



DAVIE COUNTY LARGE ANIMAL HOSPITAL

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Equine Sarcoid

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What is Equine Sarcoid?

Sarcoids are the most commonly occurring form of equine skin tumor. These tumors are persistent, progressive, and locally invasive, but they do not metastasize (spread to internal organs) and are not life-threatening. Depending on location and characteristics, sarcoid tumors can be at best a cosmetic challenge, and in the worst case impair the function of the horse.

While commonly seen on the head, chest, neck, and groin regions, sarcoids can appear anywhere on the body of a horse and vary in their appearance and growth rate. For this reason, there are 6 main types of sarcoids.



1. *Occult* – This is the least aggressive and slowest growing type of sarcoid tumor. They are roughly circular, hairless, flat and grey in appearance and are so subtle early in their development that they can be mistaken as ringworm or tack rubs. These tumors can develop anywhere on the body of a horse, but are most seen on the nose, mouth, eyes, side of the face, armpit, girth area, inside of the thigh or in the groin area.
2. *Verrucous* – Another slow-growing type of tumor, verrucous tumors are “wart-like” in appearance, greyish in color, and generally have a scaly or cracked surface. They can appear singularly or in groups that can merge into larger lesions. Like occult sarcoid, these tumors can occur anywhere on the face, body or groin area.
3. *Nodular* – A type of sarcoid tumor with a medium growth rate in comparison to the other types. These tumors vary in size, but are well-demarcated, firm, round nodules with either wide, flat bases or narrow, stem-like bases. They can appear singularly or in groups and, while usually covered with a thin layer of normal skin, they can also be ulcerative. Like all sarcoids, they can occur anywhere on the horse’s body, but most commonly appear in the armpit, on the inside of the thigh, in the groin area, and on the eyelids. The most dangerous characteristic of this tumor type is that their behavior can change over time even without interference.
4. *Fibroblastic* – An aggressive and locally invasive type of sarcoid tumor that can develop from verrucous and nodular tumors. Fibroblastic tumors are fast-growing, ulcerative, fleshy masses of irregular shape. They may not be well demarcated and often occur in clusters of variable size and shape. They can be found anywhere on the horse’s body including at the site of a wound where they look like exuberant granulation tissue (“proud flesh”).

5. *Malevolent* – This is the most aggressive as well as the rarest type of sarcoid tumor. They tend to spread locally via lymph vessels and therefore appear in lines across wide areas of the horse's body. These tumors grow rapidly, are grouped into large bundles, and are nodular-like, ulcerative lesions.
6. *Mixed* – This is a sub-classification of sarcoids that describes lesions that show qualities of two or more different sarcoid types. Multiple sarcoid types can occur in one region of the horse, or a horse can have multiple types of sarcoid tumors present at different locations.

What causes a horse to develop sarcoids?

It is widely believed that the main etiologic agent of equine sarcoids is the Bovine papillomavirus (BPV). The virus incorporates itself into the infected skin cell's DNA and transforms those previously normal cells into tumor cells. While most horses have been exposed to BPV, only some develop equine sarcoids. Because of this, it is now thought that there must be a genetic predisposition for a horse to develop sarcoid tumors.

While there is no evidence to suggest that sarcoids are contagious, the virus has been found on flies. Therefore, is thought to possibly be transmitted by them between infected hosts. This is further evidenced by the high prevalence of sarcoid tumors at sites of previous injuries.

What horses are at risk for sarcoids?

While all horses are at risk to develop sarcoid tumors regardless of breed, age or gender, they are more commonly seen in geldings and horses under 4 years of age. In addition, there may be an underlying genetic predisposition that allows for horses to develop sarcoids since many horses exposed to BPV do not develop sarcoids.

What treatments are available to treat sarcoids?

Unfortunately, there is no magic cure-all treatment for equine sarcoids. Treatment at an early stage of the disease provides the best long-term prognosis, but tumor recurrence in SCC is highly likely. To complicate matters, each sarcoid case responds differently to treatment, so one treatment may work on one horse and fail on another. The best course of action in treating sarcoid tumors is to work with your veterinarian to determine the best course of treatment depending on the type, growth-rate and location of the tumors.

- Benign Neglect

- Depending on the rate of growth and location of the tumor, some tumors simply need to be carefully monitored. If a tumor is small and not growing, any unnecessary trauma associated with treating it could "anger" the tumor and cause it to grow and spread faster.

- Surgical Treatments

- *Surgical removal*
 - Surgical removal of a sarcoid tumor can be accomplished with a blade or laser in specific cases. This treatment method can be effective for small sarcoids in safe areas as well as nodular sarcoids. The risk associated with surgical removal is that most sarcoid tumors are exacerbated by trauma and can start to grow faster if not coupled with other treatment. Depending on the severity, this treatment can be done under sedation and local anesthesia or general anesthesia.
- *Cryosurgery/Cryotherapy*
 - Cryotherapy uses liquid nitrogen to rapidly freeze and then slowly thaw the tumor in order to kill the rapidly dividing tumor cells. This treatment is only effective on small, superficial lesions and on sarcoid tissue left after a de-bulking surgery of larger tumors. Like most sarcoid treatments, it usually has a high recurrence rate and will require multiple treatments at 2 to 4-week intervals.

- **Medical Treatments**

- *Intralesional Cisplatin*
 - A chemotherapy drug mixed with an oil to produce a slow-release effect. It can be injected directly into a sarcoid lesion in most locations 3-4 times at 2-week intervals. This therapy is only effective in growing lesion and usually makes the lesions look worse before they look better due to the local swelling and inflammation.
- *Mitomycin C*
 - An injectable chemotherapy drug that interferes with the DNA copying in tumor cells.
- *Bacillus Calmette Guerin (BDG) Injection*
 - An immune stimulant vaccine that can be injected directly into the lesion. Originally a human TB vaccination, this treatment works reasonably well for nodular and fibroblastic lesions around the eyes but cannot be used in all areas of the body. This therapy consists of a series of 3 injections done at weekly intervals. The drawback to BDG injections is the high risk of horses to have an adverse reaction to the protein in the injection.
- *Imiquimod (Aldara) Cream*
 - An immune response modifier with potent antiviral and antitumor activity. Originally used for treatment of skin cancer and genital warts in humans, this treatment has shown good results in some horses and can be used in sensitive areas. The drawback of this treatment is that it is a prolonged treatment that can take 2-4 months before a decrease in tumor size is seen. The advantage to this cream is that it is safe for owners to apply themselves while wearing gloves and therefore can do the 3-times a week treatment at the farm.
- *AW4-LUDES Sarcoid Cream (a.k.a. Liverpool Sarcoid Cream or Knottenbelt's Sarcoid Cream)*
 - A topical chemotherapy treatment that contains 5-fluorouracil, heavy metals, cytotoxic chemicals and natural plant oils. This treatment is available via special veterinary prescription from the University of Liverpool and requires 4 treatments: 1st and 2nd treatments 24 hours apart followed by the 3rd treatment 48 hours later and the 4th treatment 48 hours after that. Due to the properties of this cream, only a veterinarian is permitted to apply the product to the lesions.

- **Radiotherapy**

- The most expensive treatment for equine sarcoids as well as the most successful with more than 90% resolution of sarcoids treated. In this treatment, iridium wires are used to deliver a radiation dose directly into the tumor to minimize collateral tissue injury. This treatment can only be given on licensed premises with strict safety controls in two ways:
 - Administered as an in-patient procedure over the course of 5-7 days
 - Administered in multiple treatments with each dose given as an out-patient procedure, once a week for 5-7 weeks

What is the prognosis for a horse with sarcoids?

A horse with sarcoids can lead a long, healthy life with careful management and observation of sarcoid tumors. While a horse with sarcoids will always be a horse with sarcoids, tumors are not life-threatening and even those tumors that interfere with function can be managed with treatment.

If you are concerned your horse might be suffering from Equine Sarcoids, please contact Davie County Large Animal Hospital to set up an appointment or talk to one of our veterinarians. Our veterinarians will work with you to find a suitable treatment including various medical treatments as well as surgical options from an ACVS board-certified equine surgeon.