

## Ulcers revisited

In June we discussed ulcer management. It seems so simple -- *clean, apply antibiotic and let them swim away*. What I've been seeing in the field is anything but simple and traditional wisdom hasn't worked. The biggest problem is contact time, as whatever we use just washes off.



### First stage



We see a growing red spot on one of our koi. What should we do? You know the drill. Get out your water test kit -- test for KH, pH, ammonia, nitrites, nitrates. Then, think back to anything you have done differently as far as husbandry – crowded in new fish, forgot to clean filters, didn't do water change. Why? Remember it takes 3 factors acting in combination to cause disease.

**So the first rule:** without any signs of infection, leave the fish alone and find the real problem and correct it, giving the fish a chance to heal itself.

**Note:** Initial healing is from epithelial migration and is transparent and very hard to see. If you treat you're actually removing this healing. So don't!

*Remember benign neglect:* “our job is to feed, house and change their linen every so often.” But we can't turn our backs. We have to watch our Koi and make sure their immune system is up to handling this breach. So what do we look for?

### Second Stage:



Look for the area around the spot to start peeling, similar to how our skin peels from a sunburn, leaving ragged edges around the spot. The spot has now progressed into something treatable, but work conservatively as follows:

- Mix up a solution of equal parts of bio-bandage, liquid propolis and aloe vera gel (without alcohol) and place in a small cosmetic spray bottle. Remember to label it and shake vigorously before each use.
- Thoroughly blot dry with 2 x 2 gauze pads, but do not rub or try to remove any tissue



- Liberally spray the sore with your solution, covering an area about 2-3 scales out from around the sore.



- While still wet, liberally sprinkle the treated area with denture powder, wait 15 seconds, then blow off the excess powder.

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- Spray the treated area with Friar's balsam and dry with hair dryer on cool setting for 30 seconds.



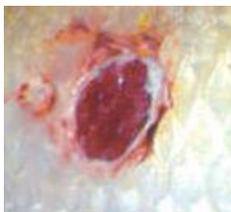
- Move the fish to a well aerated tub or treatment tank where no other fish are present and leave for about 30 minutes for the treatment to thoroughly dry, then return to pond.

**WARNING:** Be careful not to touch or abrade the treated area, especially with a cloth or net as the treatment forms a tissue thin bandage that can be pulled off.

This **treatment** has a greenish tint and **should last for about 7-10 days** and the sore should show the peeled area filling in just as does with a bad sunburn that has peeled.

**Third Stage:** If you have not removed the stressor – the real underlying cause -- or if the koi's immune system is compromised, the lesion can extend through the dermis, exposing muscle and forming an ulcer. If the ulcer has only a very thin (1-2 mm) red line around the ulcer and the margins have white tissue, the healing process is already started. Follow the same conservative treatment we used above (remember no cleaning or rubbing of ulcer). At this point though you should **keep the koi in a holding facility with a buddy for the 7-10 days** and until the ulcer is completely healed over.

**Forth Stage:**



Should signs of infection become apparent -- red inflamed area surrounding a sore with streaks radiating away from the sore, scales turning transparent or losing color – you need to treat more aggressively to keep it from advancing to septicemia (blood poisoning), which can result in the death of the fish. At this point **move the fish to a treatment tank with a buddy and call a KHA for advice.** If you choose to treat yourself you will need to learn how to:

- Identify necrotic tissue, dead or dying scales and suppurative lesions.
- Debride wounds, remove dead or dying scales and lance suppurative lesions.
- Do wet mount examinations for bacteria.

- Obtain and submit cultures for culture and sensitivity to lab.

**NOTE:** It is often prudent to start prophylactic antibiotic injections at this point. Please, please seek advice before ever starting antibiotic treatments. Bacteria are becoming more and more resistant to various bacteria and we're **approaching the point where we have only one antibiotic to treat some human diseases and are seeing resistance to it. And our using antibiotics indiscriminately on fish is exacerbating the problems in humans.**

You will also need to use a 10 cc syringe to flush out scale pockets with normal saline (0.9 %) and use q-tips to treat scale pockets with Providone Iodine 10 %.

**Fifth Stage:** If the infection causes sepsis (blood poisoning) -- spider web, engorged veins in fins and on the body; generalized diffuse redness on body; inflamed, red, protruding vent – then you need to start antibiotic injections as prescribed by a veterinarian. This will often require aggressive debriding and another topical treatment using the above solution and procedure. **This is where the culture and sensitivity from the fourth stage pays off.** By the time the sore has progressed to this stage the culture and sensitivity results will have been returned and you will know the most effective antibiotic to use to stop the infection.

In summary: catch ulcers early and know when to treat, remembering the koi themselves and Mother Nature are much better healers than we are. Identify and correct the underlying problem, remembering that no matter what the treatment, when we return the koi to a less than pristine environment, it will seldom heal. Don't keep treating the lesion, remembering each time you treat you are destroying tissue that has already healed. Finally, know when the disease has exceeded your abilities and ask for advice from a KHA, veterinarian or other fish health professional.

#### **Sources of Supplies:**

Hikari Bio-bandage® gel, 1 oz.

<http://www.coastalpond.com/>

Liquid Propolis, 1 oz. (Whole Food Store, Marietta)

Friar's Balsam, 1 oz.

<http://herb-pharm.com/catalog/singleherbalextracts-c-21.html?sort=1a&c=P>

All Other Stuff

Local Pharmacy or Walmart

Later...

Harold