times daily.^{1,5} Antihistamine doses are anecdotal, however, with few pharmacologic studies supporting them. In a recent study the bioavailability of diphenhydramine after 1 mg/kg and 5 mg/kg given by mouth was less than 1% and 6%, respectively. The study authors concluded that at those doses diphenhydramine was unlikely to achieve therapeutic levels.⁵ That said, owners in another study reported a “good response” to antihistamines in 60.7% of treated horses.⁴

Topical sprays containing glucocorticoids are available, and various shampoos are also marketed for allergic horses. Researchers evaluated one concentrated fish oil cream for treating horses with insect bite hypersensitivity. Overall, treated horses’ skin lesions improved; however, they did not see any changes in pruritus scores or coat quality.

Further, five of the 21 (23.8%) horses had adverse effects.⁶

Allergy Testing and Immunotherapy

Intradermal (IDT) and serum (blood) allergy tests can help identify the offending environmental allergens, especially for food allergies.¹ Intradermal testing involves injecting a small amount of a known allergen (e.g., a tree or grass pollen) into the horse’s skin to see if a raised dermal lesion develops. Serum testing measures the amount of IgE against a specific allergen in a horse’s blood. The results can help veterinarians design allergen-specific immunotherapy (ASIT), aka “allergy shots.”

Veterinarians suggest ASIT based on intradermal allergy testing might prove beneficial in select cases of atopic dermatitis.⁴ For example, one research team found that nine of 14 owners (64.3%) of horses treated with ASIT reported an improvement. Still, that study also saw a high rate of euthanasia due to uncontrolled atopic dermatitis (7%). “Management changes, following the identification of relevant allergens by IDT, in combination with medication and sometimes ASIT, may help provide effective control of clinical signs,”⁴ the study authors concluded.

Summary

Chronic hives have multiple potential causes that in many cases remain unidentified. Glucocorticoids are a first-line drug used to treat hives but have important side effects owners need to consider before using. Antihistamines are reportedly effective, but study results show poor bioavailability. Topical sprays, shampoos, and creams are also available, but veterinarians still emphasize the importance of allergen avoidance by environmental management and dietary elimination trials. Allergy testing and immunotherapy might benefit select horses.

Recommended Resources

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4. Loeffler A, Herrick D, Allen S, et al. Long-term management of horses with atopic dermatitis in southeastern England: a retrospective questionnaire study of owners’ perceptions. *Vet Dermatol* 2018;29(6):526-e176.
5. Redmond JS, Stang BV, Schlipf Jr JW, et al. Pharmacokinetics of diphenhydramine following single-dose intravenous and oral administration in non-fasted adult horses. *J Vet Pharmacol Ther* 2022;45(2):188-95.
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