

Necrotising fasciitis, AMR, in proximal end of dog's tail

English Mastiff Male 3 years old

Day 0 equals the first day of MPPT application

A 3 year old, otherwise healthy, male, English Mastiff, for unknown reasons developed a necrotizing fasciitis in his tail close to the base of his tail. A culture showed MRS, Methicillin resistant Staphylococcus sp., specifically isolating *S. pseudintermedius*. The infection spread rapidly in and under the necrotising skin in the soft tissue. The dog was not administered antibiotics as the infection was multi-resistant and because antibiotics and antiseptics do neither remove wound infections nor support wound healing, as concluded by the FDA following a review in 2016.

The area was cleaned and drained by the vet and urgent amputation was recommended (pic 1) despite the fact that the amputation would have to be carried out uncomfortably close to the dog's trunk. Possibly the forefront of the rapidly spreading, resistant infection was already beyond the point where it could be fully removed via amputation. One week later, when the tail was again drained and cleaned, the dead skin was falling off in places presenting a deep, infected flesh wound underneath (pic 2). Two days later, all loose necrotic skin was removed mechanically and the wound was washed. The disseminating infection in the flesh underneath it had dug deep, and in several places tunnelled, and the soft tissue was widely necrotising. The skin along the wound edges was inflamed and miscoloured quite far in all directions displaying signs of similar acute, ongoing necrotizing processes (pic 3).

MPPT treatment was now started. Every day, the tail was showered with lukewarm, clean tap-water for a prolonged period of time using a moderately firm setting on the sprayer nozzle attached to a hose inside the vet clinic. This would remove any necrotic, flaking tissue or discharge from the area. The first one or two days, a washcloth was used to gently assist in removing the dead tissue; following that, only abundant water was used for cleaning as described. Then, the tail was patted dry before the MPPT powder was applied using a Telfa pad to dab it onto the wound including all crevices. After 24 hours, the progression of the infection had been fully reversed, the wound bed was granulating, and the wound edges as well as the damaged skin were epithelializing (pic 4). MPPT was used a total of 4 consecutive days. By then, the infection had been removed and all aspects of the wound and skin were healing (pic 5). The dog's own immune system was now in control of and removing the infection. The daily thorough washing at the vet clinic was continued for approximately six weeks. This removes the harmful and infectious debris deposited there by the immune system and prevents it from causing further damage. The tail was at all times left uncovered, i.e. with no bandaging. The dog lived at home all the time. The wound closed in two months (pic 6 - 13). The closure was stable and at a follow-up one and a half year later, confirmed that the dog had had no tail-related issues since closure. The largest part of the wounded area had regained full pigmentation and hair follicle restoration, which is a sign of fully functional skin. However, a small pink scar did remain, but was mainly protected by overgrowing hair (pic 14).



Day minus-9

1½ week before first MPPT

A black spot on the tail had been detected 5 days earlier by the owner. Over the 5 days period it had developed into this rapidly spreading necrotizing fasciitis.

Here, it had been cleaned and drained by the vet.



Day minus-2

2 days before first MPPT

Cleaned and drained by the vet.

It is necrotizing quite deep into the flesh. Most of the loose, dead skin has been removed.



Day 0

just before first MPPT

The infection in the flesh underneath the loose, removed, dead skin has dug deep and continues tunnelling in several places showing the soft tissue covered with disseminated black necrotic areas of varying sizes. The tunnel in the distal dorsel corner is particularly prominent. The intact skin along the wound edges is erythematous quite far in all directions with the necrotizing process particularly advanced ventro-laterally in the distal direction even though the skin has not yet detached.

Day 1

After 24 hours MPPT

The spread of the infection has stopped.

The wound bed is red and granulating. The dark necrotic areas have practically disappeared. The shedding of the last attached black necrotic piece of skin in the dorsal proximal corner has revealed an easily recognisable tunnel underneath. This, however, is already granulating and the likewise exposed skin edge is also regenerating. The wound edges are pink and healthily epithelializing. The progressing inflammation of the skin in all directions has been stopped and displays a clear border. The most affected areas of what seemed intact skin are granulating and epithelializing at the same time. The dead skin/eschar has come off and is exposing healthy soft tissue and a healing skin edge underneath.



Day 4

After last MPPT

After last daily treatment with MPPT.

The infection has been removed. The entire wound bed is granulating. All wound edges are epithelializing. Islands of epithelium are present along the ventral edge of the wound, particularly the cranial, ventral corner. The affected, intact skin is undergoing repair.



Day 5

After 24 hours without MPPT

After 24 hours without MPPT and shortly after the daily thorough showering with tap water.



Day 10

The wound is rapidly reducing in size. The tunnel in the distal ventral corner has fully filled in with granulation tissue and is no longer present.

The wound and surroundings remain free of infection.



Day 14

Continued reduction in size with epithelialization along all wound edges. The epithelial islands are joining with the epithelium at the edges.

The new skin is displaying new hair follicles as well as pigmenting well.

9



Day 17

Continued reduction in size from epithelialization along all wound edges. The new skin is displaying new hair follicles as well as pigmenting well. Still no sign of infection anywhere. The cranial edge is displaying healthy scab.

10



Day 29

All skin has fully recovered. All new skin is pigmented and displaying hair growth.

The scab along the wound edges is correctly left intact.

The wound and surroundings remain free of infection.

11



Day 36

MPPT had been applied 24 hours prior, exclusively as a precaution. No clinical signs were demanding this additional treatment.

The healing was boosted with strong epithelization and healthy scab formation along all edges.

12



Day 49

A small scab remains in the dorsocaudal corner. The rest is healed. The majority of the new skin is fully functional; only a quite limited area has regenerated as scar tissue.

The wound is no longer washed daily.



Day 63
Full closure

The last bit of scab falls off by itself revealing healthy skin and a fully closed wound.



Day 558
1½ years later – follow-up

Except for a limited area of scar tissue, the skin restored pigment and hair growth. There have been no signs of unease in the area or other issues with the tail following closure.