Superficial Pyoderma (superficial bacterial folliculitis)

Features

Superficial pyoderma is a superficial bacterial infection involving hair follicles and the adjacent epidermis. The infection usually occurs secondary to an underlying cause; allergies and endocrine disease are the most common causes (Box 3-3). Superficial pyoderma is common in dogs and rare in cats.

Superficial pyoderma is characterized by focal, multifocal, or generalized areas of papules, pustules, crusts, and scales, epidermal collarettes, or circumscribed areas of erythema and alopecia that may have hyperpigmented centers. Short-coated dogs often present with a "moth-eaten" patchy alopecia, small tufts of hair that stand up, or reddish brown discoloration of white hairs. In long-coated dogs, symptoms can be insidious and may include a dull, lusterless hair coat, scales, and excessive shedding. In both short- and long-coated breeds, primary skin lesions are often obscured by remaining hairs but can be readily appreciated if an affected area is clipped. Pruritus is variable, ranging from none to intense levels. Bacterial infections secondary to endocrine disease may cause pruritus, thereby mimicking allergic skin disease.

Staphylococcus intermedius is the most common bacterium isolated from canine pyoderma and is usually limited to dogs. *Staphylococcus schleiferi* is a relatively new bacterial species in dogs and humans that is emerging as a common canine isolate in patients with chronic infections and previous antibiotic exposure. Additionally, methicillin-resistant *Staphylococcus aureus* (human MRSA) may be becoming more common among veterinary species.

BOX 3-3

Causes of Secondary Superficial and Deep Pyoderma

- Demodicosis, scabies, *Pelodera*
- Hypersensitivity (e.g., atopy, food, flea bite)
- Endocrinopathy (e.g., hypothyroidism, hyperadrenocorticism, sex hormone imbalance, alopecia X)
- Immunosuppressive therapy (e.g., glucocorticoids, progestational compounds, cytotoxic drugs)
- Autoimmune and immune-mediated disorders
- Trauma or bite wound
- Foreign body
- Poor nutrition

Top Differentials

Differentials include demodicosis, dermatophytosis, scabies, and autoimmume skin diseases.

Diagnosis

1. Rule out other differentials
2. Cytology (pustule): neutrophils and bacterial cocci
3. Dermatohistopathology: epidermal microabscesses, nonspecific superficial dermatitis, perifolliculitis, and folliculitis. Intralesional bacteria may be difficult to find
4. Bacterial culture: *Staphylococcus* species

Treatment and Prognosis

1. The underlying cause should be identified and corrected.
2. Systemic antibiotics (minimum 3-4 weeks) should be administered and continued 1 week beyond complete clinical resolution (see Box 3-1).
3. Concurrent bathing every 2 to 7 days with an antibacterial shampoo that contains chlorhexidine, ethyl lactate, or benzoyl peroxide is helpful.
4. If lesions recur within 7 days of antibiotic discontinuation, the duration of therapy was inadequate and antibiotics should be reinstituted for a longer time period.
5. If lesions do not completely resolve during antibiotic therapy, or if they recur weeks to months later, an underlying cause should be sought (see Box 3-3).
6. No response to antibiotic therapy suggests antibiotic resistance or a nonbacterial skin disease.
7. If lesions resolve but pruritus persists, underlying ectoparasitism or an allergy is probably present.
8. The prognosis is good if the underlying cause can be identified and corrected or controlled.

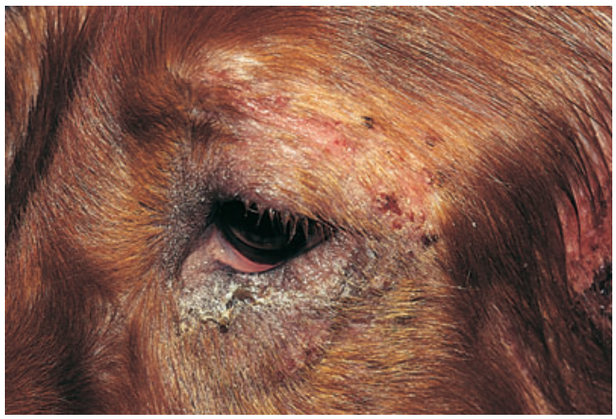

FIGURE 3-24 Superficial Pyoderma. The alopecia, papules, and crusts around the eye of this allergic Irish setter are typical of bacterial folliculitis.

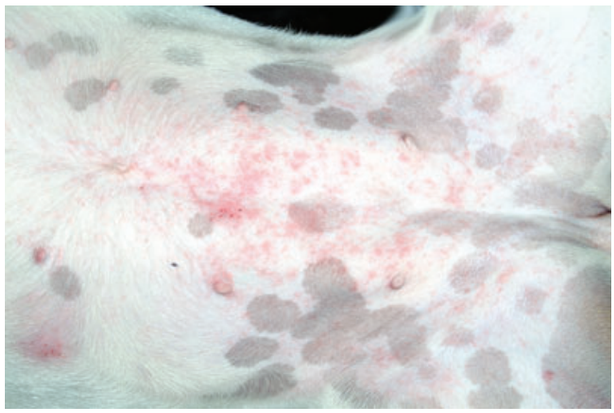

FIGURE 3-25 Superficial Pyoderma. The papular rash on the abdomen of an allergic dog caused by multi-drug-resistant *Staphylococcus schleiferi*. The papular rash typical of pyoderma persisted despite high high-dose antibiotic therapy, suggesting the antibiotic antibiotic-resistant nature of the organism.

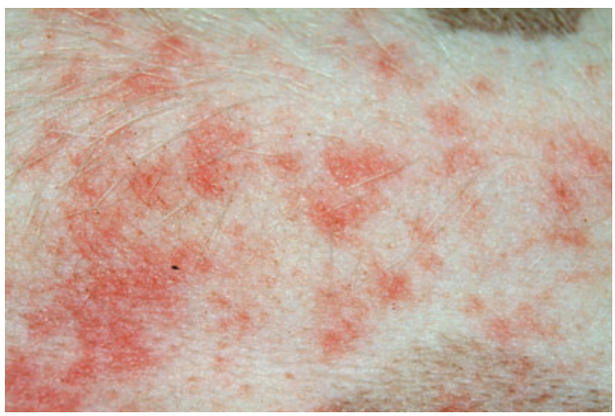

FIGURE 3-26 Superficial Pyoderma. Close-up of the papular rash in figure Figure 3-25.

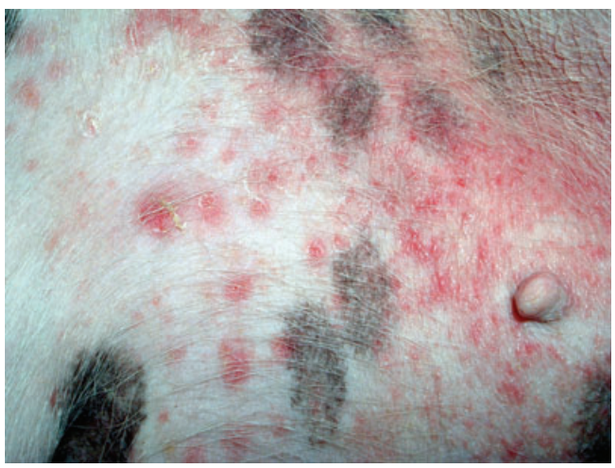

FIGURE 3-27 Superficial Pyoderma. This papular dermatitis forms coalescing lesions as demonstrated by the erythematous plaque. Note the early epidermal collarettes associated with some papules.

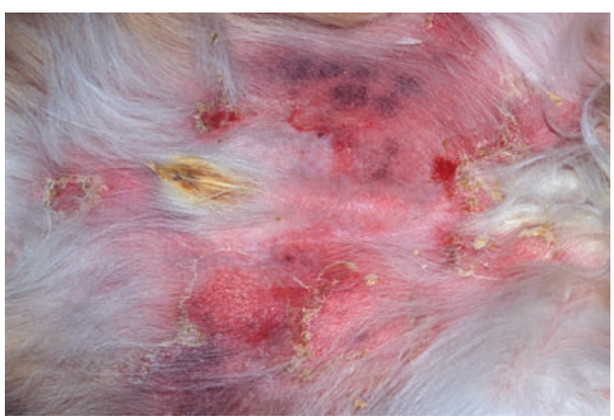

FIGURE 3-28 Superficial Pyoderma. Severe erythematous dermatitis with large epidermal collarettes caused by a multi-drug-resistant infection.

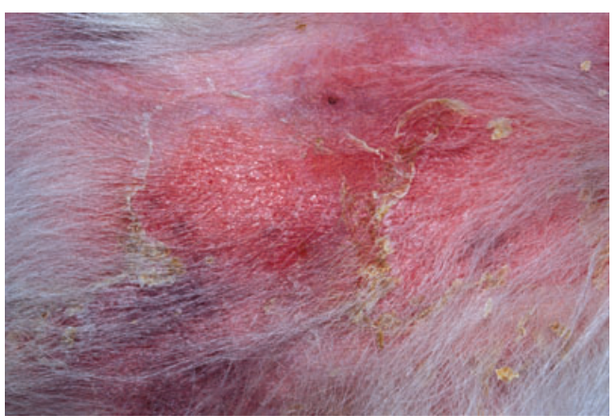

FIGURE 3-29 Superficial Pyoderma. Close-up of the dog in figure Figure 3-28. The erythematous dermatitis with epidermal collarettes formation is apparent.

Mucocutaneous Pyoderma

Features

Mucocutaneous pyoderma is a bacterial infection of mucocutaneous junctions. It is uncommon in dogs; German shepherds and their crosses are possibly predisposed.

Lesions are characterized by mucocutaneous swelling, erythema, and crusting that may be bilaterally symmetrical. Affected areas may be painful or pruritic and self-traumatized, and they may become exudative, eroded, ulcerated, fissured, and depigmented. The margins of the lips, especially at the commissures, are most frequently affected, but the nares and, less commonly, the eyelids, vulva, prepuce, and anus are sometimes involved. Concurrent axillary or inguinal ulcerations may be present.

Top Differentials

Differentials include superficial pyoderma, lip fold dermatitis, demodicosis, dermatophytosis, *Malassezia* dermatitis, candidiasis, autoimmune skin disorders, and epitheliotropic lymphoma.

Diagnosis

1. Usual basis: history, clinical findings, and rule out other differentials
2. Cytology (impression smear): bacterial cocci or rods
3. Dermatohistopathology: epidermal hyperplasia, superficial epidermal pustules, crusting, and lichenoid dermatitis with preservation of basement membrane. Dermal infiltrates are often predominantly composed of plasma cells, with varying numbers of lymphocytes, neutrophils, and macrophages.

Treatment and Prognosis

1. For mild to moderate lesions, affected areas should be clipped and cleaned with shampoo that contains benzoyl peroxide or chlorhexidine. Topical mupirocin ointment or cream should be applied every 12 to 24 hours for 1 week, then every 3 to 7 days for maintenance therapy, as needed.

Box 3-1

Oral Antibiotics for Bacterial Skin Infection

Antibiotic-Dose

First-Line Drugs

- Cefadroxil 22 mg/kg q 8-12 hours
- Cefpodoxime 5-10 mg/kg q 12-24 hours
- Cephalexin 22 mg/kg q 8 hours, or 30mg/kg q 12 hours
- Cephradine 22 mg/kg q 8 hours
- Clavulanated amoxicillin 12.5-22 mg/kg q 8-12 hours
- Ormetoprim/sulfadimethoxine 55 mg/kg once on day 1, then 27.5 mg/kg q 24 hours
- Oxacillin 22 mg/kg q 8 hours
- Trimethoprim/sulfadiazine 22-30 mg/kg q 12 hours
- Trimethoprim/sulfamethoxazole 22-30 mg/kg q 12 hours

Second-Line Drugs

- Chloramphenicol 50 mg/kg q 8 hours
- Ciprofloxacin 5-15 mg/kg q 12 hours
- Clindamycin hydrochloride 5.5-11 mg/kg q 12 hours
- Enrofloxacin 10-20 mg/kg q 12-24 hours
- Erythromycin 10-15 mg/kg q 8 hours
- Ibafloxacin 15mg/kg q 24 hours
- Marbofloxacin 2.75-5.5 mg/kg q 12-24 hours
- Orbifloxacin 5-7.5 mg/kg q 24 hours

2. For severe lesions, in addition to topical therapy, appropriate systemic antibiotics should be administered for 3 weeks (Box 3-1).
3. Prognosis is good, but lifelong maintenance therapy is often needed. If regularly-applied, topical antibiotics do not maintain remission; however, pulse therapy with systemic antibiotics may be effective. Cephalexin 30 mg/kg PO every 12 hours, or clavulanated amoxicillin 22 mg/kg PO every 12 hours, should be administered until lesions have completely resolved (for approximately 3-6 weeks, then with long-term twice-weekly pulse therapy of either cephalexin 30 mg/kg PO every 12 hours, or clavulanated amoxicillin 22 mg/kg PO every 12 hours, on 2 consecutive days each week [see Box 3-1]).