

Color Atlas of Farm Animal Dermatology



Danny W. Scott

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This atlas is dedicated to my colleague and friend, Israel Yeruham, whose untimely death in 2005 left a huge void in the world of farm animal dermatology. Israel devoted much of his professional career to the recognition, reporting, and teaching of farm animal skin diseases. His work is liberally referenced in this atlas. Israel, thanx for all you did. I miss you. I look forward to seeing you again in the hereafter.

Danny Scott

CONTENTS

Preface and Acknowledgements ix
Reportable and Foreign Diseases xi

1 BOVINE 1

- 1.1 Bacterial Skin Diseases 3
- 1.2 Fungal Skin Diseases 17
- 1.3 Parasitic Skin Diseases 21
- 1.4 Viral and Protozoal Skin Diseases 35
- 1.5 Immunological Skin Diseases 53
- 1.6 Congenital and Hereditary Skin Diseases 59
- 1.7 Environmental Skin Diseases 69
- 1.8 Nutritional Skin Diseases 83
- 1.9 Miscellaneous Skin Diseases 87
- 1.10 Neoplastic and Non-Neoplastic Growths 91

2 CAPRINE 101

- 2.1 Bacterial Skin Diseases 103
- 2.2 Fungal Skin Diseases 111
- 2.3 Parasitic Skin Diseases 115
- 2.4 Viral and Protozoal Skin Diseases 125
- 2.5 Immunological Skin Diseases 131
- 2.6 Congenital and Hereditary Skin Diseases 135
- 2.7 Environmental Skin Diseases 137
- 2.8 Nutritional Skin Diseases 141
- 2.9 Miscellaneous Skin Diseases 143
- 2.10 Neoplastic and Non-Neoplastic Growths 145

3 OVINE 149

- 3.1 Bacterial Skin Diseases 151
- 3.2 Fungal Skin Diseases 157
- 3.3 Parasitic Skin Diseases 159
- 3.4 Viral and Protozoal Skin Diseases 167
- 3.5 Immunological Skin Diseases 175
- 3.6 Congenital and Hereditary Skin Diseases 177
- 3.7 Environmental Skin Diseases 181
- 3.8 Nutritional Skin Diseases 187
- 3.9 Miscellaneous Skin Diseases 189
- 3.10 Neoplastic and Non-Neoplastic Growths 191

4 PORCINE 195

- 4.1 Bacterial Skin Diseases 197
- 4.2 Fungal Skin Diseases 207
- 4.3 Parasitic Skin Diseases 209
- 4.4 Viral and Protozoal Skin Diseases 215
- 4.5 Immunological Skin Diseases 221
- 4.6 Congenital and Hereditary Skin Diseases 223
- 4.7 Environmental Skin Diseases 225
- 4.8 Nutritional Skin Diseases 231
- 4.9 Miscellaneous Skin Diseases 233
- 4.10 Neoplastic and Non-Neoplastic Growths 237

Index 241

PREFACE AND ACKNOWLEDGEMENTS

For years veterinary students, practitioners, and Residents in Dermatology have asked me where to go to find concise information and color pictures of the skin diseases of farm (“food”) animals: cattle, goats, sheep, and pigs. My answer was: “There ain’t no such place.”

To my knowledge, the only textbook ever devoted to the skin diseases of farm animals (it also included horses) was *Large Animal Dermatology*.¹ This book was published in 1988, and was mostly in black and white. My colleague and friend, Bill Miller, and I finally updated the equine portion in 2003.² Then people started asking me “When are you gonna write a new edition of *Large Animal Dermatology*?” My response was, and still is, “In my next lifetime.” However, the idea of putting together an atlas of farm animal skin diseases—wherein color photographs and concise historical and physical information could be found in one place—appealed to me.

This, then, is my attempt to pull those aspects of the skin diseases of cattle, goats, sheep, and pigs together. A “short list” of reasonable differential diagnoses is provided. The essence of definitive diagnosis is presented. Therapy, prevention, and control are not addressed. The reader will have to dig into the references and current textbooks to pursue such information. The text is divided into four sections—bovine, caprine, ovine, and porcine—so that individuals interested in a particular species can dive right in. Because I did not have pictures of certain laboratory specimens from all four species, I have occasionally used the same photomicrograph of pus, the same louse, the same skin scraping, and so forth for multiple species. Oh, well. Ya know, at some level pus is pus and *Sarcoptes* is *Sarcoptes*.

Many of the diseases in this atlas are—from an American’s viewpoint—foreign (“exotic”). I have had to draw upon the collections of many colleagues . . . and they have responded generously. If I have failed to acknowledge anyone for their contribution(s), please forgive me and let me know. I must single out two individuals for their many contributions. First, my colleague and friend Dr. Jean-Marie Gourreau (merci beaucoup, Jean-Marie, t’es ben super!). Second, my long-time friend and colleague, now deceased, Dr. Bill Rebhun (thanks for all those great years, Bill).

I would be remiss in my acknowledgements if I didn’t specifically include two of my non-veterinary colleagues: Ray Kersey and Dede Anderson. Ray is a long-time friend and advisor from a former textbook and publisher. It was Ray that encouraged me to do this thing and to do it with Blackwell Publishing. Dede was my long-suffering editor on this project. We encountered and overcame big glitches, little glitches, and all kinda glitches in-between.

Lastly . . . but not leastly . . . thanx and so much more to my wife and soul-mate for the last 37 years, Kris: always there with the necessary encouragement, prodding, understanding, and love. Big smooch!

Hey vet students! Hey dermoids! You all are the best part of my career. Here’s to you! Thanks!

Danny Scott
Ithaca, New York

1. Scott DW. 1988. *Large Animal Dermatology*. WB Saunders, Philadelphia, PA.

2. Scott DW, Miller WH. 2003. *Equine Dermatology*. Elsevier Science, St. Louis, MO.

REPORTABLE AND FOREIGN DISEASES

Many of the diseases presented in this atlas are infectious and pose serious threats to animal health and welfare. Some are transmissible to humans. Many are associated with huge economic losses and trade restrictions.

There are differences between countries and—in the United States—differences between states concerning which diseases are reportable. The following listing includes diseases that are officially reportable in New York state, and infectious diseases that currently do not occur in the United States (the appropriate authorities should be contacted when these are encountered).

Cattle

Anthrax
Besnoitiosis
Bluetongue
Bovine ephemeral fever
Bovine spongiform encephalopathy
Dermatophilosis
Foot-and-mouth disease
Hyalomma toxicosis
Lumpy skin disease
Malignant catarrhal fever (African)
Pseudorabies
Psoroptic mange
Rift Valley fever
Rinderpest
Sarcoptic mange
Screwworm
Theileriosis
Trypanosomiasis
Vesicular stomatitis

Goats

Anthrax
Bluetongue
Capripoxvirus infection

Foot-and-mouth disease
Peste des petits ruminants
Pseudorabies
Psoroptic mange
Rinderpest
Scrapie
Screwworm
Vesicular stomatitis

Sheep

Anthrax
Bluetongue
Capripoxvirus infection
Chorioptic mange
Foot-and-mouth disease
Peste des petits ruminants
Pseudorabies
Psoroptic mange
Rinderpest
Sarcoptic mange
Scrapie
Screwworm
Vesicular stomatitis

Swine

African swine fever
Anthrax
Classical swine fever
Erysipelas
Foot-and-mouth disease
Porcine respiratory and reproductive syndrome
Sarcoptic mange
Screwworm
Swine vesicular disease
Vesicular exanthema
Vesicular stomatitis



BOVINE

- 1.1 Bacterial Skin Diseases
- 1.2 Fungal Skin Diseases
- 1.3 Parasitic Skin Diseases
- 1.4 Viral and Protozoal Skin Diseases
- 1.5 Immunological Skin Diseases
- 1.6 Congenital and Hereditary Skin Diseases
- 1.7 Environmental Skin Diseases
- 1.8 Nutritional Skin Diseases
- 1.9 Miscellaneous Skin Diseases
- 1.10 Neoplastic and Non-Neoplastic Growths



BACTERIAL SKIN DISEASES

Impetigo
Folliculitis and Furunculosis
Ulcerative Lymphangitis
Corynebacterium pseudotuberculosis Granuloma
Dermatophilosis
Actinomycosis
Actinobacillosis
Clostridial Cellulitis
Opportunistic Mycobacterial Granuloma
Farcy
Miscellaneous Bacterial Diseases
Abscess
Cellulitis
Bacterial Pseudomycetoma
Necrobacillosis
Nodular Thelitis
Nocardiosis
Pasteurella Granulomatis Panniculitis
Anthrax
Septicemic Slough

IMPETIGO

Features

Impetigo (Latin: an attack; scabby eruption) is a superficial pustular dermatitis that does not involve hair follicles. It is common, cosmopolitan, and caused by *Staphylococcus aureus*, and predisposing factors include trauma, moisture, and the stress of parturition. Dairy breeds and lactating females are predisposed.

Lesions are most commonly seen on the udder (especially the base of the teats and the intramammary sulcus), teats, ventral abdomen, medial thighs, vulva, perineum, and ventral tail (Figs. 1.1-1 and 1.1-2). Superficial vesicles rapidly become pustular, rupture, and leave annular erosions and yellow-brown crusts.



Figure 1.1-1 Impetigo. Superficial pustules on the base of the teats.

Lesions are neither pruritic nor painful, and affected animals are otherwise healthy. Up to 48% of a herd may be affected. Staphylococcal mastitis is a possible, but uncommon complication.

Severe trauma (e.g., milking machine, laceration, crush) can lead to deeper staphylococcal infection—staphylococcal mammillitis. In such cases, ulceration, crusting, and variable degrees of necrosis are seen—usually affecting a solitary teat (Fig. 1.1-3).



Figure 1.1-2 Impetigo. Pustules and erosions on the udder.



Figure 1.1-3 Staphylococcal Mammillitis. Ulceration, crusting, and necrosis due to milking machine trauma.

Occasional reports—often anecdotal—have indicated that humans can develop pustular dermatitis due to *S. aureus* infection on hands and arms that contact bovine impetigo lesions.

Differential Diagnosis

Other bacterial infections, dermatophilosis, dermatophytosis, stephanofilaria, and viral infections.

Diagnosis

1. Microscopy (direct smears)—Suppurative inflammation with degenerate neutrophils, nuclear streaming, and phagocytosed cocci (Gram-positive, about 1 μm diameter, often in doublets or clusters) (see Figs. 1.1-8 and 1.1-9).
2. Culture (aerobic).
3. Dermatohistopathology—Subcorneal pustular dermatitis with degenerate neutrophils and intracellular cocci.

FOLLICULITIS AND FURUNCULOSIS

Features

Folliculitis (hair follicle inflammation) and furunculosis (hair follicle rupture) are uncommon, cosmopolitan, and caused by *Staphylococcus aureus* or less commonly *S. hyicus*, and predisposing factors include trauma and moisture. There are no apparent breed, sex, or age predilections.

Lesions can be seen anywhere, most commonly over the rump, tail, perineum, distal limbs, neck, and face (Figs. 1.1-4 to 1.1-7). Tufted papules become crusted, then alopecic. Intact pustules are often not seen. Furuncles are characterized by nodules, draining tracts, and ulcers. Lesions are rarely pruritic, but furuncles may be painful. Affected animals are usually otherwise healthy. Pending the inciting cause(s), single or multiple animals may be affected.

Differential Diagnosis

Dermatophilosis, dermatophytosis, demodicosis, stephanofilaria, and sterile eosinophilic folliculitis and furunculosis.

Diagnosis

1. Microscopy (direct smears)—Suppurative inflammation with degenerate neutrophils, nuclear streaming, and phagocytosed



Figure 1.1-4 Staphylococcal Folliculitis. Multiple annular crusts over rump and tail.



Figure 1.1-5 Staphylococcal Folliculitis and Furunculosis. Multiple tufted papules and annular areas of crusting, alopecia, and ulceration (courtesy J. Gourreau).



Figure 1.1-6 Staphylococcal Folliculitis caused by *S. hyicus*. Multiple annular crusts on face, neck, and shoulder (courtesy T. Clark).



Figure 1.1-7 Staphylococcal Furunculosis. Plaque with draining tracts and ulceration on the caudolateral aspect of the pastern.

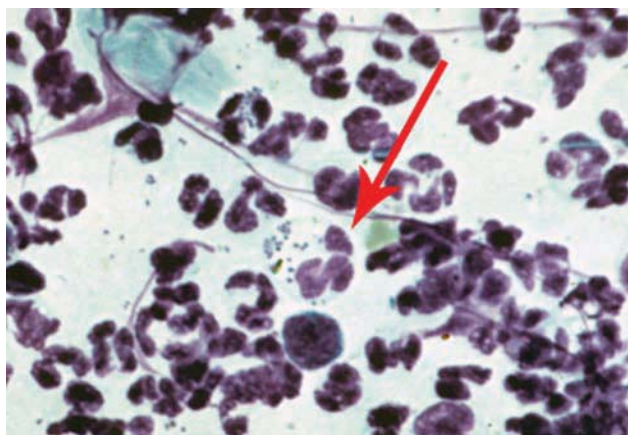


Figure 1.1-8 Staphylococcal Folliculitis. Direct smear (Diff-Quik stain). Suppurative inflammation with degenerate neutrophils, nuclear streaming, and phagocytosed cocci (arrow).

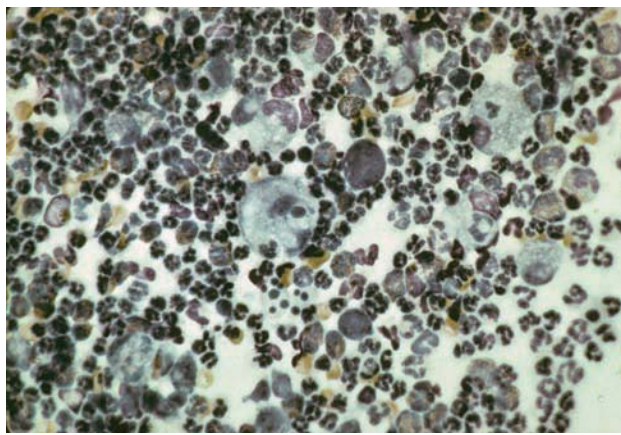


Figure 1.1-10 Staphylococcal Furunculosis. Direct smear (Diff-Quik stain). Pyogranulomatous inflammation with degenerate and nondegenerate neutrophils, macrophages, lymphocytes, and plasma cells.

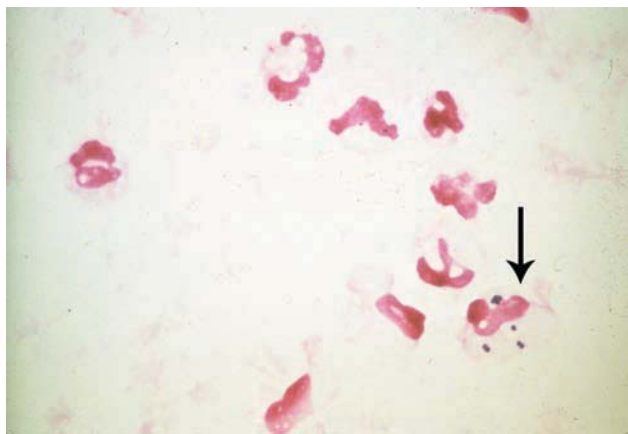


Figure 1.1-9 Staphylococcal Folliculitis. Direct smear (Gram stain). Degenerate neutrophils and phagocytosed Gram-positive cocci (arrow).

cocci (Gram-positive, about 1 μm diameter, often in doublets or clusters) with folliculitis (Figs. 1.1-8 and 1.1-9). Furunculosis is characterized by numerous macrophages, lymphocytes, eosinophils, and plasma cells in addition to the findings described for folliculitis (Fig. 1.1-10).

2. Culture (aerobic).
3. Dermatohistopathology—Suppurative luminal folliculitis with degenerate neutrophils and intracellular cocci; pyogranulomatous furunculosis.

ULCERATIVE LYMPHANGITIS

Features

Ulcerative lymphangitis is a rare bacterial infection of the cutaneous lymphatics. Cutaneous wounds may be contaminated by numerous bacteria, especially *Arcanobacterium pyogenes*, *Corynebacterium pseudotuberculosis*, *Staphylococcus aureus*, and β -hemolytic streptococci. Mixed infections are not uncommon. There are no apparent breed, sex, or age predilections.

Lesions are typically unilateral and seen on the distal leg, shoulder, neck, or flank (Fig. 1.1-11). Firm to fluctuant nodules often ab-



Figure 1.1-11 Mixed Bacterial Lymphangitis. Left pelvic limb is swollen and multiple papules, nodules, and draining tracts are present.

scend, ulcerate, and develop draining tracts. Affected lymphatics are often enlarged and palpable (“corded”). Lesions often take a linear distribution, and heat and pain are variable findings. Regional lymphadenopathy is very common. Affected animals are usually otherwise healthy. Typically only one animal in a herd is affected.

Differential Diagnosis

Opportunistic mycobacterial granuloma and farcy.

Diagnosis

1. Microscopy (direct smears)—Suppurative inflammation with degenerate neutrophils, nuclear streaming, phagocytosed bacteria (cocci and/or rods), and variable numbers of macrophages, lymphocytes, and plasma cells.

2. Culture (aerobic).
3. Dermatohistopathology—Nodular to diffuse suppurative or pyogranulomatous dermatitis and panniculitis with intracellular bacteria; lymphangitis often not seen.

CORYNEBACTERIUM PSEUDOTUBERCULOSIS GRANULOMA

Features

Corynebacterium pseudotuberculosis infection is an uncommon, perhaps geographically-restricted (Middle East) suppurative to pyogranulomatous disease. *Corynebacterium pseudotuberculosis* contaminates various wounds. Moisture and flies are important contributing factors. Older dairy cattle are predisposed.

Lesions may occur anywhere, especially the head, neck, shoulder, flank, and hind leg above the stifle (Figs. 1.1-12 and 1.1-13). Single or multiple subcutaneous abscesses rupture to drain a serosanguineous to blood-stained yellow pus. Ulcerated granulomas may have necrotic margins. Regional lymph nodes may be involved, but systemic signs are not usually seen.

Differential Diagnosis

Other bacterial infections, especially due to *Arcanobacterium pyogenes*, *Actinomyces bovis*, and *Actinobacillus lignieresii*.

Diagnosis

1. Microscopy (direct smears)—Pyogranulomatous inflammation. Intracellular Gram-positive pleomorphic bacteria (cocci, club, rod forms) that may be arranged in single cells, palisades of parallel cells, or in annular clusters resembling “Chinese letters.” Bacteria usually few in number and not seen.
2. Culture (aerobic).
3. Dermatohistopathology—Nodular to diffuse pyogranulomatous dermatitis and panniculitis. Intracellular Gram-positive bacteria not commonly seen.

DERMATOPHILOSIS

Features

Dermatophilosis (“streptothricosis,” “rain rot,” “rain scald”) is a common, cosmopolitan skin disease. *Dermatophilus congolensis* proliferates under the influence of moisture (especially rain) and skin damage (especially ticks, insects, prickly vegetation, and ultraviolet light-damaged white skin). The disease is more common and more severe in tropical and subtropical climates and outdoor animals. In general, there are no breed, sex, or age predilections. However, endemic cattle are more resistant than exotic breeds.

Lesions may occur anywhere (Figs. 1.1-14 to 1.1-22). Common distributions include: dorsum and rump; brisket, axillae, groin; face and pinnae; distal legs; udder and teats or prepuce and scrotum; perineum and tail. Tufted papules and pustules coalesce and become exudative, which results in large ovoid to linear (“run-off” or “scald line”) groups of hairs being matted together (“paint brush”) in thick crusts. Erosions, ulcers, and thick, creamy, yel-



Figure 1.1-12 *Corynebacterium pseudotuberculosis* Granuloma. Large ulcerated nodule over shoulder. Note draining tracts.



Figure 1.1-13 Close-up of Fig. 1.1-12. Note areas of necrosis, ulcerations, and draining tracts.

lowish to greenish pus underlie the crusts. Acute lesions are painful, but not pruritic. Chronic lesions consist of dry crusts, scale, and alopecia. Typically, multiple animals are affected.

In tropical climates, skin lesions can be generalized, and affected animals can become seriously ill, resulting in major economic losses. Generalized cases in endemic stock are invariably



Figure 1.1-14 Dermatophilosis. Multiple thick crusts over back, rump, tail, and perineum.



Figure 1.1-15 Dermatophilosis. Generalized crusts.

associated with concurrent diseases (e.g., poxvirus infection, trypanosomiasis, anaplasmosis, babesiosis).

Dermatophilosis is a zoonosis. Human skin infections are uncommon and characterized by pruritic or painful pustular lesions in contact areas (especially arms) (Fig. 1.1-23).

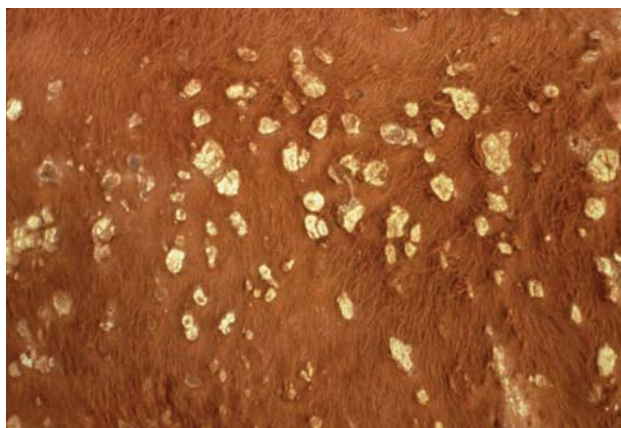


Figure 1.1-16 Dermatophilosis. Multiple annular to linear (“run-off” “scald line”) crusts over trunk.



Figure 1.1-17 Dermatophilosis. Multiple tufted (“paint brush”) crusts over thorax.



Figure 1.1-18 Dermatophilosis. Greenish pus coating ulcers and underside of avulsed crusts.

Differential Diagnosis

Staphylococcal folliculitis, dermatophytosis, demodicosis, stephanofilariasis, sterile eosinophilic folliculitis and furunculosis, and zinc-responsive dermatitis.



Figure 1.1-19 Dermatophilosis. Multiple crusts, ulcers, alopecia superimposed on erythematous, ultraviolet light-damaged white skin.



Figure 1.1-20 Dermatophilosis. Multiple crusts and ulcers superimposed on erythematous, ultraviolet light-damaged skin.

Diagnosis

1. Microscopy (direct smears)—Suppurative inflammation with degenerate neutrophils, nuclear streaming, and Gram-positive cocci (about 1.5 μm diameter) in 2 to 8 parallel rows forming branching filaments (“railroad tracks”) (Fig. 1.1-24).
2. Culture (aerobic).



Figure 1.1-21 Dermatophilosis. Thick crusts on perineum, caudal thighs, groin, and scrotum associated with tick infestation.

3. Dermatohistopathology—Suppurative luminal folliculitis and epidermitis with palisading crusts containing Gram-positive cocci in branching filaments.

ACTINOMYCOSIS

Features

Actinomycosis (Greek *aktis*: rays and beams of light) is an uncommon, cosmopolitan suppurative to pyogranulomatous disease of the skin and bone. *Actinomyces bovis* and occasionally *A. israelii* contaminate various traumatic wounds. The disease is most commonly seen in 2- to 5-year-old cattle, with no apparent breed or sex predilections.

Lesions are most commonly seen on the mandible and maxilla (“lumpy jaw”) (Figs. 1.1-25 to 1.1-28). Firm, variably painful, immovable bony swellings (osteomyelitis) extend to the overlying skin, resulting in nodules, abscesses, and draining tracts. The discharge is honey-like in color and consistency, and contains hard, yellowish-white granules (“sulfur granules”; 1 to 3 mm diameter) that are the size and consistency of sand (Fig. 1.1-29). Affected animals are usually healthy otherwise. Typically, a single animal is affected.



Figure 1.1-22 Dermatophilosis. Thick crusts on leg due to prickly vegetation damage.



Figure 1.1-23 Dermatophilosis in a Human. Ruptured pustule and surrounding erythema on the elbow.

Differential Diagnosis

Other bacterial infections, especially due to *Actinobacillus lignieresii*, *Arcanobacterium pyogenes*, and *Corynebacterium pseudotuberculosis*.

Diagnosis

1. Microscopy (direct smears)—Suppurative to pyogranulomatous inflammation with degenerate neutrophils and nuclear

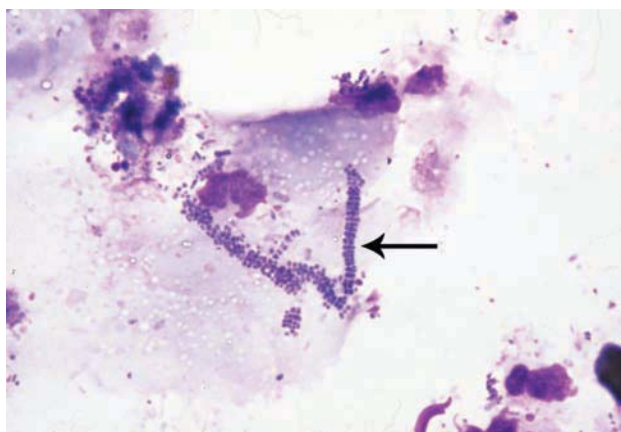


Figure 1.1-24 Dermatophilosis. Direct smear (Diff-Quik stain). Branching filaments composed of cocci (“railroad tracks”).



Figure 1.1-25 Actinomycosis. Firm, immovable swelling over mandible.



Figure 1.1-26 Actinomycosis. Firm, immovable swelling with alopecia and crusting over mandible (courtesy G. Bosquet, coll. J. Gourreau, AFSSA).

streaming. Organisms may or may not be seen as Gram-positive, long filaments (less than 1 μm in diameter) and as shorter, V, Y, or T forms. Tissue granules contain Gram-positive long filaments (less than 1 μm diameter).



Figure 1.1-27 Actinomycosis. Firm, immovable, ulcerated nodule with draining tracts on mandible.

2. Culture (anaerobic).
3. Dermatohistopathology—Nodular to diffuse, suppurative to pyogranulomatous dermatitis and panniculitis. Tissue granules are coated with Splendore-Hoeppli material and contain Gram-positive filaments.

ACTINOBACILLOSIS

Features

Actinobacillosis is an uncommon, cosmopolitan suppurative to pyogranulomatous disease of the skin and lymph nodes. *Actinobacillus lignieresii* contaminates various traumatic wounds. There are no apparent breed, sex, or age predilections.

Lesions are most commonly seen on the face (cheek, lip, nostril, eyelid), head, and neck (Figs. 1.1-30 to 1.1-32). Lesions may be single or multiple; are usually unilateral but occasionally bilateral (bilateral facial swelling); and may be widespread on the back. Pyogranulomatous glossitis (“wooden tongue”) is uncommon. Pyogranulomatous nodules and/or abscesses originate in regional lymph nodes and/or skin. Abscesses and draining tracts discharge a viscid to watery, mucoid white to greenish pus that is odorless and contains grayish-white to brownish-white granules (“sulfur granules”; less than 1 mm diameter). Lesions are neither hot nor painful. Affected animals are usually healthy otherwise. Typically, a single animal is affected.

Differential Diagnosis

Other bacterial infections, especially due to *Actinomyces bovis*, *Arcanobacterium pyogenes*, and *Corynebacterium pseudotuberculosis*.

Diagnosis

1. Microscopy (direct smears)—Suppurative to pyogranulomatous inflammation with degenerate neutrophils and nuclear streaming. Tissue granules contain Gram-negative coccobacilli or rods (about $0.4 \mu\text{m} \times 1 \mu\text{m}$).
2. Culture (aerobic).



Figure 1.1-28 Actinomycosis. Firm, ulcerated nodules with draining tracts on udder (courtesy J. Nicol, coll. J. Gourreau, AFSSA).

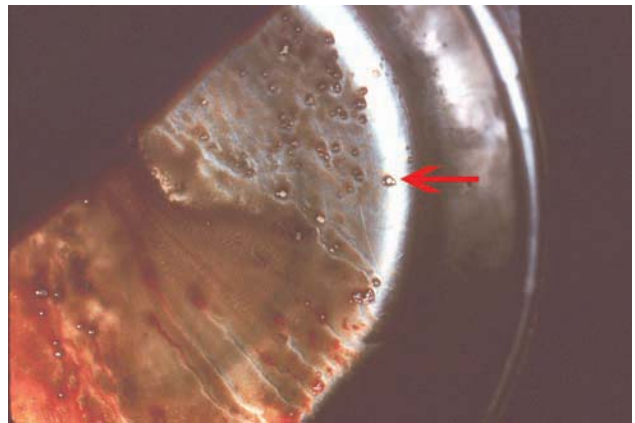


Figure 1.1-29 Actinomycosis. Seropurulent exudate containing “sulfur granules” (arrow) in a stainless steel bowl.

3. Dermatohistopathology—Nodular to diffuse suppurative to pyogranulomatous dermatitis and panniculitis. Tissue granules are coated with Splendore-Hoeppli material and contain Gram-negative coccobacilli.

CLOSTRIDIAL CELLULITIS

Features

Clostridial cellulitis is an uncommon cosmopolitan disease. *Clostridium* spp. contaminate a variety of wounds. These disor-

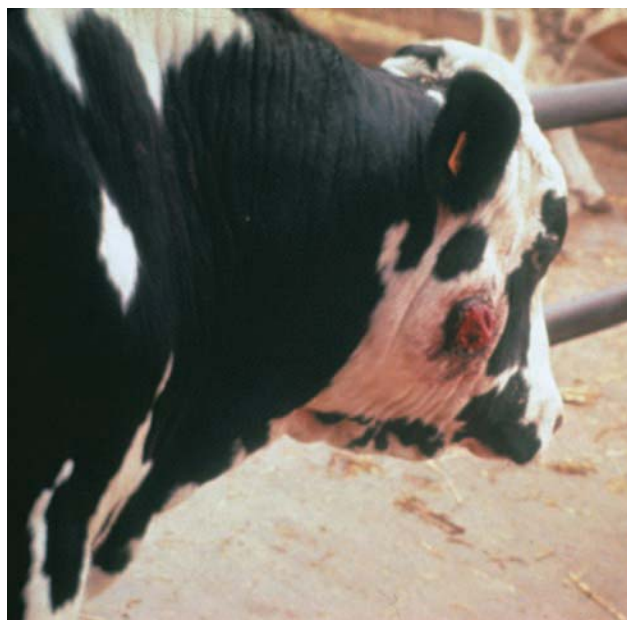


Figure 1.1-30 Actinobacillosis. Ulcerated subcutaneous mass below the ear (courtesy J. Gourreau).



Figure 1.1-31 Actinobacillosis. Ulcerated, crusted mass subsequent to dehorning operation.

ders are typically acute in onset and rapidly fatal (within 12 to 72 hours).

Malignant edema (“gas gangrene”) is caused by *C. septicum*, *C. sordelli*, or *C. perfringens*. Lesions may occur anywhere, especially in the inguinal, axillary, abdominal, shoulder, neck, and head areas. Lesions are initially poorly circumscribed, painful, warm, pitting, deep swellings. Later, the swelling becomes cool and hypoesthetic or anesthetic, the skin becomes bluish to purplish, taut, necrotic, and sloughs. Crepitus (emphysema) may or may not be present. Affected animals are febrile, depressed, anorectic, and weak. Typically, a single animal is affected.

Blackleg is caused by *C. chauvoei*. Lesions commonly occur on a leg (Figs. 1.1-33 and 1.1-34), and are initially poorly-circumscribed, painful, warm, pitting, deep swellings. Later the swelling becomes cool and hypoesthetic or anesthetic, the skin becomes purplish to black, taut, cracked, necrotic, and sloughs.



Figure 1.1-32 Actinobacillosis. Multiple ulcerated nodules over back.

Crepitus is often present. Affected animals are febrile, depressed, anorectic, and weak. Typically, a single animal is affected.

Differential Diagnosis

Other bacterial cellulitides, especially due to *Arcanobacterium pyogenes*, *Staphylococcus aureus*, *Fusobacterium necrophorum*, *Bacteroides* spp., and *Pasteurella septica*.

Diagnosis

1. Microscopy (direct smears)—Suppurative inflammation with numerous large (up to 5 μm length) Gram-positive straight or slightly curved rods.
2. Culture (anaerobic).
3. Necropsy—Skin lesions are characterized by suppurative and necrotizing cellulitis and numerous Gram-positive rods.

OPPORTUNISTIC MYCOBACTERIAL GRANULOMA

Features

Opportunistic (“atypical,” “nontuberculous”) mycobacterial granuloma (“skin tuberculosis”) is an uncommon cosmopolitan disease. Infection occurs by wound contamination and *Mycobac-*



Figure 1.1-33 Clostridial Cellulitis. Swollen, painful left pelvic limb.



Figure 1.1-34 Clostridial Cellulitis. Area of necrosis, slough, and ulceration on pelvic limb.

terium kansasii has been isolated from some lesions. There are no apparent breed, sex, or age predilections.

Lesions are typically unilateral and affect the distal leg (Figs. 1.1-35 and 1.1-36) They may spread to the thigh, shoulder, or ab-



Figure 1.1-35 Opportunistic Mycobacterial Granuloma. Multiple papules and nodules, some having draining tracts on leg.

domen. Papules and nodules may be single or multiple, and often occur in chains with interlesional enlarged and palpable (“corded”) lymphatics. Lesions may be hard or fluctuant, and may rupture and discharge a thick, cream to yellow to grayish pus. Pruritus and pain are absent. Regional lymph nodes are usually normal, and affected animals are healthy otherwise.

Differential Diagnosis

Ulcerative lymphangitis and farcy.

Diagnosis

1. Microscopy (direct smears)—Granulomatous inflammation with intracellular, Gram-positive and acid-fast slender rods (up to 4 μm long).
2. Culture (aerobic).
3. Dermatohistopathology—Nodular to diffuse granulomatous dermatitis and panniculitis with intracellular Gram-positive/acid-fast rods.

FARCY

Features

Farcy (Latin: full, stuffed) is a common geographically-restricted (Africa, Asia, South America) pyogranulomatous disease of skin



Figure 1.1-36 Opportunistic Mycobacterial Granuloma. Multiple papules and nodules on right pelvic limb.

and lymphatics. *Mycobacterium senegalense* contaminates a variety of wounds (especially tick damage). Farcy has previously been attributed to infections with *Nocardia farcinica* or *Mycobacterium farcinogenes*: but these reports are probably erroneous.

Skin lesions are most commonly seen on the head, neck, shoulder, and legs (Fig. 1.1-37). Firm, painless, slow-growing subcutaneous nodules may ulcerate and discharge a thick, stringy, odorless, grayish-white or yellowish material. Enlarged and palpable (“corded”) lymphatics and regional lymphadenopathy are usually present. Farcy has a prolonged course with widespread organ involvement, emaciation, and death. Economic losses due to death, decreased productivity, hide damage, and carcass condemnation are considerable. Up to 32% of the animals in an endemic area may be affected.

Differential Diagnosis

Ulcerative lymphangitis and opportunistic mycobacterial granuloma.



Figure 1.1-37 Farcy. Multiple papules and nodules, some of which are ulcerated, on face.

Diagnosis

1. Microscopy (direct smears)—Pyogranulomatous dermatitis with intracellular Gram-positive/acid-fast slender bacilli (up to 4 μm long) which are distinctly beaded and have a branching, filamentous appearance.
2. Culture (aerobic).
3. Dermatohistopathology—Nodular to diffuse pyogranulomatous dermatitis and panniculitis with intracellular Gram-positive/acid-fast bacilli.



Figure 1.1-38 Subcutaneous Abscess (*Arcanobacterium pyogenes*) on ventral abdomen.