

# Hygromas FAQs

## UTCVM SOFT TISSUE SURGERY

**Hygromas are calluses that form over bony prominences because of repetitive trauma. They do not need treatment unless they are ulcerated, painful, or infected. Even with treatment, they will persist or continue to reoccur unless the underlying cause is resolved.**

### What is a hygroma?

Hygromas are soft, fluid filled masses that form over bony prominences of large and giant breed dogs in response to repetitive pressure or blunt trauma. They are most frequently located over the elbows but have been reported at other sites such as the hock and hip. The primary cause is repetitive trauma: as the bony prominence hits the hard surface (floor, concrete run, etc.), the soft tissues between skin and bone are damaged. Over time, the tissues become thickened, fluid pockets collect, and circulation in the area is compromised. Eventually the skin over the site becomes ulcerated and infected.

### When is a hygroma concerning?

Small hygromas are essentially calluses that are trying to protect the bones. Therefore, thickenings covered by nonulcerated skin are not removed because they will reoccur unless the primary cause (repetitive trauma) can be prevented. If hygromas become infected, painful, or ulcerated (raw, skinless, inflamed tissue), they may need topical, systemic, or surgical treatment. However, any treatment will be not be curative unless the trauma can be stopped.

### How do we determine the cause of hygroma in my dog?

The first step in hygroma management is to get a good history. Where does the dog sleep at night or lie during the day? Many large breed dogs that are overweight or have thick haircoats prefer to lie on concrete or uncarpeted floors to help themselves cool down. These dogs may need weight loss, air conditioning, or a good haircut. The next step is to perform a lameness exam. Watch the dog walk, sit, lay down, and rise. Is the dog favoring any joints? When the dog lies down, does it land with heavy pressure on the elbows (or other bony prominences) because it has trouble sitting down or standing up? Then, a full physical exam is performed, including an assessment of body condition and pain scores. Is the dog overweight? Does the dog have any evidence of joint disease? Any weakness? In some dogs, landing hard on the elbows indicates the presence of joint, muscle, or nerve disease. Depending on the results of history and physical examination, your veterinarian may start with some initial diagnostics like bloodwork or x-rays.

### What other conditions can make hygromas worse?

Anything that affects skin health could make hygromas worse or treatment less effective. Conditions such as hypothyroidism, allergies, atopy, and hyperadrenocorticism may affect skin healing or the body's ability to fight infection. Infection or repeated trauma could cause bone reaction under the hygroma that itself adds to inflammation. Therefore, veterinarians may want to perform blood or dermatologic testing or take x-rays of the affected area.



*The hygroma on the left does not need treatment, while the one on the right is ulcerated and inflamed.*

### What is the initial management for a nonulcerated, nonpainful hygroma?

Because hygromas are essentially calluses, they may never completely resolve. However, the first step of management is to either stop the dog from traumatizing itself or to protect the areas that it traumatizes. To prevent trauma, dogs should be kept on soft surfaces. This may mean crating a dog in an area lined with an orthopedic dog mattress or in an outdoor kennel on grass. The elbows can be protected from direct trauma with the use of elbow protector sleeves that cover and cushion the callused areas. Protector sleeves that center over the elbows do not reduce pressure on the skin, so these types of coverings are only used for closed hygromas.



### What is the initial management for an ulcerated hygroma?

Wounds need a healthy environment, tissue moisture, and good blood supply to heal. For an ulcerated hygroma, the haired skin around the area is clipped. The hygroma is cleaned with an antiseptic solution (chlorhexidine or povidone iodine scrub). A topical dressing is used to treat the ulcer surface, with the choice of topical dependent on the condition of the ulcerated tissue. If the tissue is overly dry, a thin layer of topical antimicrobial ointment (e.g., a petroleum based triple antibiotic ointment) can be applied to the ulcer surface several times a day to keep it moist. If the surface is sticky (exudative) or too moist, it is allowed to dry after antiseptic cleaning, and a more breathable, less moisturizing topical antimicrobial (e.g., Vet Aid Sea Salt Wound Care Foam) is applied several times a day.

The dog is then placed in a padded protection that covers the area below the hygroma but not the bony point (e.g., pool noodle over the foreleg or lower foot, <https://www.cliniciansbrief.com/article/coaptation-devices-elbow-hygromas#references>).



This will prevent pressure directly on the elbow so that normal circulation can help healing, while the padding below the elbow will prevent the elbow from hitting the ground when the dog lies down. The padded protection may be combined with an absorptive elbow pad (e.g., Telfa, wound sponge, or pantyliner). Owners will need to become creative to keep the ulcers clean and medicate their surfaces. This may require use of long sleeve shirts, children's leggings, or other clothing that can be easily shifted several times a day. With local treatment AND prevention of trauma, the area should heal in 3 to 6 weeks.

### What if the hygroma is not healing?

First, make sure your dog is no longer traumatizing the elbow. Hygromas will NOT heal, or may reform, if the trauma continues. That's why surgery is a last resort - owners must first get the dog to stop traumatizing the area, or a surgical treatment will fail.

Next, the dog and the hygroma itself are evaluated for contributing factors. If x-rays have not yet been taken, now is the time. If a resistant infection is suspected, the ulcerated area is scrubbed with a surgical antiseptic, and a piece of tissue is taken for culture. The antiseptic will kill the surface bacteria; therefore, the tissue culture will be a true representation of what is growing inside of the ulcer. This is particularly important if the normal skin around the ulcerated area is red, swollen, or painful, indicating cellulitis - an infection of surrounding soft tissues. On rare occasions, chronically inflamed tissue becomes neoplastic (cancerous); a tissue sample can be sent for biopsy if the ulcer is bleeding, excessively proliferative, or growing despite appropriate treatment.

While results of culture or biopsy are pending, the same supportive treatments (padded protection, environmental changes) are continued, and local cleansing with antiseptics is performed more frequently. If resistant bacteria are grown on culture, the topical treatment can be changed to something stronger (e.g., topical amikacin spray: 1 gram of amikacin powder in 100 mls sterile saline). Oral antibiotics are prescribed for cellulitis, based on culture results.

Treatment of hygromas with extracorporeal shockwave therapy (ESWT) has had some success in speeding healing of hygromas. ESWT is used by canine physical therapists and sports medicine specialists to relieve pain, improve blood supply, and reduce inflammation. Improvement has been seen when hygromas in dogs are treated weekly with shockwave therapy over 3 to 6 weeks. Another newer treatment is autogenous platelet gel, which requires preparation by a specialized facility.

### What are the surgical options?

Surgery only works if the causes of hygroma are prevented. Assuming predisposing factors are controlled and the surgical area is allowed to heal without further trauma, there are several surgical options.

- Resection of the thick, ulcerated area and suture closure. If the hygroma is small enough so that removing it will not cause tension, the ulcer and any affected tissues are excised, and the skin is sutured together. If most of the skin can be saved and the stitches can be placed so they are not right over the elbow, the area can heal. If the dog has tension on the area when it bends its elbow, it may need to have the leg braced for about 2 weeks. This can put pressure on the surgery site, unfortunately. Unless all infected tissue can be resected, closure should not be undertaken until infection is cleared and the ulcer bed looks healthy.



*This dog has necrosis (black area) and cellulitis (red inflamed, swollen tissue around pressure sore) and needs a culture and wound management before surgery can be considered.*

- Resection of the area and closure with a flap of skin. Extra skin can be moved from the back of the upper leg or armpit area. This will result in a much larger surgical wound. It is very common for the tip of a flap to necrose (turn black and scabby) and for the dog to need a second surgery. If the skin of the flap is thin (e.g., from the armpit), it will be more easily traumatized in the future.
- Drain placement. Fluid pockets in the hygroma are opened and cleaned out, and a drain is placed in the wound. If the drain is open, the area is kept bandaged, with bandages changed every 1-5 days. If a closed suction drain is used, the owner empties the drain every 24 hours. Drains are left in for 4 weeks.

**Hygromas are the body's natural response to repeated trauma. Preventing that trauma is essential to healing. Unless there is an abscess or tumor, surgery is a last resort. Treatment success is highly dependent on the owner and the dog!**