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Cutaneous tuberculosis (caused by Mycobacterium tuberculosis)

by Brooks David Kimmis, MD

Cutaneous subtype	Clinical features	Histopathology	Laboratory evaluation	Treatment	Comments
Tuberculous Chancre	Painless, red-brown papulonodule Enlarges slowly and ulcerates Often spreads to regional lymph nodes Heals spontaneously with atrophic scarring and calcified regional lymph nodes	Nonspecific neutrophilic infiltrate and necrosis +/- bacilli. In later stages, demonstrates caseating granulomas, langhans and epithelioid giant cells, disappearance of bacilli	Culture PCR TB skin test • Preferred over IFN-gamma release assays in children <5 years of age IFN-gamma release assays (T-SPOT, QuantiFERON Gold) • Preferred in those who have received BCG vaccine	CDC guidelines for systemic infections (no guidelines exist specific to cutaneous infection) In drug-susceptible organisms, months-long course of INH, rifampin, pyrazinamide, and ethambutol In resistant organisms, may use quinolones, amoxicillin with clavulanic acid, linezolid, or clarithromycin	Results from skin inoculation in a patient **without** history of TB
Tuberculosis Verrucosa Cutis	Verrucous papule with inflammatory rim that gradually enlarges to a plaque. Center may drain purulent material	Pseudo-epitheliomatous hyperplasia, miroabscesses of upper dermis, sparse granulomas +/- bacilli		May heal spontaneously	Exogenous inoculation (can be traumatic) in a **previously infected** individual with moderate or high immunity
Scrofuloderma	Firm, deep, subcutaneous nodules overlying infected deeper structure (lymph node, bone) that can ulcerate and form sinus tracts May drain to the surface of the skin or granulate Can heal with scars or keloids	Granulation tissue and caseation necrosis in deep dermis, bacilli can be isolated from pus			Cutaneous extension of underlying TB of the bone or lymph nodes

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Orificial TB	Autoinoculation of mucosa/skin of anatomic orifice draining active underlying TB infection Edematous, red, painful, ulcerative papule often on the tongue or mouth No spontaneous healing	Nonspecific infiltrate and necrosis Bacilli readily identifiable Caseating tubercles in deep dermis			Autoinoculation in the setting of advanced systemic TB > exogenous infection
Lupus Vulgaris	Red-brown plaque with papules and nodules Characteristic "apple-jelly" color on diascopy Plaque extends centrifugally and scars centrally Can be ulcerative, vegetative, or tumor-like Favors head and neck	Well-developed tubercles with minimal caseation, nonspecific infiltrate. No bacilli			Takes place in the setting of a previously sensitized patient who often has a strong response to TB skin test Can result from hematogenous or lymphatic spread from other cutaneous TB lesions, internal primary infection, or exogenous infection
Miliary TB	Pinpoint, blue-red papules with tiny vesicles on top. May umbilicate or crust Heals with white scar and brown rim	Necrosis Nonspecific infiltrate Copious bacilli			Represents hematogenous dissemination from primary lung infection
Tuberculous Gumma	Subcutaneous nodule or induration that forms an ulcer and sinus tracts Favors extremities	Massive necrosis, abscesses Large amounts of bacilli			Results from hematogenous spread from primary focus during periods of high bacilli load

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Tuberculids	Papulonecrotic tuberculid resembles pityriasis lichenoides et varioliformis acuta and cutaneous small vessel vasculitis Lichen scrofulosorum resembles lichenoid dermatoses, such as lichen nitidus or lichen planus Erythema induratum, or nodular vasculitis, is a lobular panniculitis demonstrating subcutaneous nodules that can ulcerate. Often on b/l posterior calves of women	Erythema induratum shows mixed or lobular panniculitis, mixed infiltrate, and vasculitis of septal or lobular vessels. Necrosis or palisaded granulomas may be present.	Tissue PCR for M. tuberculosis	Treat underlying TB	Group of disorders considered to be immune reactions to M. tuberculosis or its antigens Erythema induratum can present in patients without TB.

References:

1. Bolognia J, Schaffer J, Cerroni L, et al. Dermatology. Philadelphia: Elsevier/Saunders, 2018. 4th edition. Print.