

Pododermatitis

(Inflammation of Skin of the Paws)

Basics

OVERVIEW

- “Podo-” refers to the feet or paws; “dermatitis” is the medical term for inflammation of the skin
- “Pododermatitis” is an inflammatory, multifaceted group of diseases that involves the feet of dogs and cats

SIGNALMENT/DESCRIPTION OF PET

Species

- Dogs—common
- Cats—uncommon

Breed Predispositions

- Short-coated breeds of dogs—most commonly affected; English bulldogs, Great Danes, basset hounds, mastiffs, bull terriers, boxers, dachshunds, Dalmatians, German shorthaired pointers, and Weimaraners
- Long-coated breeds of dogs—German shepherd dogs, Labrador retrievers, golden retrievers, Irish setters, and Pekingese
- Cats—none

Predominant Sex

- Dogs—male

SIGNS/OBSERVED CHANGES IN THE PET

- Vary considerably depending on the underlying cause—may be seasonal, may have other skin problems around the body

Pododermatitis in Dogs

Infectious

- Reddened paws (known as “erythema”)
- Paws may be painful and/or itchy (known as “pruritus”); may be swollen; may have edema (fluid buildup under the skin)
- Small, solid masses (known as “nodules”)
- Thickened, raised, flat-topped areas that are slightly higher than the normal skin (known as “plaques”); fungal kerions
- Variable degrees of loss of the top surface of the skin (known as “erosions” and “ulcers,” based on depth of tissue loss)
- Draining tracts
- Blood blisters or cysts
- Discharge from the paws may be blood-tinged or may contain pus

Skin—inflammation of soft tissue around the nail (known as “paronychia”); may have hair loss (known as “alopecia”) and may be moist from constant licking; dried discharge on the surface of the skin lesion (known as a



“crust”); painful or itchy

- Regional lymph nodes may be enlarged

Allergic

- May be saliva stained (have a rust-colored or brownish staining); red between toes, hair loss, top of toes may be worse than the underside unless it is a contact hypersensitivity, then underside worse

Immune-mediated

- Crusts and ulcers most commonly
- Sometimes fluid filled lesions (vesicles, bullae)
- All feet may be affected, especially around nail beds and foot pads
- Thickening (known as “hyperkeratosis”) of the footpad margins
- Loss of surface layers in the footpad margins (erosions)
- Lameness

Hormonal and Metabolic

- Usually see signs of secondary infection
- Hepatocutaneous syndrome, a rare condition (superficial necrolytic dermatitis) leading to erosions and ulcers, cracks and hyperkeratosis with crusting of the footpads

Cancer

- Variable ulcers, nodules, scales, redness, depigmentation of footpads, may be a single toe (nailbed carcinoma, ungual keratoacanthoma); multiple feet when squamous cell carcinoma, epitheliotropic lymphoma

Pododermatitis in Cats

Infectious

- Painful inflammation of soft tissue around the nail (paronychia), involving one or more claws
- Higher incidence of small, solid masses (nodules); often with loss of the top surface of the skin (ulcers) compared to dogs
- Footpads and soft tissue around nails—commonly involved
- Rarely between toes
- Dried discharge on the surface of the skin lesion (crusts) or scales, occasionally seen

Allergic

- Thickened, raised, flat-topped areas that are slightly higher than the normal skin (plaques), single or multiple, with discharge, or ulcerated, itchy (on, between and under toes, around nails)
- Eosinophilic granuloma complex

Immune-mediated

- Thickening (hyperkeratosis) of the footpads, ulcers
- Lameness
- Inflammation of soft tissue around the nail (known as “paronychia”), with nail fold exudate
- Hormonal/Metabolic
- Cutaneous xanthomatosis—seen with sugar diabetes (“diabetes mellitus”)—nodules resemble candle wax
- Cancer
- Nodules, variable ulceration, pain, local tissue destruction variable

Environmental (Dog and Cat)

- Depends on cause
- Foreign material, contact irritation, trauma, moisture may produce ongoing inflammation between toes, ulcers, abscesses, draining tracts, swelling, with or without itchiness

Miscellaneous (Dog and Cat)

- Hyperkeratosis due to zinc-responsive dermatitis, certain dog foods, idiopathic (no known cause)
- Interdigital follicular cysts, nodules, draining tracts
- Nodules without tracts in dogs—associated with sterile pyogranuloma in several breeds, and nodular dermatofibrosis in German Shepherd dogs and golden retrievers
- Reduce pigment (hypomelanosis) of the footpads in cats, associated with lentigo simplex
- Polydactyl (too many toes) or syndactyl (fused toes) in cats—familial
- Loss of sensation with mutilation (acral mutilation and analgesia)—seen in pointers and spaniels (English springer, French)—unknown cause, may be runt of the litter

CAUSES

Infectious Pododermatitis in Dogs

- Bacterial infections—*Staphylococcus pseudintermedius*, *Pseudomonas*, *Proteus*, *Mycobacterium*, *Nocardia*, or *Actinomyces*
- Fungal infections—dermatophytes (a fungus living on the skin, hair, or nails); sporotrichosis; or deep fungal infections (blastomycosis, cryptococcosis)
- Parasitic infections—demodectic mange in dogs (*Demodex canis*), rhabditic dermatitis (*Pelodera strongyloides*), and hookworms
- Protozoal infections—leishmaniasis

Infectious Pododermatitis in Cats

- Bacterial infections—*Staphylococcus pseudintermedius*, *Pseudomonas*, *Proteus*, *Pasteurella*, *Mycobacterium*, *Nocardia*, or *Actinomyces*
- Fungal infections—dermatophytes (a fungus living on the skin, hair, or nails); sporotrichosis; or deep fungal infections (cryptococcosis)
- Parasitic infections—*Neotrombicula autumnalis*, *Notoedres cati*, or *Demodex*
- Protozoal infections—*Anatrichosoma cutaneum*

Allergic Pododermatitis

- Dogs—atopy (disease in which the pet is sensitized [or “allergic”] to substances found in the environment [such as pollen] that normally would not cause any health problems); food hypersensitivity; allergic contact dermatitis (inflammation of the skin secondary to contact with some substance to which the pet has an allergic reaction)
- Cats—atopy; it is rare for flea-allergic dermatitis, food hypersensitivity, or contact dermatitis to involve the paws (except eosinophilic granuloma complex)

Immune-Mediated Pododermatitis

- Dogs—pemphigus foliaceus; systemic lupus erythematosus; erythema multiforme; toxic epidermal necrolysis; inflammation of blood vessels (known as “vasculitis”); cold-agglutinin disease; pemphigus vulgaris; bullous pemphigoid; epidermolysis bullosa acquisita; symmetrical lupoid onychodystrophy
- Cats—pemphigus foliaceus; systemic lupus erythematosus; erythema multiforme; toxic epidermal necrolysis; inflammation of blood vessels (vasculitis); cold-agglutinin disease; plasma-cell pododermatitis

Hormonal Pododermatitis

- Dogs—decreased levels of thyroid hormone (known as “hypothyroidism”); increased levels of steroids produced by the adrenal glands (known as “hyperadrenocorticism” or “Cushing’s syndrome”); hepatocutaneous syndrome (rare skin condition that develops in pets with liver disease or other metabolic diseases)
- Cats—increased levels of thyroid hormone (known as “hyperthyroidism”); increased levels of steroids produced by the adrenal glands (hyperadrenocorticism or Cushing’s syndrome); diabetes mellitus (“sugar diabetes”); hormonal pododermatitis is rare in cats

Cancer

- Dogs—squamous cell carcinoma; epitheliotropic lymphoma; melanoma; mast cell tumor; keratoacanthoma; inverted papilloma; eccrine adenocarcinoma
- Cats—papilloma; spinocellular epithelioma; trichoepithelioma; fibrosarcoma; malignant fibrous histiocytoma; metastatic primary adenocarcinoma of the lung; other cancers that have spread (known as “metastatic carcinomas”)
- Higher incidence in cats than in dogs

Environmental Causes

- Dogs—irritant contact dermatitis (inflammation or irritation of the skin secondary to contact with some substance to which the dog comes in contact); trauma; concrete and gravel dog runs; excessive exercise; clipper burn; foreign bodies (such as grass awns, bristle-like hairs of short-coated dogs); thallium toxicity (a type of heavy metal poisoning)
- Cats—irritant contact dermatitis (inflammation or irritation of the skin secondary to contact with some substance to which the cat comes in contact); foreign bodies; thallium toxicity (a type of heavy metal poisoning)

Miscellaneous

- Dogs—sterile interdigital granuloma (a mass or nodular lesion located between the toes); interdigital follicular cyst (cyst between the toes)

RISK FACTORS

- Lifestyle and general husbandry conditions—influence development of inflammation of the skin of the paws (pododermatitis)
- Excess exercise, abrasive or moist housing, poor grooming, and/or lack of preventive medical practice may increase likelihood of developing pododermatitis or worsen the condition
- Body size, foot conformation, and breed influence the development of interdigital follicular cysts

Treatment

HEALTH CARE

- Outpatient, unless surgery is indicated
- Foot soaking, hot packing, and/or bandaging may be necessary, depending on cause

ACTIVITY

- Depends on severity of lesions and on underlying cause

DIET

- Restricted-ingredient food trial, if indicated
- Hypoallergenic diet—if food hypersensitivity or allergy is suspected

SURGERY

- Skin biopsy
- Melanomas and squamous cell carcinomas—very poor prognosis; diagnosis necessitates surgical removal of the digit, digits, or paw
- Infectious pododermatitis—may benefit from surgical removal of diseased tissue before medical therapy
- Recurrent draining tracts caused by interdigital follicular cysts (cysts between the toes) may be cleared with laser surgery

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.

- Depend on underlying cause and presence of secondary infections
- Medications may include long-term antibiotics, antifungals, steroids, chemotherapeutic agents, immunomodulatory medicines; hormone-replacement therapy, zinc supplementation, or intravenous amino acids

Follow-Up Care

PATIENT MONITORING

- Depends on underlying cause and treatment protocol selected

PREVENTIONS AND AVOIDANCE

- Environmental cause—good husbandry and preventive medical practices should avoid recurrence
- Allergic cause—avoid the allergen (environmental or food), if possible; “allergens” are substances to which the pet has developed an allergy

POSSIBLE COMPLICATIONS

- Depend on underlying cause and treatment protocol selected

EXPECTED COURSE AND PROGNOSIS

- Success of therapy depends on finding the underlying cause; often the cause is unknown; even when the cause is known, management can be frustrating due to relapses or expense of treatment
- Often the disease only can be managed and not cured
- Surgical intervention is sometimes necessary

Key Points

- Treatment depends on underlying cause and severity of condition
- Good husbandry and preventive medical practices are necessary
- Pododermatitis will be managed, but not cured, in many cases

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