



# Overview of Cutaneous Tuberculosis



**Moudad Alamatori\***

Department of Aesthetic Dermatologist and Venereologist, Damascus University, Syria

\*Corresponding author: Moudad Alamatori, Department of Aesthetic Dermatologist and Venereologist, Damascus University, Syria

Submission: 📅 October 10, 2018; Published: 📅 October 24, 2018

## Introduction

Every year on 24<sup>th</sup> march, world TB day aims to raise awareness about the disease. Interest in tuberculosis has recently been revived, especially in association with the onset of acquired immunodeficiency syndrome (AIDS)

we have 8 million new cases of TB and 3 million deaths per year what is a Cutaneous tuberculosis is an invasion of the skin by *Mycobacterium tuberculosis*, the same bacteria that cause TB of the lungs. The clinical manifestations are variable and depend on the interaction of several factors including the site of infection and the host's immunity

## History

TB is an ancient disease Signs of skeletal TB were evident in ancient Egypt (1000 BCE) and was recognized as a contagious disease by the time of Hippocrates (400 BCE) Robert Koch discovered *Mycobacterium tuberculosis* in 1882.

## Epidemiology

Cutaneous tuberculosis occurs rarely despite a high and increasing prevalence of tuberculosis worldwide cutaneous tuberculosis manifestations forms 1.5% Of Extra pulmonary Tuberculosis Cutaneous TB is found in less than 0.1% of individuals seen in dermatology clinics.

## Infectious Agent

*Mycobacterium bovis* rare, *Mycobacterium tuberculosis*, Calmette-Guerin bacillus-BCG (occasionally). *Mycobacterium tuberculosis* is an Aerobic bacillus can hide in low oxygen zones with bone marrow stem cells, escaping the immune system and extensive, toxic treatment.

## Patient risk factors

Cutaneous TB can occur in people of all ages those with low immunity due to other infections such as HIV Alcoholism smoking. Poverty malnutrition and overcrowded living conditions promote spread of the disease.

## Classification

**Exogenous infections:** Occur due to an accidental exposure to the infection through a cut Crack wound on the skin.

**Endogenous infections:** Occur through the lymphatic system or through the blood

- A. Tuberculid: mean
  1. Hypersensitivity reactions to *Mycobacterium tuberculosis*
  2. Mycobacteria cannot be cultured from the skin lesions
- B. Tuberculid:
  1. Lichen scrofulosorum
  2. Erythema induratum of Bazin
- C. Scrofuloderma
  1. Lupus vulgaris
  2. Orificial tuberculosis
  3. Acute miliary tuberculosis
  4. Tuberculous gumma

**Exogenous infections:**

1. Primary tuberculous chancre
2. Tuberculosis verrucosa cutis

**A. Primary tuberculous chancre:** This is a rare form of cutaneous TB found in areas where there is no vaccination Children are most likely to suffer from this infection who are not immunized with the (BCG). It is commonly seen in health care or laboratory worker who has acquired TB through accidental inoculation of contaminated material. These infections may occur due to: circumcision, tattooing, ear piercing. The lesions are firm, painless, slow growing nodules or papules. ulcers may develop with painless regional lymphadenopat [1-12].

**B. Tuberculosis verrucosa cutis:** Occurs after direct inoculation of *Mycobacterium* into the skin in someone who has been previously infected with mycobacteria. The butchers for example present as a purplish or brownish-red warty growth. Lesions most often occur on the knees, elbows, hands, feet, buttocks, lesions may persist for years but can clear up even without treatment (Figure 1).



Figure 1

**C. Tuberculid erythema induratum of bazin:** It is a type of nodular vasculitis with high degree of immunity to TB because of previous infection present as Recurring nodules or lumps on the back of the legs mostly women that may ulcerate and scar heal with scarring after about nearly 6 week.

**D. Tuberculid lichen scrofulosorum:** An eruption of small follicular papules in young persons with TB.

**E. Scrofuloderma:** Skin lesions result from direct extension into the skin from underlying structures such as lymph nodes, bone, joints. Often associated with TB of the lungs. The lesions are firm, painless, subcutaneous swellings cold abscesses and multiple ulcers occur may heal even without treatment but this takes years and leaves scars.

**Orificial tuberculosis:** Is a rare manifestation of cutaneous tuberculosis that is caused by auto-inoculation of mycobacteria in patients with advanced internal tuberculosis. That occurs at the mucocutaneous borders of the nose, mouth, anus, urinary meatus, and vagina, and on the mucous membrane of the mouth or tongue.

**Acute miliary tuberculosis:** Spread from the primary infection (usually in the lungs) to other organs and tissues via the bloodstream Skin lesions are small red spots millet-sized that develop into ulcers and abscesses. More likely in immuno compromised patients, e.g. HIV, AIDS, cancer. Prognosis is poor (many patients die) even if diagnosed and treated.

**Tuberculosis gumma:** (syn. metastatic Tuberculosis abscess; cold abscess). Arise from haematogenous spread. The extremities are the most commonly affected sites Lesions can be solitary or multiple, presenting as a subcutaneous nodule or tender abscess.

**Lupus vulgaris:** The most common form of skin tuberculosis 50,000 new cases occurs throughout the world every year (Fitzpatrick's). Lupus vulgaris is an extremely chronic and progressive form of tuberculosis of the skin occurring in individuals with moderate immunity and a high degree of tuberculin sensitivity. The pathogen may reach the skin Via the blood or lymph from a tuberculous internal organ lung from underlying infected glands or joints may also develop at site of BCG vaccination. Most cases affect the head and neck, especially around the nose It begins as painless

reddish-brown nodules which slowly enlarge to form irregularly shaped red plaque lesions persist for years.

**Diascopy test:** When pressed with a glass slide the characteristic lesion is a reddish-brown plaque, composed of nodules which show an 'apple-jelly' color.

#### Pathology

The typical TB lesion is

epithelioid granuloma with central caseation necrosis.

1=zone of caseating necrosis,

2=epithelioid cells,

3=Langhans (giant) cells,

4=Lymphoid cells

a rim of fibrosis in healing lesions

#### Differential diagnosis

- A. Lymphocytoma cutis
- B. Spitz naevus
- C. Lupus erythematosus
- D. Leishmaniasis
- E. Rosacea
- F. Port-wine stain
- G. Leprosy
- H. Sarcoidosis
- I. Psoriasis
- J. Bowen's disease
- K. Lichen simplex chronicus
- L. Wegener's granulomatosis
- M. Blastomycosis.
- N. Deep fungal infection
- O. tertiary syphilis

## P. Basal cell carcinoma

**Diagnosis**

The individual Medical history. On diascopy, it shows characteristic “apple-jelly” color. Biopsy will reveal tuberculoid granuloma with few bacilli (very rare). Mantoux test is positive [12-24].

**Case Report**

I accompanied this patient 20 years ago from 1997 till 2018. 20-year-old female. As-Suwayda Syria with a 3-year-history of painless, soft nodules, slowly growing, red-brown and irregularly shaped plaques on her face.

A well demarcated, slightly elevated sharply edges ulcers. Infiltrated erythema papules. Erythematous scaly plaque. Atrophic scars fibrosis destruction of nasal tissue and Nasal septum and columella and the cartilage of the nasal septum nearly Total tissues loss of the examination of the oral cavity. Oral mucosae were involved. Small ulcers pink papules bleed easily enlargement region lymph nodes. Multiple bilateral submandibular lymph nodes were palpable. In the previous medical patient's history nearly two year ago leishmaniasis ?? first diagnosis was. The patient had been treated with glucantime. Intra muscular and topical injection for nearly one year no improvement has been occurred thinking about lupus vulgaris.

**Investigation (Table 1)****Table 1.**

Leishmaniasis test for many times	negative
Tuberculin test	positive
Bacilli existence in sputum and Nasal secretions for many times	negative
X-ray head and chest	normal
Abdomen echo	normal
laboratory test	normal
CT scan	normal
HIV	negative
Polymerase chain reaction	not performed

**Diascopy:** Showed small yellowish-brown nodules apple-jelly color.

**Biopsy:** Granulomatous dermatitis. Epithelioid granuloma with central caseation necrosis milium colloid type deposits in the upper dermis the lesion compatible with tuberculosis. Ziehl-Neelsen stain absent of mycobacterium.

**Diagnosis:** The individual Medical history. On diascopy, it shows characteristic “apple-jelly” color. Biopsy granulomatous dermatitis. Mantoux test was positive.

**Treatments**

Balloon was Implanted under forehead skin to expand Skin year later the patient was sent to plastic surgery Dept full-thickness skin-graft was done for nasal reconstruction with very good result (Table 2).

**Table 2.**

Therapy	
Rifampicin	600mg/day
Isoniazid	300mg/day
Ethambutol	1200mg/day
Pyrazinamide therapy for 2 months	1500mg/day
Rifampicin	600mg/day
Isoniazid therapy for 10 months	300mg/day

**References**

- Bravo FG, Gotuzzo E (2007) Cutaneous tuberculosis. *Clin Dermatol* 25(2): 173-180.
- Fariña MC, Gegundez MI, Piqué E (1995) Cutaneous tuberculosis: A clinical, histopathologic, and bacteriologic study. *J Am Acad Dermatol* 33(3): 433-440.
- MacGregor RR (1995) Cutaneous tuberculosis. *Clin Dermatol* 13(3): 245-255.
- Bhutto AM, Solangi A, Khaskhely NM (2002) Clinical and epidemiological observations of cutaneous tuberculosis in Larkana, Pakistan. *Int J Dermatol* 41(3): 159-165.
- Barbagallo J, Tager P, Ingleton R (2002) Cutaneous tuberculosis: Diagnosis and treatment. *Am J Clin Dermatol* 3(5): 319-328.
- Handog EB, Gabriel TG, Pineda RT (2008) Management of cutaneous tuberculosis. *Dermatol Ther* 21(3): 154-161.
- Rai VM, Shenoj SD, Gowrinath (2005) Tuberculous gluteal abscess coexisting with scrofuloderma and tubercular lymphadenitis. *Dermatol Online J* 11(3): 14.
- Lai-Chong JE, Perez A, Tang V (2007) Cutaneous manifestations of tuberculosis. *Clin Exp Dermatol* 32(4): 461-466.
- Brown FS, Anderson RH, Burnett JW (1982) Cutaneous tuberculosis. *J Am Acad Dermatol* 6(1): 101-106.
- Marcovall J, Servitje O, Moreno A (1992) Lupus vulgaris. Clinical, histopathologic, and bacteriologic study of 10 cases. *J Am Acad Dermatol* 26(3 Pt 2): 404-407.
- Vieites B, Peñaranda JM, Pérez Del Molino ML (2005) Recovery of *Mycobacterium tuberculosis* DNA in biopsies of erythema induratum—results in a series of patients using an improved polymerase chain reaction technique. *Br J Dermatol* 152(6): 1394-1396.
- Bayer-Garner IB, Cox MD, Scott MA, Smoller BR (2005) Mycobacteria other than *Mycobacterium tuberculosis* are not present in erythema induratum/nodular vasculitis: a case series and literature review of the clinical and histologic findings. *J Cutan Pathol* 32(3): 220-226.
- National Tuberculosis Controllers Association, Centers for Disease Control and Prevention (CDC) (2005) Guidelines for the investigation of contacts of persons with infectious tuberculosis. Recommendations from the National Tuberculosis Controllers Association and CDC. *MMWR Recomm Rep* 54(RR-15): 1-47.
- Hernandez C, Cetner AS, Jordan JE (2008) Tuberculosis in the age of biologic therapy. *J Am Acad Dermatol* 59(3): 363-380.
- (2000) Diagnostic standards and classification of tuberculosis in adults and children. This official statement of the American thoracic society and the centers for disease control and prevention was adopted by the ATS board of directors, July 1999. This statement was endorsed by the Council of the Infectious Disease Society of America, September 1999. *Am J Respir Crit Care Med* 161(4 Pt 1): 1376-1395.

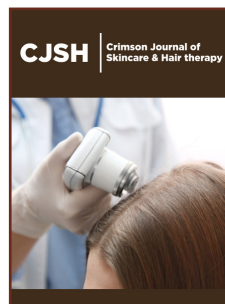
16. API Consensus Expert Committee (2006) API TB consensus guidelines 2006: management of pulmonary tuberculosis, extra-pulmonary tuberculosis and tuberculosis in special situations. *J Assoc Physicians India* 54: 219-234.
17. Schneider JW, Jordaan HF, Geiger DH (1995) Erythema induratum of Bazin. A clinicopathological study of 20 cases and detection of *Mycobacterium tuberculosis* DNA in skin lesions by polymerase chain reaction. *Am J Dermatopathol* 17(4): 350-356.
18. Tan SH, Tan BH, Goh CL (1999) Detection of *Mycobacterium tuberculosis* DNA using polymerase chain reaction in cutaneous tuberculosis and tuberculids. *Int J Dermatol* 38(2): 122-127.
19. Pai M (2004) The accuracy and reliability of nucleic acid amplification tests in the diagnosis of tuberculosis. *Natl Med J India* 17(5): 233-236.
20. Hsiao PF, Tzen CY, Chen HC, Su HY (2003) Polymerase chain reaction based detection of *Mycobacterium tuberculosis* in tissues showing granulomatous inflammation without demonstrable acid-fast bacilli. *Int J Dermatol* 42(4): 281-286.
21. Sun YS, Wen JM, Lü WX (2009) Comparison study on polymerase chain reaction (PCR) and standard culture technique in detecting *mycobacterium tuberculosis* to diagnose of joint tuberculosis. *Zhongguo Gu Shang* 22(7): 504-506.
22. Dinnes J, Deeks J, Kunst H (2007) A systematic review of rapid diagnostic tests for the detection of tuberculosis infection. *Health Technol Assess* 11(3): 1-196
23. Ramam M, Mittal R, Ramesh V (2005) How soon does cutaneous tuberculosis respond to treatment? Implications for a therapeutic test of diagnosis. *Int J Dermatol* 44(2): 121-124.
24. Blomberg B, Fourie B (2003) Fixed-dose combination drugs for tuberculosis: application in standardised treatment regimens. *Drug* 63(6): 535-553.



Creative Commons Attribution 4.0  
International License

For possible submissions Click Here

[Submit Article](#)



Crimson Journal of Skincare & Hair Therapl

#### Benefits of Publishing with us

- High-level peer review and editorial services
- Freely accessible online immediately upon publication
- Authors retain the copyright to their work
- Licensing it under a Creative Commons license
- Visibility through different online platforms