



CLINICAL KNOWLEDGE INSIGHTS

PARASITIC DERMATOSES

DEMODICOSIS – CANINE

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AT A GLANCE

- An overgrowth of the skin commensal mite *Demodex canis*
- 2 other mites, *Demodex injai* (long-bodied) and *Demodex cornei* (short-bodied) may also cause disease.

WHAT DOES IT LOOK LIKE?

3 CLINICAL FORMS

- Localized has no more than 5 lesions, up to 2.5 cm
- Juvenile onset generalized demodicosis has multiple (> 5) lesions, involves entire body regions, or more than 1 foot, and begins at less than 2 years of age
- Adult-onset generalized demodicosis occurs in dogs > 2 years; typically aged dogs
- Lesions range from regional to generalized alopecia, scaling, erythema, hyperpigmentation and/or comedones
- Concurrent folliculitis, furunculosis or cellulitis
- Demodicosis is a common cause of pododermatitis

PATHOLOGIC IMAGE LIBRARY : DEMODICOSIS - CANINE



Localized demodicosis, periorcular



Juvenile-onset generalized demodicosis



Generalized demodicosis with deep bacterial pyoderma



Pododemodicosis



Deep skin scrape from dog with generalized demodicosis (Courtesy: T. Nuttall)

WHAT ELSE LOOKS LIKE THIS?

- Bacterial folliculitis, furunculosis, cellulitis
- Dermatophytosis
- Pemphigus foliaceus

HOW DO I DIAGNOSE IT?

- Deep skin scraping; multiple sites if generalized
- Acetate Tape Impression of squeezed skin; particularly for face and feet
- Trichogram—mites can be pulled out of follicles along with the hairs
- Biopsy occasionally needed—especially for chronic lesions on the feet and in Shar-Pei dogs
- Cytology +/- culture and susceptibility to evaluate secondary bacterial infection

DIAGNOSTIC TECHNIQUES VIDEOS: [ExcellenceInDermatology.com](https://www.excellenceindermatology.com) → [Education Library](#) → [Videos](#)

DIAGNOSTIC TECHNIQUES SECTIONS: [ExcellenceInDermatology.com](https://www.excellenceindermatology.com) → [Diagnostic Techniques](#)

HOW DO I MANAGE IT?

LOCALIZED

- Observation and recheck in 30 days
- Consider topical benzoyl peroxide or rotenone
- If lesions progress, treat as for generalized

GENERALIZED

- Acaricidal therapy and treatment of secondary bacterial infection
- In dogs with adult-onset generalized demodicosis evaluate for underlying diseases or immunomodulatory therapies

ACARICIDAL TREATMENTS FOR DEMODICOSIS:

- Topical amitraz
- Systemic high dose, high frequency macrocyclic lactone/ avermectins.
- Note that these macrocyclic lactone/ avermectins protocols are not approved but based on common usage and the veterinary medical literature

→ Prior to treatment with macrocyclic lactone/ avermectins, dogs should be tested heartworm negative and evaluated for possible neurotoxicity by test dosing or determination of ABCB1- delta1 (MDR-1) gene status.

→ For more information: [Washington State University, College of Veterinary Medicine, Clinical Pathology Laboratory \(www.vetmed.wsu.edu/deptsclinpath/index.aspx\)](http://www.vetmed.wsu.edu/deptsclinpath/index.aspx)

ACARICIDAL TREATMENTS FOR DEMODICOSIS

MEDICATION	DOSE	WARNINGS
Amitraz	0.025% topically q 14 days	<ul style="list-style-type: none"> • Choice for dogs with mutation of ABCB1- delta1 gene • Atipamezole to treat any adverse reactions • Do not use in dogs receiving other monamine oxidase inhibitors • Toy breeds have a higher risk of adverse side effects: consider ½ concentration (0.0125%)
Ivermectin	0.3–0.6 mg/kg/day PO Test dose: increase from 0.05 mg/kg to 0.3-0.6 mg/kg in 0.05mg/kg increments every 2 days	<ul style="list-style-type: none"> • Neurologic toxicity in dogs with mutation of ABCB1- delta1 gene • Heartworm negative
Milbemycin	1–2 mg/kg/day PO Test dose: 0.5–0.75 mg/kg/day PO x 7	<ul style="list-style-type: none"> • Neurologic toxicity in dogs with mutation of ABCB1- delta1 gene • Heartworm negative
Moxidectin	0.2–0.5 mg/kg/day PO Test dose: increase from 0.05 mg/kg to 0.2-0.5mg/kg in 0.05 mg/kg increments every 2 days 2.5% spot-on: weekly1 or q 14 days	<ul style="list-style-type: none"> • Neurologic toxicity in dogs with mutation of ABCB1- delta1 gene • Heartworm negative • Spot-on tolerated by high dose avermectin sensitive dogs
Doramectin ²	0.6 mg/kg PO or SQ once weekly Test dose: 0.1mg/kg, PO or SQ	<ul style="list-style-type: none"> • Neurologic toxicity in dogs with mutation of ABCB1- delta1 gene • Heartworm negative

- Avermectin neurotoxicity: mydriasis, ataxia, lethargy, tremors, blindness and death in sensitive dogs.
- Note toxicity has occurred in dogs with normal ABCB1- delta1 gene function
- Do not use Spinosad concurrently with high dose, high frequency macrocyclic lactone/ avermectin therapy. P-glycoprotein inhibitors, such as ketoconazole or ciclosporin, if given concurrently, increase the likelihood of adverse effects.
- Re-scrape 14 to 28 days and maintain acaricidal treatment for 28 days beyond second negative skin scrape. Monitor progress by recording density and ratio of adult mites, nymphs, larvae and eggs, live or dead.
- Antibiotic therapy, ideally based on culture and susceptibility, until clinical and cytologic resolution of secondary bacterial infection.
- Frequent antimicrobial shampooing for dogs receiving systemic treatment, but limited to 24 hours prior to topical amitraz

COMMENTS

- Most common cause of treatment failure is lack of duration of treatment.
- If numbers of eggs, larvae and live mites do not progressively decrease consider changing the frequency of topical or spot-on treatments, increasing the dose of oral avermectins, or changing to an alternative therapy.
- Adult onset generalized may require life-long therapy. Dogs are considered cured if they remain mite free 1 year past the last treatment.
- Spay females as soon as possible as the disease may flare with estrous.
- Recommend that all dogs with juvenile onset generalized demodicosis be neutered as this form appears to have a genetic predisposition.

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