

# MUNGE

**QUESTION: Why do some llamas get munge? Why does it recur in some and not in others? What is the most effective treatment? (NOTE: Munge is a blackish crustiness that develops on the nose and mouth.)** Response from Dr. Rod Rosychuk, DVM, DACVD, Associate Professor, Dermatology, Department of Clinical Sciences.

Unfortunately, our knowledge as to the cause of “munge” in llamas and alpacas is no better now than it was 25 plus years ago when the disease was initially described. The clinical and biopsy changes remain characteristic:

- ⌚ Variable degrees of hyperkeratosis (thickening of the surface of the epidermis).
- ⌚ Crusting (accumulation of serum and inflammatory debris) that is very tightly adhered to the underlying skin.
- ⌚ Histological evaluation of skin biopsies show this hyperkeratosis and crusting/ Variable degrees of inflammation are also observed within the skin.

The most commonly targeted areas are those around the entrance to the nasal passages (especially the lower and lateral aspects) and around the lip margins. Heavy, adherent crusting can be severe enough to compromise nasal breathing. On a rare occasion, similar lesions may be noted on the bridge of the nose, around the eyes and around the ears. Affected areas are usually not “itchy”. Affected individuals are usually 6 months to 2 years of age at onset, although “munge” can be seen in older individuals.

The lesions may wax and wane in severity and may spontaneously resolve. Recurrence has been noted. The incidence is sporadic in a herd (i.e. only one or a few individuals involved). It does not appear to be communicable. Secondary bacterial colonization of the crusty area is relatively common, although these bacteria usually have only a minor contribution to the severity of the lesions. In my experience, affected individuals are otherwise normal.

Diseases that have to be ruled out as causes of these lesions (because they can look very much like “munge” include:

- ⌚ Contagious viral pustular dermatosis or “orf” (usually more inflamed to begin with, but may become crusty with time; often resolves within a couple of weeks, but can persist for months; often communicable; skin biopsy).
- ⌚ Dermatophilosis (a bacterial infection; look for the bacteria in specially prepared sample of crust or culture crusts and skin)
- ⌚ Fungal infection (ringworm organism; identified by skin biopsy and culture of crusts).
- ⌚ Chorioptic munge (usually more generalized; defined by skin scraping; skin biopsies may be needed).

So what causes munge and what can “cure” it? There is no data to support the theory that the incidence of the problem is higher in immunodeficient animals. Similarly, there is no data indicating that the inflammation and crusting is a “footprint” of a viral infection that persists in lesional areas, long after the virus itself is gone.

The crux of treating the problem appears to be aimed at resolving the inflammation present within the skin and also resolving any secondary bacterial infections. This is often achieved with an antibiotic/steroid/anti fungal containing ointment (steroid being the anti-inflammatory component). We find that the commercially available dog and cat ear treatments, such as Otomax or Panalog or Surolan work well for this purpose.

The lesional areas are usually treated twice daily. Occasionally, a more potent topical steroid can be of benefit (e.g. fluocinolone). For individuals who are difficult to treat (i.e. do not like to have medications rubbed on them a couple of times a day), consideration can be given to the use of steroid (e.g. triamcinolone) that is given by injections to the base of the lesions. One to three treatments, separated by 3-4 week periods can produce dramatic responses. Alternatively, oral steroids (e.g. prednisolone) can also be effective.

Other therapies including zinc, vitamin A, vitamin E are currently being explored by the CSU clinical faculty. Should you be interested in such “alternative” treatments, please contact the Dermatology or Livestock Services at CSU.

Finally, after the lesions are indeed diagnosed as munge, the issue is generally limited to only a cosmetic problem. If you and your animal can “live with it” do so while keeping an eye on it to make sure it doesn’t worsen.

Well, I certainly learned a great deal from your questions. I am continued to be amazed at the wealth of resources available to us camelid owners from the entire staff at CSU VTH. To contribute financially to the great work these folks are doing, please go to the CSU College of Veterinary Medicine and Biological Sciences Online Donations at <https://advancing.colostate.edu/csu.asp?VETMEDMASTER> and click on Camelid Research. Thank you.

**EDITOR’S NOTE: Make sure that you check with your local vet before administrating any medication to you lama - especially steroids to pregnant females.**

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