



# Papulonodular Dermatoses

(Skin Disorders Characterized by the Presence of Bumps or Small Masses)

## Basics

### OVERVIEW

- “Papulonodular” refers to the presence of papules and nodules; “dermatosis” (plural, “dermatoses”) is the medical term for any skin abnormality or disorder
- “Papules” are small, solid, raised skin lesions of the skin that are less than 1 cm (approximately 0.5 inch) in diameter
- “Nodules” are solid, raised masses of the skin that are more than 1 cm in diameter and that extend into the deeper layers of the skin

### GENETICS

- Determined by cause; specific disease may be seen more commonly in certain breeds

### SIGNALMENT/DESCRIPTION OF PET

#### Species

- Dogs
- Cats

### SIGNS/OBSERVED CHANGES IN THE PET

- Depend on underlying cause
- Hair loss (known as “alopecia”)
- Reddened skin (known as “erythema”)
- Small, solid raised skin lesions that are less than 1 cm (approximately 0.5 inch) in diameter (papules)
- Solid masses of the skin that are more than 1 cm in diameter (nodules)
- Itchiness (known as “pruritus”)
- Crusting, inflammation, and changes in hair and/or skin color may be seen
- Skin lesions may be localized or generalized

### CAUSES

- Bacterial folliculitis (superficial and deep bacterial infections of the hair follicles)
- Dermatophytosis (a fungal infection affecting the skin, hair, and/or nails)
- Sebaceous adenitis (inflammation of the sebaceous glands, the glands that produce oils in the hair coat)

- Sterile eosinophilic pustulosis (skin disorder characterized by the presence of eosinophils in sterile pustules; “eosinophils” are a type of white-blood cell; they are involved in allergic responses by the body and are active in fighting larvae of parasites)
- Canine and feline acne
- Kerions (raised nodular lesions that develop from fungal infections of the skin, which frequently ooze)
- Demodectic mange (known as “demodicosis”)
- Rhabditic dermatitis (skin inflammation caused by parasitic infestation [*Pelodera strongyloides*] in the skin)
- Actinic or sun/solar-related skin conditions
- Cancer

## RISK FACTORS

- Inflammation/infection of the hair follicles (folliculitis), fungal infection of the skin, hair, and/or nails (dermatophytosis), and demodectic mange (demodicosis)—any disease or medication that causes a decrease in the ability to produce a normal immune response (known as “immunocompromise”) increases likelihood of these skin disorders
- Rhabditic dermatitis—may be associated with contact with decaying organic debris (such as straw or hay) containing the parasite, *Pelodera strongyloides*
- Actinic or sun/solar-related skin conditions—seen more frequently in outdoor, lightly pigmented and short-haired dogs living in areas with ample sunlight; reported most commonly in the Dalmatian, American Staffordshire terrier, pit bull terrier, beagle, whippet, Italian greyhound, greyhound, and basset hound

## Treatment

### HEALTH CARE

- Most can be treated as outpatients
- Generalized demodectic mange (demodicosis) and secondary generalized bacterial infection (known as “sepsis”) require hospitalization
- Some cases with skin cancer may require inpatient treatment

### ACTIVITY

- Alteration of activity usually not necessary

### DIET

- Alteration of diet usually not necessary

### SURGERY

- Skin biopsy may be necessary to determine diagnosis
- Surgical removal of skin tumors/cancer

## Medications

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

- Bacterial infection of the hair follicles (bacterial folliculitis)
- Superficial skin infection characterized by the presence of pus (known as “superficial pyoderma”)—appropriate antibiotics based on bacterial culture and sensitivity testing should be given for at least 3–4 weeks or 1 week beyond resolution of clinical signs
- Deep skin infection characterized by the presence of pus (known as “deep pyoderma”)—appropriate antibiotics based on bacterial culture and sensitivity testing should be given for at least 6–8 weeks or 2 weeks beyond resolution of clinical signs
- Identify and control underlying cause to prevent recurrence
- Inflammation of the sebaceous glands, the glands that produce oils in the hair coat (sebaceous adenitis)
  - ♦ Propylene glycol and water (50–75% dilution) once daily as a spray to affected areas, as directed by your pet's veterinarian; helpful in mild cases

- ◆ Essential fatty acid dietary supplements and evening primrose oil, as directed by your pet's veterinarian
- ◆ Treatment applied directly to the skin (known as “topical therapy”)—antiseborrheic shampoo (shampoo to control oily or dry scales on the skin), emollient rinses (agents that soften and soothe the skin, such as baby oil), and humectants (moisturizers that attract water into the surface of the skin)
- ◆ Cyclosporine A to decrease the immune response
- ◆ Vitamin A, as directed by your pet's veterinarian
- ◆ Cases that do not respond to treatment—isotretinoin; if response is seen, taper dosage as directed by your pet's veterinarian (synthetic retinoids have become difficult to dispense due to very strict prescription procedures)
- ◆ Most cases do not respond to steroids
- Canine and feline acne
  - ◆ Underlying causes should be identified and treated accordingly
  - ◆ May resolve without therapy in mild cases
  - ◆ More severe cases—benzoyl peroxide has strong action to soften and loosen crusts and scales on the skin (known as “keratolytic action”), destroys bacteria or slows their growth and multiplication (known as an “antimicrobial property”), and flushes out the hair follicles; benzoyl peroxide shampoos and/or gel every 24 hours until lesions resolve, then as needed
  - ◆ Mupirocin 2% ointment—antibiotic applied to the skin directly (known as a “topical antibiotic”); apply every 24 hours or alternate with the benzoyl peroxide products; should not be used in cats with deep lesions
  - ◆ Metronidazole 0.75% gel applied daily or less often as needed
  - ◆ When no underlying cause is found, chlorhexidine (a chemical antiseptic [compounds that kill or slow the growth of bacteria and other microorganisms]) based pads or acetic acid/boric acid pads or wipes, or benzoyl peroxide gels used daily or alternated daily may be helpful
  - ◆ Recurrent or very deep infection (furunculosis)—systemic antibiotics (administered by mouth or injection) and warm water soaks; “furunculosis” is a very deep bacterial infection leading to rupturing of the hair follicles
  - ◆ Cases that are very resistant to treatment—tretinoin or isotretinoin applied to the skin directly (topical therapy); the synthetic retinoids intended to be administered by mouth (oral administration) have become difficult to dispense due to very strict prescription procedures
  - ◆ Cats can be sensitive to the irritant effects of benzoyl peroxide
- Rhabditic dermatitis (skin inflammation caused by parasitic infestation [*Pelodera strongyloides*] in the skin)
  - ◆ Remove and destroy bedding (adult parasites live in decaying organic material, such as straw)
  - ◆ Wash kennels, beds, and cages and treat with a premise insecticide or flea spray, as directed by your pet's veterinarian; always read labels on insecticides and follow instructions carefully
  - ◆ Bathe affected pet and remove dried discharges on the surface of the skin lesions (known as “crusts”)
  - ◆ Parasitocidal dip—at least two times at weekly intervals
  - ◆ Steroids, as needed to treat inflammation of the skin
  - ◆ Severe infection—antibiotics may be necessary
- Actinic or sun-/solar-related skin inflammation (actinic dermatitis)
  - ◆ Sunlight—avoid between 10 a.m. and 4 p.m.; apply sunscreen with SPF rating of at least 15 every 12 hours
  - ◆ Severe inflammation—steroids applied directly to the affected skin (topical therapy) or administered by mouth may provide comfort; topical, 1–2.5% hydrocortisone usually sufficient; systemic, prednisone by mouth
  - ◆ Secondary infection—antibiotics may be necessary
  - ◆ Associated skin cancer (hemangioma, hemangiosarcoma, squamous cell carcinoma; sun-induced hemangiosarcoma rarely spreads to other parts of the body (known as “metastasis”); squamous cell carcinoma—prognosis is guarded to poor, depending on the stage of disease; therapy includes synthetic retinoids, heating of the tissues using radiofrequency waves (known as “radiofrequency hyperthermia”), freezing of the tissues (known as “cryosurgery”), use of a light sensitive drug, which is activated by certain light waves (known as “photochemotherapy”), radiation therapy, and surgical removal
  - ◆ Routine examination at regular intervals (“cancer screening”) recommended to identify and remove cancerous lesions as they develop
- Sterile nodular dermatoses
  - ◆ Attempt to identify underlying cause

- ◆ Cyclosporine (medication to decrease the immune response)—no food 2 hours before or after dosing; taper according to response as directed by your pet's veterinarian
- ◆ Tetracycline (an antibiotic) and niacinamide combination
- ◆ Steroids at doses to decrease the immune response; taper according to response as directed by your pet's veterinarian
- ◆ Chemotherapeutic drugs (chlorambucil or azathioprine)
- Other papulonodular dermatoses
  - ◆ Dermatophytosis—antifungal medications (such as griseofulvin or itraconazole); administered by mouth Sterile eosinophilic pustulosis—steroids, prednisolone or prednisone administered by mouth
  - ◆ Other papulonodular dermatoses treated based on underlying cause

## Follow-Up Care

### PATIENT MONITORING

- Bloodwork (complete blood count [CBC] and serum chemistry screen) and urinalysis—get baseline results, then repeat tests every 4–6 months for pets receiving cyclosporine
- Bloodwork (CBC and serum chemistry screen), urinalysis, and urine bacterial culture—get baseline results, then repeat tests every 4–6 months for pets receiving steroids
- Bloodwork (CBC and serum chemistry screen) and urinalysis—monitor monthly for 4–6 months for pets receiving synthetic retinoid therapy
- Tear production—monitor monthly (perform Schirmer tear test) for 4–6 months, then every 6 months in pets receiving synthetic retinoid therapy
- Skin scrapings—monitor therapy in pets with demodectic mange (demodicosis)
- Repeat fungal (dermatophyte) cultures—monitor therapy in pets with fungal infection affecting the skin, hair, and/or nails (dermatophytosis)
- Monitor progress of resolution of lesions

### PREVENTIONS AND AVOIDANCE

- Depend on underlying cause

### POSSIBLE COMPLICATIONS

- Actinic or sun/solar skin inflammation (actinic dermatitis) may progress to skin cancer, including squamous cell carcinoma

### EXPECTED COURSE AND PROGNOSIS

- Depend on underlying cause

## Key Points

- Fungal infection affecting the skin, hair, and/or nails (dermatophytosis)—contagious to people in 30–50% of cases of *Microsporum canis*; if a family member develops skin lesions, seek medical attention

# Notes

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