

**TABLE 94-1 CLASSIFICATION OF BACTERIAL AND MYCOTIC INFECTIONS OF THE SKIN**

DISEASE OR DISORDER	MICROORGANISMS
PRIMARY PYODERMAS	
Impetigo	<i>Staphylococcus aureus</i> , group A streptococci
Folliculitis	<i>S. aureus</i> , <i>Candida</i> spp, <i>Pseudomonas aeruginosa</i> (diffuse folliculitis)
Furuncles and carbuncles	<i>S. aureus</i>
Paronychia	<i>S. aureus</i> , group A streptococci, <i>Candida</i> , <i>P. aeruginosa</i>
Ecthyma	Group A streptococci, <i>Pseudomonas</i> spp.
Erysipelas	Group A streptococci
Chancriform lesions	<i>Treponema pallidum</i> , <i>Haemophilus ducreyi</i> , <i>Sporothrix</i> , <i>Bacillus anthracis</i> , <i>Francisella tularensis</i> , <i>Mycobacterium ulcerans</i> , <i>Mycobacterium marinum</i>
Membranous ulcers	<i>Corynebacterium diphtheriae</i>
Cellulitis	Group A or other streptococci, <i>S. aureus</i> ; rarely, various other organisms
INFECTIOUS GANGRENE AND GANGRENOUS CELLULITIS	
Streptococcal gangrene and necrotizing fasciitis	Group A streptococci, mixed infections with Enterobacteriaceae and anaerobes
Progressive bacterial synergistic gangrene	Anaerobic streptococci plus a second organism (<i>S. aureus</i> , <i>Proteus</i> spp.)
Gangrenous balanitis and perineal phlegmon	Group A streptococci, mixed infections with enteric bacteria (<i>Escherichia coli</i> , <i>Klebsiella</i> spp.), anaerobes
Gas gangrene, crepitant cellulitis	<i>Clostridium perfringens</i> and other clostridial species; <i>Bacteroides</i> spp., peptostreptococci, <i>Klebsiella</i> spp., <i>E. coli</i>
Gangrenous cellulitis in immunosuppressed patients	<i>Pseudomonas</i> , <i>Aspergillus</i> spp., agents of mucormycosis
PREEXISTING SKIN LESIONS WITH SECONDARY BACTERIAL INFECTIONS	
Burns	<i>P. aeruginosa</i> , <i>Enterobacter</i> spp., various other gram-negative bacilli, various streptococci, <i>S. aureus</i> , <i>Candida</i> spp., <i>Aspergillus</i> spp.
Eczematous dermatitis and exfoliative erythrodermas	<i>S. aureus</i> , group A streptococci
Chronic ulcers (varicose, decubitus)	<i>S. aureus</i> , streptococci, coliform bacteria, <i>P. aeruginosa</i> , peptostreptococci, enterococci, <i>Bacteroides</i> spp., <i>C. perfringens</i>
Dermatophytosis	<i>S. aureus</i> , group A streptococci
Traumatic lesions (abrasions, animal bites, insect bites)	<i>Pasturella multocida</i> , <i>C. diphtheriae</i> , <i>S. aureus</i> , group A streptococci
Vesicular or bullous eruptions (varicella, pemphigus)	<i>S. aureus</i> , group A streptococci
Acne conglobata	<i>Propionibacterium acnes</i>
Hidradenitis suppurativa	<i>S. aureus</i> , <i>Proteus</i> spp. and other coliforms, streptococci, peptostreptococci, <i>P. aeruginosa</i> , <i>Bacteroides</i> spp.
Intertrigo	<i>S. aureus</i> , coliforms, <i>Candida</i> spp.
Pilonidal and sebaceous cysts	Peptostreptococci, <i>Bacteroides</i> sp., coliforms, <i>S. aureus</i>
Pyoderma gangrenosa	<i>S. aureus</i> , peptostreptococci, <i>Proteus</i> spp. and other coliforms, <i>P. aeruginosa</i>
CUTANEOUS INVOLVEMENT IN SYSTEMIC INFECTIONS	
Bacteremias	<i>S. aureus</i> , group A streptococci (and other groups such as D), <i>Neisseria meningitidis</i> , <i>Neisseria gonorrhoeae</i> , <i>P. aeruginosa</i> , <i>Salmonella typhi</i> , <i>Haemophilus influenzae</i>
Infective endocarditis	Viridans streptococci, <i>S. aureus</i> , group D streptococci, and others
Fungemias	<i>Candida</i> spp., <i>Cryptococcus</i> spp., <i>Blastomyces dermatitidis</i> , <i>Fusarium</i>
Listeriosis	<i>Listeria monocytogenes</i>
Leptospirosis (Weil's disease and pretibial fever)	<i>Leptospira interrogans</i> serotypes
Rat-bite fever	<i>Streptobacillus moniliformis</i> , <i>Spirillum minus</i>
Melioidosis	<i>Burkholderia pseudomallei</i>
Glanders	<i>Burkholderia mallei</i>
Carrion's disease (verruca peruana)	<i>Bartonella bacilliformis</i>
SCARLET FEVER SYNDROMES	
Scarlet fever	Group A streptococci, rarely <i>S. aureus</i>
Scalded skin syndrome	<i>S. aureus</i> (phage group II)
Toxic shock syndrome	Group A streptococci, <i>S. aureus</i> (pyrogenic toxin-producing strains)
PARAINFECTIOUS AND POSTINFECTIOUS NONSUPPURATIVE COMPLICATIONS	
Purpura fulminans (manifestation of disseminated intravascular coagulation)	Group A streptococci, <i>N. meningitidis</i> , <i>S. aureus</i> , pneumococcus
Erythema nodosum	Group A streptococci, <i>Mycobacterium tuberculosis</i> , <i>Mycobacterium leprae</i> , <i>Coccidioides immitis</i> , <i>Leptospira autumnalis</i> , <i>Yersinia enterocolitica</i> , <i>Legionella pneumophila</i>
Erythema multiforme–like lesions (rarely), guttate psoriasis	Group A streptococci
OTHER LESIONS	
Erythrasma	<i>Corynebacterium minutissimum</i>
Nodular lesions	<i>Candida</i> , <i>Sporothrix</i> , <i>S. aureus</i> (botryomycosis), <i>M. marinum</i> , <i>Leishmania brasiliensis</i> ; leprosy due to <i>M. leprae</i> can cause popular lesions, nodular, and ulcerative lesions
Hyperplastic (pseudoeplitheliomatous) and proliferative lesions (e.g., mycetomas)	<i>Nocardia</i> spp., <i>Pseudallescheria boydii</i> , <i>Blastomyces dermatitidis</i> , <i>Paracoccidioides brasiliensis</i> , <i>Phialophora</i> , <i>Cladosporium</i>
Vascular papules/nodules (bacillary angiomatosis, epithelioid angiomatosis)	<i>Bartonella henselae</i> , <i>Bartonella quintana</i>
Annular erythema (erythema chronicum migrans)	<i>Borrelia burgdorferi</i>

Modified from Mandell GL, Bennett JE, Dolin R, editors: Mandell, Douglas, and Bennett's principles and practice of infectious diseases, ed 7, Philadelphia, 2009, Churchill Livingstone.