Nexgard® or Bravecto® for Canine Demodicosis

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Overview of Demodex

Demodicosis results from the overgrowth of Demodex mites. Demodex mites are acquired by puppies early in life through contact with the mother dog. These mites are unlikely to be contagious once the immune system is mature. A strong immune system keeps these mites in low numbers on the skin. Puppies and immune supressed adults are predisposed to mite overgrowth. In dogs, the most common mite is *Demodex canis*, which is found in the hair follicles and the sebaceous and apocrine glands. There also appear to be long and short bodied varieties of demodex in dogs. Some argue that these different sized mites are not different species, but that the length of the body is related to the thickness of the skin where the mites are found. In any case, the treatments of demodex mites in dogs are the same regardless of the species.

Symptoms of Demodex

Patches or areas of hair loss without itching is the most common symptom in dogs. Some dogs are very itchy, which often indicates a concurrent staph bacterial infection. Dogs with constantly growing hair (like poodles) may develop dramatic seborrhea with demodicosis. With severe infection, draining tracts may form due to ruptured hair follicles. This is most common between the toes. Some dogs may feel ill when there is a deep infection or large areas of the body are affected.

Diagnostic Work-up for Demodex

Any pet with hair loss, pruritic or not, should have skin scraping and impression cytology performed. The correct technique for skin scraping is to apply mineral oil, pinch the skin, and use a #10 blade (dulled) to scrape several areas. Look at the scraped contents under 10X objective. Negative skin scrapings (almost always) rule out demodicosis. If there are areas that cannot be scraped without potential injury, then hair plucking is another option to help diagnose demodex, it is about 80% accurate to rule out demodex.

Cytology should be performed with clear acetate tape or slides. Tape preps can be performed in areas where the skin is dry and scaly or in hard to reach areas like between the toes. Simply press tape to the skin and push firmly in several areas, then stain with pink and violet diff quick (do not fix), sticky side down to your slide and squeeze out moisture. Immersion oil can be placed on top to look at under 100X objective.

Adult-onset demodicosis can be caused by an immune-suppressive disease, and so adult dogs should have appropriate diagnostics performed to rule out the following:

- Hyperadrenocorticism

- Hypothyroidism
- Diabetes mellitus
- Internal malignancy
- Immunosuppressive drug therapy
- Poor nutrition
- Metabolic necrolytic dermatitis (hepatocutaneous disease)

Management

Simple monitoring is appropriate for localized demodicosis without secondary infection in young dogs that is expected to resolve spontaneously. For generalized demodicosis, there are many treatment options that have been used in the past, including daily Ivermectin or amitraz dips, but these cannot be used in some breeds and have a multitude of drug interactions and side effects.

At this time, the safest, least expensive treatments for demodex are the isoxazolines (block chloride channels gated by GABA), Nexgard® and Bravecto®. They are currently licensed as flea and tick treatments in dogs. They are not (yet) licensed for demodicosis. The most common side effects (although fairly rare) are inappetence, vomiting, or diarrhea.

- Nexgard is given to dogs 8 weeks and older at the label dose based on weight and at the label frequency of once monthly.
- Bravecto is for dogs 6 months and older and given at the label dose based on weight and at the label dose of every 8-12 weeks.

Treatment considerations for Demodex

- Underlying conditions need to be managed- dogs over 3 years old or a sick animal should have a full workup for internal disease. Thyroid needs to be checked with a thyroid panel (TSH, fT4, TgAA), as a total T4 often APPEARS low on blood tests with demodicosis or other diseases without having true hypothyroidism.
- Bacterial infections need to be treated concurrently for 3-4 weeks (or 6-8 weeks with draining lesions), this applies to almost all cases of generalized demodicosis and is very important. Deep lesions or non-responsive infections should be cultured.
- Animals should be rechecked monthly until 2 negative scrapes. Then treatment should be continued 2 months beyond, at least. If the patient is not negative on skin scraping by the second month, the treatments should be re-evaluated.
- Bathe with a chlorhexidine shampoo (like Douxo™ Chlorhexidine PS shampoo) once weekly or more for greasy, smelly dogs and every 2-3 weeks for a puppy. I would not bathe a puppy with localized disease as puppies are easily dried out and get itchy from too much bathing.
- Affected dogs and their relatives should not be bred

Note:

With these amazing new treatments, it may be tempting to be lazy and not even try to get a diagnosis prior to treatment. Because demodicosis is very easy to diagnose and can indicate poor genes or internal disease, proper skin scrapings and cytology should be performed prior to "just doing a treatment trial". Once you have performed scrapings, then "just doing a treatment trial" is fine, but at that point you are not ruling out demodex, you are ruling out other parasites.

Reference:
Fourie, Josephus J., et al. "Efficacy of orally administered fluralaner (Bravecto™) or topically applied imidacloprid/moxidectin (Advocate®) against generalized demodicosis in dogs." *Parasites & vectors* 8.1 (2015): 187. (this is an open source article on line)