

# Nail and Nailbed Disorders

## Basics

### OVERVIEW

- Nail and nailbed disorders are a group of abnormalities or diseases that affect the nail or claw and/or the tissues surrounding the nail or claw (that is, the “nailbed”)
- “Onycho-” or “onych-” refers to the nail or claw
- Inflammation of soft tissue around the nail or claw (known as “paronychia”)
- Fungal infection of the nail or claw (known as “onychomycosis”)
- Brittle nails or claws that tend to split or break (known as “onychorrhexis”)
- Sloughing of the nail or claw (known as “onychomadesis”)
- Deformity of the nail or claw caused by abnormal growth (known as “nail dystrophy” or “onychodystrophy”) that is often the result of a nail or nailbed disorder
- Softening of the nails (known as “onychomalacia”)

### GENETICS

- Certain breeds appear to be more susceptible to nail and nailbed disorders than other breeds, suggesting a possible genetic basis

### SIGNALMENT/DESCRIPTION OF PET

#### Species

- Dogs
- Cats

#### Breed Predilections

- Brittle nails that tend to split or break (onychorrhexis)—dachshund
- Symmetrical deformity of the nails or claws caused by abnormal growth (nail dystrophy or onychodystrophy) that is related to the autoimmune disease, lupus, or a lupus-like disease (condition known as “symmetrical lupoid onychodystrophy”)—German shepherd dog, rottweiler, possibly giant schnauzer and Doberman pinscher
- Deformity of the nail or claw caused by abnormal growth (nail dystrophy or onychodystrophy) of unknown cause (condition known as “idiopathic onychodystrophy” [“idiopathic” means unknown])—Siberian husky, dachshund, Rhodesian ridgeback, rottweiler, cocker spaniel
- Sloughing of the nail or claw of unknown cause (condition known as “idiopathic onychomadesis”)—German shepherd dog, whippet, English springer spaniel



## Mean Age and Range

- Symmetrical deformity of the nails or claws caused by abnormal growth (nail dystrophy or onychodystrophy) that is related to the autoimmune disease, lupus, or a lupus-like disease (symmetrical lupoid onychodystrophy)—3–8 years of age

## SIGNS/OBSERVED CHANGES IN THE PET

- Licking at the feet and/or nails
- Lameness
- Pain
- Swelling, redness of the skin and tissues (known as “erythema”), and discharge from the nail or the area where the skin and nail or claw come together at the top of the toe (known as the “ungual fold” or “nail fold” or “claw fold”)
- Deformity or sloughing of one or more nails or claws
- Discoloration of the nail
- Bleeding from the nail
- Loss of one or more nails
- Being “tender-footed”

## CAUSES

- Inflammation of soft tissue around the nail or claw (paronychia)
  - ♦ Infection or infectious disease—bacteria, fungus (known as “dermatophytosis”), yeast (*Candida*, *Malassezia*), demodectic mange mites (condition known as “demodicosis”), leishmaniasis
  - ♦ Immune-mediated disease—types include the following: pemphigus, bullous pemphigoid, systemic lupus erythematosus, drug eruption, symmetrical lupoid onychodystrophy
  - ♦ Tumor or cancer—types include the following: squamous cell carcinoma, melanoma, eccrine carcinoma, osteosarcoma, subungual keratoacanthoma, inverted squamous papilloma
  - ♦ Abnormal communication between an artery and a vein (known as an “arteriovenous fistula”)
- Fungal infection of the nail or claw (onychomycosis)
  - ♦ Dogs—*Trichophyton mentagrophytes* (usually generalized fungal infection of the skin, involving the nails)
  - ♦ Cats—*Microsporum canis*
- Brittle nails or claws that tend to split or break (onychorrhexis)
  - ♦ Unknown cause (so-called “idiopathic disease”)—especially in dachshunds; involves multiple nails
  - ♦ Trauma
  - ♦ Infection—fungal infection (dermatophytosis), leishmaniasis
- Sloughing of the nail or claw (onychomadesis)
  - ♦ Trauma
  - ♦ Infection
  - ♦ Immune-mediated disease—types include the following: pemphigus, bullous pemphigoid, systemic lupus erythematosus, drug eruption, symmetrical lupoid onychodystrophy
  - ♦ Decreased or inadequate blood flow (known as “vascular insufficiency”)—inflammation of the blood vessels (known as “vasculitis”); clumping together or agglutination of red-blood cells when the temperature of the cells drops below normal body temperature (known as “cold agglutinin disease”), such as exposure of the legs to cold weather
  - ♦ Tumor or cancer—types include the following: squamous cell carcinoma, melanoma, eccrine carcinoma, osteosarcoma, subungual keratoacanthoma, inverted squamous papilloma
  - ♦ Unknown cause (so-called “idiopathic disease”)
- Deformity of the nail or claw caused by abnormal growth (nail dystrophy)
  - ♦ Condition caused by excessive levels of growth hormone, leading to enlargement of bone and soft-tissues in the body (known as “acromegaly”)
  - ♦ Increased levels of thyroid hormone in the cat (known as “feline hyperthyroidism”)
  - ♦ Zinc-responsive skin disorder (known as “zinc-responsive dermatosis”)
  - ♦ Congenital (present at birth) malformations of the nail or claw

## RISK FACTORS

- Inflammation of soft tissue around the nail or claw (paronychia) due to infectious causes—decreased ability to develop a normal immune response (known as “immunosuppression”), which may be related to immune-system problem of the body or to the use of medications to decrease the immune response; feline leukemia virus (FeLV) infection; trauma; and diabetes mellitus (sugar diabetes)
- Sloughing of the nail or claw due to bacterial infection (bacterial onychomadesis)—excessively short nail trimming (into the quick) postulated to increase likelihood of bacterial infection and subsequent sloughing of the nail or claw

## Treatment

### HEALTH CARE

- Inflammation of soft tissue around the nail or claw (paronychia)
  - ♦ Surgical removal of the hard part of the nail (known as the “nail plate” or “shell”)
  - ♦ Antimicrobial soaks
  - ♦ Identify underlying condition and treat specifically
- Fungal infection of the nail or claw (onychomycosis)
  - ♦ Antifungal soaks—chlorhexidine, povidone iodine, lime sulfur
  - ♦ Surgical removal of the hard part of the nail (nail plate or shell)—may improve response to medication administered by mouth or injection (known as “systemic medication”)
  - ♦ Amputation of the third bone of the toe (known as the “third phalanx”), which is continued by the nail or claw
- Brittle nails or claws that tend to split or break (onychorrhexis)
  - ♦ Repair with fingernail glue (type used to attach false nails in humans), as performed or directed by your pet's veterinarian
  - ♦ Remove splintered pieces
  - ♦ Amputation of the third bone of the toe (third phalanx), which is continued by the nail or claw
  - ♦ Treat underlying cause
- Sloughing of the nail or claw (onychomadesis)
  - ♦ Antimicrobial soaks
  - ♦ Treat underlying cause
- Deformity of the nail or claw caused by abnormal growth (nail dystrophy or onychodystrophy)
  - ♦ Treat underlying cause
- Tumor or cancer
  - ♦ Determined by biologic behavior of specific tumor
  - ♦ Surgical removal of the tumor
  - ♦ Amputation of toe
  - ♦ Amputation of leg
  - ♦ Chemotherapy
  - ♦ Radiation therapy

## 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/inflammation of soft tissue around the nail or claw (paronychia)—antibiotics based on bacterial culture and sensitivity, administered by mouth or injection (systemic antibiotics)
- Yeast (*Candida* or *Malassezia*) infection/inflammation of soft tissue around the nail or claw (yeast paronychia)—ketoconazole administered by mouth (systemic treatment); nystatin or miconazole applied to the affected area directly (topical treatment)
- Fungal infection of the nail or claw (onychomycosis)—griseofulvin or ketoconazole administered by mouth (systemic treatment) for 6–12 months until negative fungal cultures; itraconazole administered by mouth for 3 weeks and then as directed by your pet's veterinarian

- Sloughing of the nail or claw (onychomadesis)—depends on cause; medication to decrease the immune response (known as “immunosuppressive therapy”) for immune-mediated diseases
- Other medications include cyclosporine, tetracycline with niacinamide, pentoxifylline, vitamin E, essential fatty acid supplementations, and chemotherapeutic agents (such as azathioprine, chlorambucil)

## **Follow-Up Care**

### **PATIENT MONITORING**

- Determined by underlying cause

### **PREVENTIONS AND AVOIDANCE**

- Determined by underlying cause

### **POSSIBLE COMPLICATIONS**

- Determined by underlying cause

### **EXPECTED COURSE AND PROGNOSIS**

- Bacterial infection/inflammation of soft tissue around the nail or claw (paronychia) or fungal and yeast infection of the nail or claw (onychomycosis)—treatment may be prolonged and response may be influenced by underlying factors Fungal infection of the nail or claw (onychomycosis) and brittle nails or claws that tend to split or break (onychorrhexis)—may require amputation of the third bone of the toe (third phalanx), which is continued by the nail or claw, in order to get resolution
- Deformity of the nail or claw caused by abnormal growth (nail dystrophy or onychodystrophy)—prognosis is good when underlying cause can be effectively treated
- Sloughing of the nail or claw (onychomadesis)—prognosis determined by underlying cause; immune-mediated diseases and blood vessel/blood flow (vascular) problems carry a more guarded prognosis than do trauma or infectious causes
- Tumor or cancer—removed surgically by amputation of the toe; some are highly malignant and may have already spread (known as “metastasis”) by the time of diagnosis

## **Key Points**

- Nail and nailbed disorders are a group of abnormalities or diseases that affect the nail or claw and/or the tissues surrounding the nail or claw (that is, the “nailbed”)