



Concept and Management of Diq-ul-Jild (Skin Tuberculosis) in the light of Unani system of Medicine: A Review Article

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Abstract: Skin Tuberculosis (Diq-ul-Jild) is an uncommon form of extra pulmonary tuberculosis (TB). It is characterized as an invasion of the skin by Mycobacterium tuberculosis and, less commonly, Mycobacterium bovis and the bacilli Calmette-Guerin vaccine. Skin Tuberculosis is rare despite the high prevalence of TB worldwide. The highest incidence of Skin Tuberculosis is in underdeveloped, resource-poor countries. With some exceptions, lupus vulgaris (LV) is the most common form. Skin Tuberculosis manifests a wide spectrum of clinical presentations, and current classification systems are based on the route of transmission and the immunologic state of the host. The exogenous (or primary) form of Skin Tuberculosis occurs via traumatic direct inoculation of M. tuberculosis into the skin or mucous membranes leading to primary Skin Tuberculosis, TB verrucosa cutis, and rarely LV. The endogenous (or secondary) form of Skin Tuberculosis occurs through lymphatic, hematogenous, or contiguous spread of M. tuberculosis to the skin from an internal focus leading to the development of LV, scrofuloderma, TB cutis orificialis, miliary TB, and metastatic TB abscesses. Tuberculids are another form of Skin Tuberculosis resulting from a hypersensitivity reaction to an internal source of M. Tuberculosis antigens. Diagnosis can be made based on history, morphologic features, and histopathologic characteristics but can be complicated and substantially delayed because of the resemblance to other dermatologic conditions. Furthermore, skin biopsy and/or acid-fast bacilli staining and culture may fail to reveal the presence of M. tuberculosis.

In Unani System of Medicine, tuberculosis is better known by the name of Diq or Sil. Both the terms are considered synonyms. Sil being emaciation and Diq the low grade fever (Humma-e-Diq). Diq develops when the abnormal heat (Hararate ghariba) destroys the normal body fluids (Rutoobat-e-tabayee) of human body

resulting in Hot & Dry (Har yabis) vital organs. This paper reviews the concept of Skin Tuberculosis, its etiology and management, described by ancient Unani scholars in detail.

Keywords: Skin Tuberculosis, Sil, Diq, Hararate ghariba, Rutoobate tabayee, Herbal drugs,

1. Introduction.

Tuberculosis (TB) is an infectious disease usually caused by *Mycobacterium tuberculosis* bacteria. Tuberculosis may infect any part of the body, but most commonly occurs in the Lungs called Pulmonary TB. Extra pulmonary TB occurs when tuberculosis develops outside of the lungs, although extra pulmonary TB may coexist with pulmonary TB. The disease disproportionately affects the poorest persons in both high-income and developing countries. However, recent advances in diagnostics, drugs, and vaccines and enhanced implementation of existing interventions have increased the prospects for improved clinical care and global tuberculosis control.



Fig. 1 Skin Tuberculosis



Fig. 2 Scrofuloderma. Skin Tuberculosis

Skin TB is the ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS. In 2016, there were an estimated 1.3 million TB deaths among HIV negative people and an additional 374 000 deaths among HIV-positive people. An estimated 10.4 million people fell ill with TB. Incidence of the disease is persistently high in India, despite the efforts of the Revised National Tuberculosis Control Program (RNTCP). India accounted for 25% of cases. India also accounts for 1 of the 3 million 'missing' cases-patients with TB who are either not diagnosed or not notified. Drug-resistant TB is another persistent threat, with 490 000 cases of multidrug-resistant

TB (MDR-TB) emerging in 2016. The countries with the largest numbers of MDR/RR-TB cases (47% of the global total) were China, India and the Russian Federation. In addition to this human cost, makes tuberculosis a major socio-economic burden. In this background, World Health Organization in 1993

declared tuberculosis a global emergency.

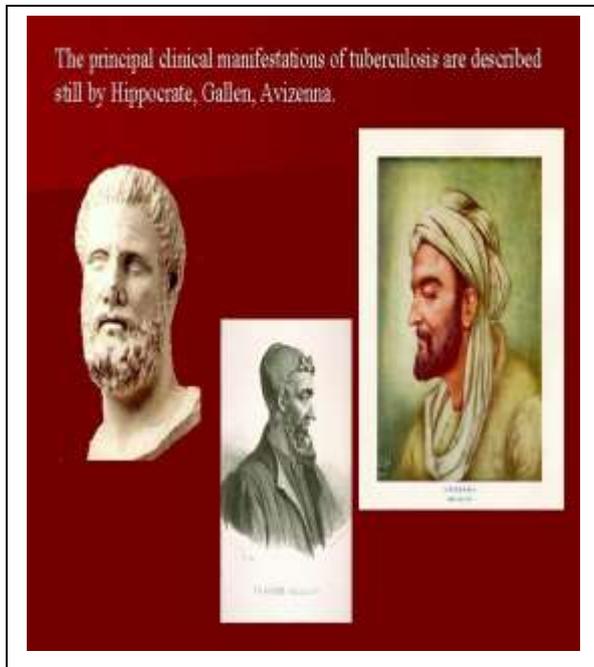


Fig. 3 Skin Tuberculosis in Ancient Greek

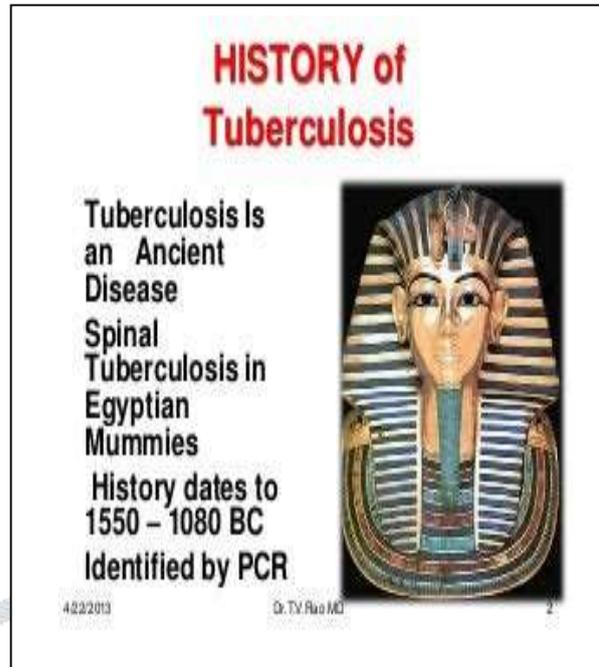


Fig. 4 History of Spinal & Skin Tuberculosis

The ancient Unani literature has numerous references on pulmonary tuberculosis. Since the time of Hippocrates (460 B C) the occurrence of the disease is characterized by fever, wasting, cough and expectoration. The ancient Unani scholars termed the tuberculosis as Sil and Diq, both the terms are considered synonyms, Sil being emaciation and Diq the low- grade fever (the cardinal symptoms of the disease). Sil and Diq are in fact two names of the same disease. Hippocrates (460 BC), the father of medicine also believed these names as synonymous. Sil means thinness, which results due to steady melting down of organs and consequently the whole body, Diq is Huma (fever) and stays in the body so much so that the fluids of the body get destroyed by its heat. Allama Qarshi has defined Sil as a sum of the lung ulcer and fever. Tadarrun, another name for Sil or Diq also is a synonym.

1. Skin Tuberculosis History

Skin tuberculosis (TB) or cutaneous TB is a rare extra-pulmonary form of tuberculosis and accounts for only 1 to 1.5% of TB cases that occur outside the lung.

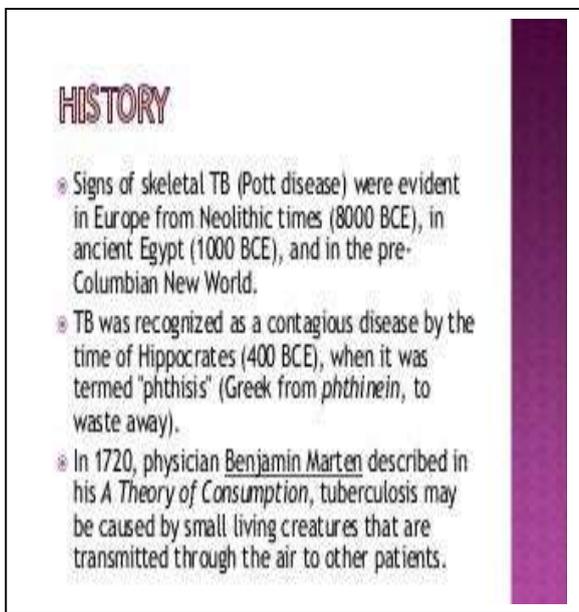


Fig. 5 History Skin Tuberculosis in Ancient Era

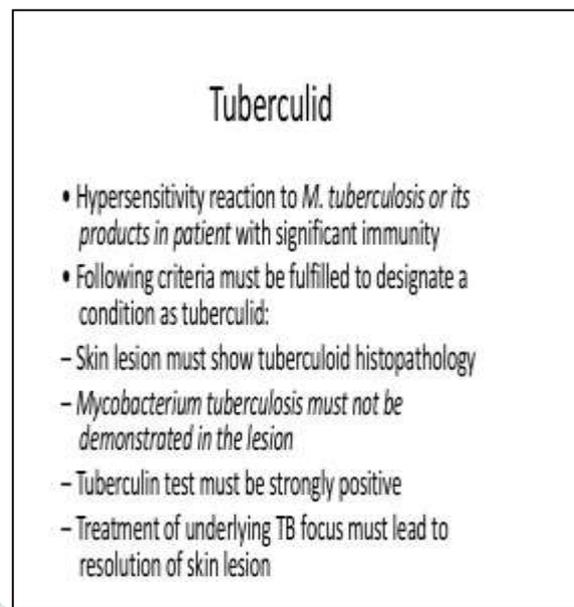


Fig. 6 History Tuberculid for Skin Tuberculosis in Ancient Era

- ❖ Laennec first documented cutaneous TB in 1826. Since the lesions were often found in individuals who performed dissections or autopsies, they were called prosector's warts.
- ❖ In the 1800s and early 1900s, skin TB was a major cause for concern in public health, which dissipated with the advent of the BCG (Bacille Calmette Guerin) vaccine, improved personal hygiene, and beneficial chemotherapy.
- ❖ However, with the advent of diseases, such as HIV, malignancy chronic disease, the increase in immune-suppressing treatments, and drug-resistant cases of tuberculosis, there has been a resurgence of skin tuberculosis from the mid-1990s.
- ❖ Some of the common pathological types of cutaneous TB are lupus vulgaris, cutaneous miliary tuberculosis, scrofuloderma, verrucosa cutis, and papulonecrotic tuberculids.

2. Causes of Skin Tuberculosis

Skin tuberculosis is a prolonged infection caused by the following 3 types of bacteria

- *Mycobacterium ovis*
- *Mycobacterium tuberculosis*
- Calmette-Guerin bacillus – BCG (occasional)

3. Factors Influence on Skin Tuberculosis

There are different factors that can influence the presence of skin TB

- A. Environment:** In Asia and Europe, lupus vulgaris is the common form of skin TB. In Brazil, it is scrofuloderma.

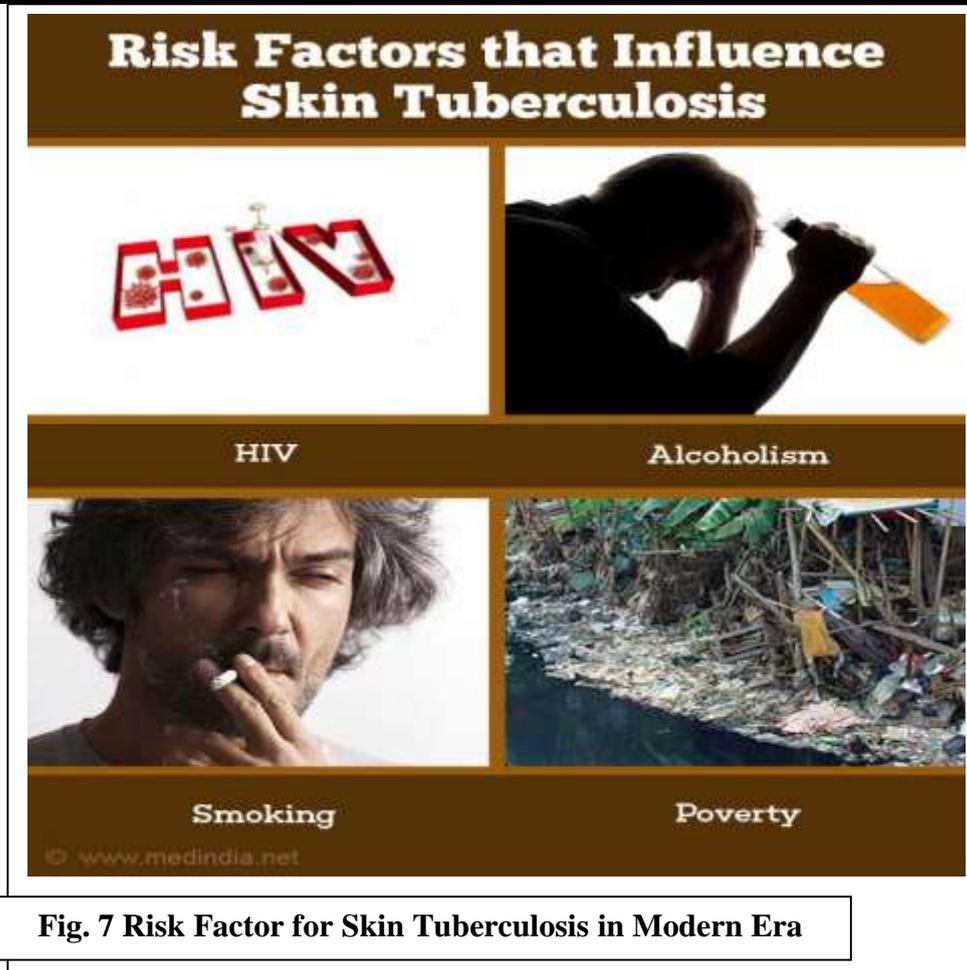


Fig. 7 Risk Factor for Skin Tuberculosis in Modern Era

- B. Virulence:** The bacteria modify their presence and release certain proteins or lipids based on the surrounding environment and based on the drugs used. There are no confirmed virulence factors yet.
- C. Route of infection:** This could be either endogenous or exogenous.
- D. Patient risk factors:** Cutaneous TB can occur in people of all ages, those with low immunity due to other infections such as HIV or alcoholism, smoking as well as in children with reduced immune resistance. Poverty, malnutrition, and overcrowded living conditions promote spread of the disease. There are different factors that can influence the presence of skin TB.
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- I. Drug resistance:** Bacterial strains develop resistance to drugs when exposed for a prolonged period, or when the drugs are administered inappropriately or if the bacterial strains reduce growth during treatment and then resurface later. Treatment and cure of cutaneous TB are hampered.

J. Host immunity: It goes without saying that an individual with a strong immune response can handle Mycobacterium tuberculosis infections without exhibiting the disease. However, reduced immunity in the body will predispose the individual to infections.

4. Signs and Symptoms of Skin Tuberculosis.

The signs and symptoms of cutaneous TB vary based on the type of infection. Cutaneous TB is classified as exogenous or endogenous cutaneous TB. Endogenous infections occur through the lymphatic system or through the blood. They occur secondary to a primary infection at another site.

(I) Endogenous tuberculosis - Some of the endogenous forms of skin tuberculosis include

A. Papulonecrotic tuberculids – These tuberculids are skin infections due to either Mycobacterium tuberculosis infection or by another organism. The individual suffers from unusual loss of energy, fever, and weakness in the body. There are lesions on the buttocks, ears, face, trunk. Lymphadenitis may or may not be associated with the papulonecrotic tuberculids.

B. Erythema induratum of Bazin (EIB) – Women who are young and in their middle age, are prone to skin infection in the posterior area of the thighs and legs. The lesions are frequently painful, have a purple color, and regress on their own leaving scars. However, there is recurrence once every 3 to 4 months. While this infection is associated with tuberculosis, another skin infection erythema nodosum is often confused with EIB. However, erythema nodosum is caused by numerous infectious agents besides M tuberculosis.

C. Scrofuloderma – This condition is observed in children in India and Brazil. Patients with scrofuloderma are immune competent and show a positive Mantoux test. This infection spreads from an area that contains the TB infection (bone or lymph nodes) and lodges itself in the axillary regions, areas where there is less soft tissue between the bone and skin (e.g. the foot) or in the cervical regions. The inflammation develops into painless cold abscesses with purple plaques, which then spontaneously involute creating scars.

D. Lupus vulgaris – This is a common form of cutaneous TB in India and Europe. The lesions are either ulcerated or vegetative lesions, or nodules. They form reddish-brown plaques and are observed in legs, face, buttocks, and in the cervical region. As the lesion grows, there is loss of colour in the center of the lesion. If left untreated, cancer develops.

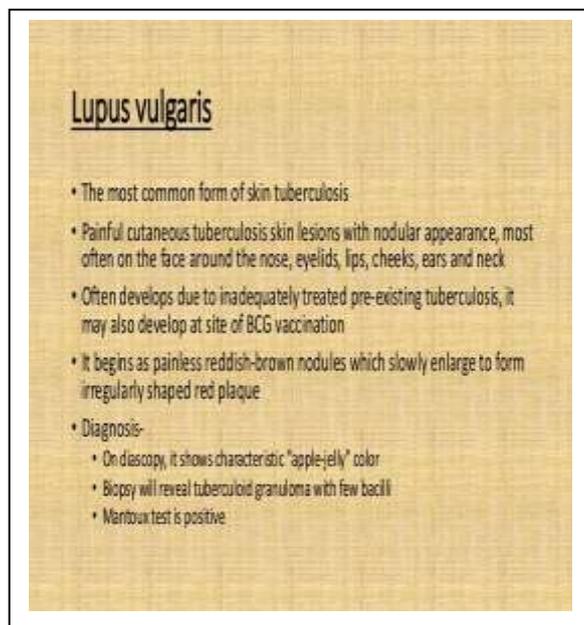


Fig. 8 Lupus Vulgaris -common Skin Tuberculosis in Modern Era

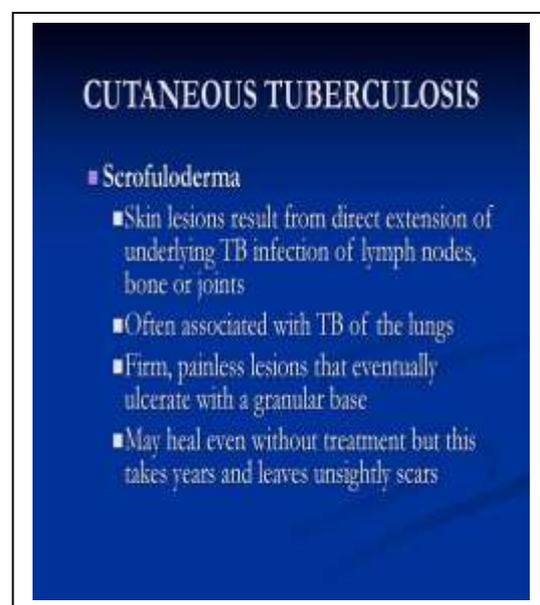


Fig. 9 Scrofuloderma -common Skin Tuberculosis in Modern Era

E. Orificial tuberculosis – Senior citizens and middle-aged adults who suffer from advanced stage genitourinary, lung, or intestinal tuberculosis are affected with orificial TB. The lesions are red to yellow and painful and ulcers develop. The outcome of this condition is not good since it is associated with primary disease elsewhere in the body.

F. Acute miliary tuberculosis – A rare form of cutaneous TB, acute miliary TB occurs in children and immune-compromised individuals. The characteristic symptoms are asthenia, fever, weight loss, and anorexia. White to purple plaques form in the lesions. When the plaques break down, crusts form, and eventually dry out to form scars. Liver and spleen are some of the organs that are affected, and when the immune system fails, death can occur.

G. Tuberculous gumma – This type of infection affects immune-compromised individuals and children who are malnourished. Lesions that form ulcers occur in the extremities and the trunk region. The outcome of this infection is not good because it tends to occur in immune-compromised individuals. They are also observed in HIV infections.

(II) Exogenous infections – Exogenous infections occur due to an accidental exposure to the infection through a cut, crack, or wound on the skin. There are 2 types of exogenous infections:

A. 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. These infections occur due to tattoos or surgical procedures. The lesions are firm, painless, slow growing nodules or papules. Ulcers may develop. These lesions may resemble those of lupus vulgaris or scrofuloderma.

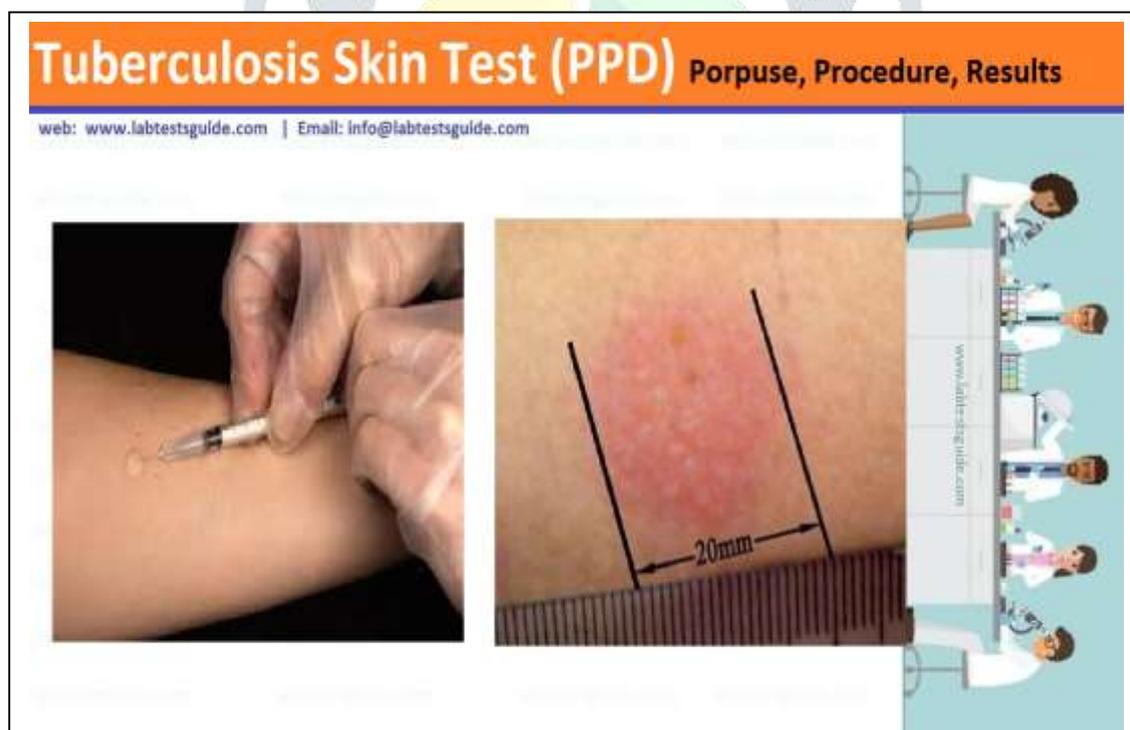
B. Tuberculosis verrucosa cutis (TVC) – Physicians and anatomists are exposed to Mycobacterium tuberculosis infection through injured skin. Walking barefoot with exposed skin in tropical areas can make an individual prone to infection. The infection begins as painless papules with a purple halo in toes and fingers, and then grows outwards to form plaques. Ulcers rarely form. Elephantiasis and other secondary bacterial infections are potential complications.

5. Diagnose Skin Tuberculosis

In general, diagnostic tests are not as sensitive to cutaneous TB. Hence, physicians must pay special attention to the symptoms and conduct the necessary diagnoses.

The diagnosis of skin tuberculosis is based on a thorough physical examination and a medical history of the patient. In addition the following tests will have to be performed:

- Laboratory tests (e.g. Polymerase chain reaction [PCR], Quanti FERON tuberculosis Gold (QFT-G) - Interferon-gamma release assays, and Mantoux tests or Tuberculin sensitivity test
- Chest x-rays – to detect pulmonary tuberculosis
- CT scans
- Sputum, blood, urine culture samples
- Skin biopsy – specific stains identify the bacilli except in the case of lupus vulgaris
- Bone scans
- Identifying acid-fast bacteria in stained smear from skin lesions
- Mantoux tests are not reliable in the detection of miliary tuberculosis and papulonecrotic tuberculids but are good in confirming lupus vulgaris and scrofuloderma.
- In the absence of technology, patients are given anti-TB medications if there is a faint suspicion of the infection.
- Polymerase chain reaction (PCR) is a test specifically used to confirm cases of multi-bacillary infection and has a high specificity and sensitivity. However, due to the high costs, it is not a favored test unless there is a negative result from a histological assay.



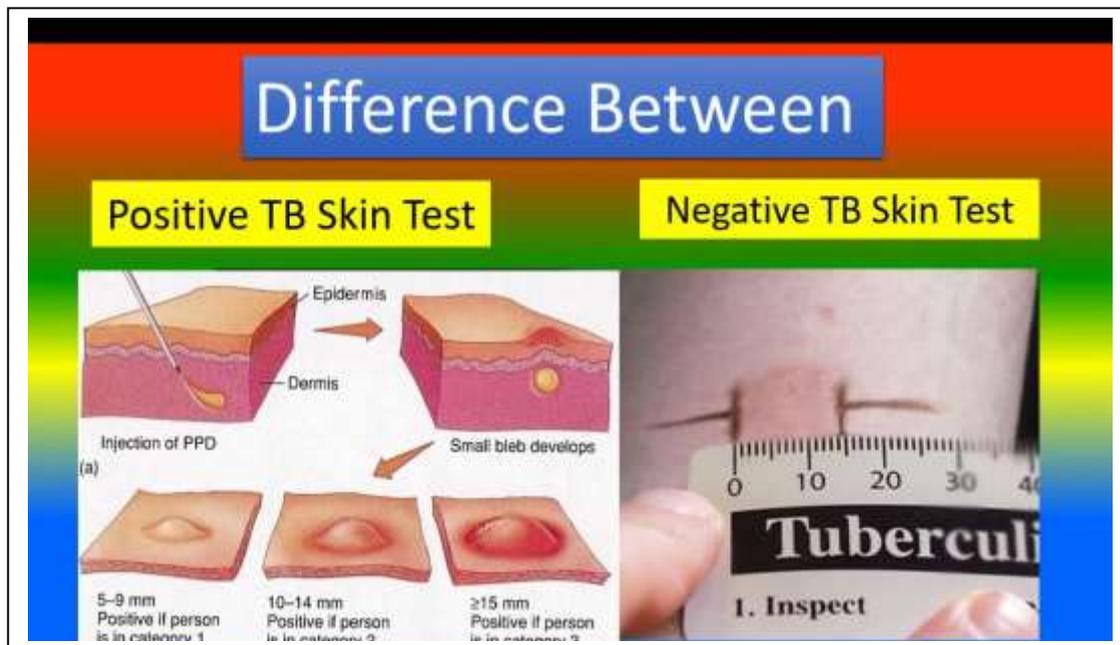


Fig. 10 Skin Tuberculosis Test (PPD) in Modern Era

6. Treatments of Skin Tuberculosis.

- The basic treatment regimen is called RIPE (rifampicin, isoniazid, pyrazinamide, ethambutol) used in the treatment of skin TB where there are 2 stages in treatment.

The first stage (bactericidal) aims to reduce the *Mycobacterium tuberculosis* bacterial count. This normally takes 8 weeks following which the patient is not considered to be infectious.

- The second stage (sterilization) focuses on removing the remaining resident bacteria. Treatment typically lasts 6 months.
- In cases that are caused by atypical mycobacteria, certain antibiotics are prescribed.
- Surgery (incision and draining the abscesses, debridement) is recommended in cases that are not cured by drug therapy.
- It is important that patients follow the prescribed treatment regimen to avoid development of drug resistance.
- In India, cutaneous TB is treated based on the Revised National Tuberculosis Control Program.

7. Preventions of Skin Tuberculosis

The following measures may be adopted to prevent skin tuberculosis:

- Use of sterilized needles for cultural rituals or piercing ears or injections
- Effective identification and treatment of infected individuals to prevent spread by contact
- Consume boiled and pasteurized milk
- Practice better hygiene and nutrition
- BCG vaccine helps in preventing the spread of pulmonary TB

8. Etiology of Skin Tuberculosis.

According to Ibne Zohar, tuberculosis establishes when body become very thin, weak and body fluid dry up.

Usually Diq develops when vital organs (Aazae aslia) become hot & dry (Har yabis). According to Ismail

Jurjani, Diq is a fever caused by abnormal heat (Hararate ghariba), when this heat is associated with vital organs, especially heart then it dissolves the normal body fluids (Rutoobate tabayee) of the human body which results in Diq.

Renowned Unani scholar Razi described that Diq occurs due to pleurisy, pneumonia and inflammation of diaphragm and lungs.

Unani physicians have also divided the causes of Sil into preceding causes (Asbab Sabiqah) and extrinsic causes (Asbab Badiyah). Preceding causes are infectious fevers (Huma-e-uffunia), Compound fever (Huma-e-murakkabah), Day fever (Huma-e-youm), Pneumonia (Zatur-riyah), Pleurisy (Zatuljnab). Extrinsic causes includes anxiety, malnutrition (Naqs Taghziyah), and hot and dry temperament (Haar Yabis Mizaj). They have also given emphasis on predisposing factors such as, chronic diseases and environmental factors like congested areas, crowded places and lack of fresh air. It has also been believed that whenever changes occurs either in air or in water and get contaminated they cause sepsis of humors (Uffonat-e-akhlaat) and thus causing the disease.

Ahmad Bin Muhammad Tabri Some scholar has also mentioned the following disorders under the head of susceptibility, which can lead to Sil, if not managed properly:

- A. Derangement of temperament with morbid matter (Sue- e-mizaj Maddi).
- B. Disease of the kidneys (Amraz-e-Kulliyyah)
- C. Ulcers of urinary bladder (Busoor-e-Msana)
- D. Diabetes mellitus (Ziabetes)

Unani physicians have also described the infection (Tadiyah) and epidemic (Waba) in their texts. Sil has been considered as an infectious and communicable disease. Earlier Unani physicians had a concept about the infectious nature of the disease, Sil, the causing microorganisms (Ajsame Khabithah) and specific type of Material (Maddah).

9. Pathophysiology:

In this disease abnormal heat (Harart-e-Ghair Tabayee) remains in the body to such an extent that the body fluids are dried up. The Unani physicians have divided body into three parts: Organs (Aza), Humours (Akhlat) and Pneuma (Arwah) and opines that abnormal heat (Hararat-e-Ghair Tabayee) gets seated into the organs and may dried up all the body fluids especially of vital organs (Aaza-e-Asliyah) in this disease. This abnormal heat also produces a kind of fever called as Huma-e-diq (tubercular fever).

According to Unani System of medicine, the grading of tuberculosis depends upon dissolving of body fluids (Tahallul Rutoobate badania).

Majoosi described that there are three grade of Diq i.e.

- A. Diq Mutlaq: When the fluids of capillaries become dry due to abnormal heat then this condition is called Diq Mutlaq. This is the first grade of Diq.
- B. Zabol/ Sil: When the abnormal heat destroys the fluids of soft organs connected to vital organs then

this is known as zabool.

C. Mufattit: If the fluids of vital organs are dried by abnormal heat then this condition is known as Mufattit.

According to Ibn Sina, Diq is divided into three grades:

First grade: When abnormal heat (Hararat Ghariba) dries the fluid inside the vital organs (Rutoobaate Talliya) especially fluids of heart (Qalb) also known as Diq Mutlaq.

Second grade: When the abnormal heat (Hararat Ghariba) destroys the fluid near to incorporate or going to form an organ (rutoobaat Qareeb ba Iniqaad) known as Zabool

Third grade: If the abnormal heat (Hararat Ghariba) destroys fluid present in the organs since birth (Rutoobaate manviya) then it is the 3rd grade of Diq i.e. Mufattit.

10. Skin Tuberculosis – Old Disease, Traditional Treatment and management.

Skin Tuberculosis was proven to be an ancient disease with a wide geographic distribution. Samples with erosive lesions characteristic for tuberculosis-like infection were traced back to the Pleistocene. The Egyptian mummies, dated back to 2400 BC, revealed skeletal deformities typical of tuberculosis. However, the first written evidence of TB were found in India and in China, and are dated as 3300 and 2300 years old, respectively. The traditional medicine practiced by many tribes native to different continents is based on indigenous knowledge and provides valuable information on various natural products used in the treatment of this disease. The First Nations, who are predominant indigenous peoples in Canada south of the Arctic Circle, had developed natural remedies to manage TB, however, the treatment was usually accompanied by various rituals based upon age-old traditions. Recent ethno pharmacological surveys show that medical practices related to TB treatment and cultivated by natural healers are still alive and handed down from generation to generation in South Africa, Uganda, Ghana, Malaysia and India. The indigenous plant resources provide medications to alleviate cough and related respiratory disorders associated with TB. What is more, the evaluation of anti-mycobacterial activity is mostly performed in vitro, ignoring many potential targets and natural mechanisms, like immune system present in a human organism. The traditional medicine, which is often based on a holistic approach, could provide a new and interesting perspective on TB treatment. This approach include not only the eradication of bacteria, but also boosting natural immunity, managing disease symptoms, as well as proper nutrition and diet supplementation. Those goals can be achieved using plant-based food products.

Management of the disease includes following Unani therapies:

1. Dieto-therapy (Ilaj Bil Ghiza)
2. Regimental therapy (Ilaj Bil Tadbeer)
3. Pharmacotherapy (Ilaj Bil Dwaa)

(I) Dieto-Therapy (Ilaj Bil Ghiza):

Unani physicians have emphasized on the improvement of the resistance of the patient to combat successfully the disease. For this reason they have given more stress on nutritious diet especially protein rich diet. Most of the Unani physicians advised for:

- ❖ Donkey's milk (as it supposedly cleans the ulcer rehydrates body and increases the body resistance to combat the disease) goat's milk and meat of birds, fish and chicken.
- ❖ Cold and moist vegetables like Khurfa (*Portulaca oleracea*), Khubbazi (*Malva sylvestris*), Kahu leaves (*Lactuca sativa*), Kaddu (*Cucurbita moschata*), Kheera (*Cucumis sativus*), as these things also rehydrates the body.
- ❖ Honey (Aasal) and Honey water (Maaul Aasal) have been recommended to clean the lung ulcers (Jaali) purulent expectoration.
- ❖ Razi advises fish, bird's flesh, barley water (Maaul Shaer) and rose water (Aerq-e-gulab).
- ❖ Majoosi also recommends chicken and teehu meat, Moong dal in the form of asfaidbaj (a form of soup).
- ❖ Ibn-e-Sina favours fat free soft meat, fish and pulses.
- ❖ Azam stresses the use of Sarisham mahi (Isinglass).
- ❖ Care is taken to give plenty of fluids keep body cool compensate deficiencies and strengthen the vital body organs.

According to different stages of disease the diet should include:

First Stage: In this stage barley water (Maaul Shaer), fish kebab and other vegetables like Khurfa (*Portulaca oleracea*), Kanocha (*Phyllanthus maderaspatensis*), Kadu (*Cucurbita moschata*) should be given.

Second Stage: In the second stage the above mentioned diet should include donkey's milk, goat's milk and meat stock (Maaul leham), etc.

Third Stage: If the disease progresses into third stage the patient is emaciated and is extremely weak then easily digestible diet should be given e.g soup of bird meat, chicken soup, etc.

(II) Regimental therapy (Ilaj Bil Tadbeer):

Following are the non-pharmaco therapeutic methods mentioned by Unani scholars:

- ❖ **Venesection** (fasad) of head and face is recommended for physically strong patients.
- ❖ **Purgative** (Mushil) of Amaltas (*Cassia fistula*) with Turangbeen (*Fraxinus oranus*) is recommended. Decoction of Unnab (*Zizyphus sativus*), Sapistan (*Cordia latifolia*), Maveez munaqa (*Vitis vinefera*) and banafshan (*Viola odorata*) may be administered thereafter.
- ❖ **Cupping** (Hijama): Some has even recommended cupping (Hijama) in case venesection is contraindicated.
- ❖ **Massage** (Dalak): Rose oil and khari oil massage (Dalak) on chest are recommended. Pumpkin oil, opium oil, neelofer oil (*Nymphaea lotus*), banafsha oil (*Viola odorata*) for body massage followed by bath.
- ❖ **Liniment** (Tila) Application of cold Tila on chest like sandal (*santalum album*), Gulab (*Rosa*

demascena), Khurfa (Portulaca oleracea), Aab Dhania Sabz (Coriandrum sativum).

- ❖ **Turkish Bath** (Hammam): Razi advises bath with lukewarm water (Hammam-e-Moatadil Ratab) before and after meals while Ibn sena recommends it before meals. Majoosi has advised for oil massage after the bath.
- ❖ **Sitz Bath** (Aabzan) is recommended with lukewarm water followed by application of Roghan Banafsha (Viola odorata). Dry air is also useful in healing of ulcers. Patients are advised to live in dry and properly ventilated environment.

(III) Pharmacotherapy (Ilaj Bil Dwa):

While treating a Sil patient Unani physicians have given stress on mucolytic, desiccants and healing agents.

Mamoolat-e-matab (Clinical Prescriptions)

- ❖ In the morning, Dawai-Diq 05gm is given along with goat milk.
- ❖ In the evening Qurs Tabasheer (Bambusa arundinacea) 01 in Number is given followed by Gilo Sabz (Tinospora cordifolia), Aslussoos (Glycyrrhiza glabra), Tukhm Khayyarain (Cucumis sativus) (3 gm each) in 60 ml Arq Hara Bhara (Pharmacopoeal preparations) and 60 ml Arq Sheer mixed with 20 ml Sharbat-e-Neelofar (Nymphaea alba). Donkey milk, goat milk and Kaddu (Citrus vulgaris) water is given in the dose of 70 ml for first three days, increasing 10 ml each day till it reaches 210 ml, and thereafter 10 ml is decreased each day till it reaches again to 70 ml.
- ❖ If too much weakness is present than along with above mentioned prescription compounds of iron like Qurs kushta khubsulhadid 01 in Number after meal or compounds of gold like Maul Zahab 05 drops should be given and Loab-Behidana (Cydonia oblonga) (3 in Numbers), Sheera Maghz Tukhm Kadu (seeds of Cucurbita moschata) (3 in Numbers), Sheera Magz Tukhm Tarbooz (seeds of Citrus vulgaris) (3 in Numbers), Sheera Tukhm Khurfa (seeds of Portulaca oleracea) (3 in Numbers) are given along with Sharbat-e-Neelofar (Nymphaea alba) (20 ml).
- ❖ Qurs-e-Tabasheer (Bambusa arundinacea) and Qurs-e-Kafoor (Cinnamomum camphora) (Pharmacopoeal preparations) may also be given.

Following prescription is also beneficial to control the Cough, haemoptysis and healing of ulcer in the treatment of tuberculosis:

Gond Kateera (sterculia urenus), Rubbus Soos (Glycyrrhiza glabra), Shkr Tighal (Tigril's cocoon), Kahrubai Shamai (Ambreskenum) { 10 gm each } fine powder of these drugs mixed with 10 gm Khameera khshkhash (Papaver somniferum) and give it to the patient after that Behdana (cydonia oblonga) (30gm), unnab (zizyphus sativa) (5 in No), Sipistan (Cordia latifolia) (11 in No), Mako Khushk (Solanum nigrum) & Gul-e-Nilofar (Nymphaea lotus) 60 gm each boiled in Arq Makoh (Distillate of Solanum nigrum) And Arq Gaozbaan (Distillate of Borage officinalis) 250ml and mixed with sheera-e-anjbar (syrup of polygonum bistorta), 50 gram seeds of Black khurfa (Portulaca oleracea) and 50 gram seeds of kahu (Lactuca

sativa) in 90 ml Arq-e- Bartang (Distillate of *Plantago lanceolata*) with 20 ml sharbat-e-Banafsha (*Viola odorata*) and 60 gm Khaksi (*Sismbrium irio*) sprinkled over it.

Apart from this Unani physicians have given stress on usage of crab and barley for therapeutic purpose, as they are considered very effective in tuberculosis and most of the physicians have mentioned its usage in tuberculosis.

11. Unani Herbal Drugs used in the Treatment of Skin Tuberculosis

A. Zanjabeel.(Ginger or Adrak)

Zingier (*Zingiberaceae*) originates from China, where it has a long history of cultivation as a spice and as a traditional medicinal plant. Ginger grows naturally in subtropical and tropical Asia, Africa, Far East Asia, China, and India. In these regions, it is traditionally used to treat headaches, nausea, colds, flu, cough and asthma, arthritis, rheumatism, muscular discomfort and inflammation. Ginger was shown to exert immune modulatory activities. A randomized and placebo-controlled study in pulmonary TB patients (69 individuals) revealed that co-administration of ginger with anti-TB treatment for 1 month was beneficial, because of observed anti-inflammatory and antioxidant effects. Introduction of 3 g of ginger extract into daily diet for 1 month resulted in lowered levels of TNF- α , ferritin and Malondialdehyde (MDA) in blood samples in comparison to control group.

B. Haldi (India Saffron or Turmeric)

Another plant with interesting and versatile biological activity, belonging to ginger family, is *C. longa* L. (turmeric). Its rhizomes have a long history of use in the traditional Chinese medicine as a flavoring agent and Unani and Ayurveda remedy to treat various diseases, primarily associated with skin and gastrointestinal tract. The turmeric's effects on health stems from principal bioactive component - curcumin, also called "Indian Yellow Gold" due to its brilliant yellow color.

Commercially available Curcumin is actually a mixture of curcuminoids: curcumin, demethoxycurcumin and bisdemethoxycurcumin. Scientific data suggests that structural modifications of curcumin may lead to the development of analogs with improved bioavailability and pharmacokinetic profile. This may have an impact on anti-mycobacterial activity but also on anti-inflammatory and anticancer properties of curcumin derivatives compared to curcumin. Particularly, monocarbonyl analogs have attracted a great interest for the development of novel



Fig. 11 Ginger used in Skin Tuberculosis



Fig. 12 Turmeric used in Skin Tuberculosis

curcumin-based constituents. Several of them have been screened for anti-tubercular effects. The study conducted by Baldwin et al. revealed that they inhibit the growth of pathogenic of *M. tuberculosis* and related *Mycobacterium marinum*, as well as rifampicin-resistant *Mtb* strains. Other authors evaluated chloroform extract of *C. longa* (1000 µg/mL) and its main component – demethoxy curcumin (200 µg/mL) against *M. tuberculosis* H₃₇Rv and found that demethoxycurcumin was more potent, however, chemical modification of demethoxy curcumin yielded a derivative showing 25-fold increase in anti-tubercular activity.

C. *Morina citrifolia* Linn.

Morina citrifolia Linn. Generally known as “noni” is one of the most important Polynesian medicinal herbs. Its edible leaves and fruits were used by traditional healers to treat skin lesions and wounds. Indigenous population of Australia used noni plant for the treatment of respiratory diseases.

Some scientific evidence supports its traditional recommendations and noni was considered as a plant with potential application in TB treatment. The study conducted by Saludes et al. revealed that the crude ethanolic (50%) extract and hexane fractions obtained from *M. citrifolia* leaves showed 89% and 95% inhibition against *Mtb* H₃₇Rv strains at 100 µg/mL. According to the study, the noni anti-TB properties can be attributed to the presence of lipids in the hexane fractions: diterpene (E)-phytol (MIC of 32 µg/mL); triterpenes: cycloartenol (MIC of 64 µg/mL); sitosterol (MIC of 128 µg/mL); stigmasterol (MIC of 32 µg/mL) and epidioxysterol (MIC of 2.5 µg/mL); 2:1 mixture of the ketosteroids: stigmasta-4-en-3-one and stigmasta-4-22-dien-3-one (MIC of 2.0 µg/mL) [151]. The antimycobacterial activity of (E)-phytol and of some 24,25-epoxycycloartanes have previously been reported by Cantrell et al.

D. Klonji (Black Seed)

Black cumin is widely known as a spice used for flavouring of bakery products, pickles, sauces, and salads. It originates from Middle East, Middle Asia and Far Eastern countries where it was considered by earliest herbal specialists as miraculous plant. The medicinal uses of black cumin seeds range from airway disorders, fever, coughs, infection, pain, or inflammation to paralysis. The pharmacological effects: analgesic, anticancer,

antidiabetic, antihypertensive, anti-inflammatory, antimicrobial, antioxidant and neuroprotective, exerted by *N. sativa* seeds, seeds fixed oil and essential oil are attributed to the most bioactive compound, thymoquinone .

Thymoquinone was shown to inhibit the growth of clinical isolates of *Mtb* in vitro in a dose higher than 20 µg/mL. It was also proven to inhibit the replication of intracellular *Mtb* in RAW 264.7 macrophages at concentrations ranging from 12.5 to 25 µg/mL and 6.25 to 12.5 µg/mL for H37Rv and XDR-TB strains, respectively. The killing of the bacilli in the presence of thymoquinone was mediated via concentration-dependent reduction in NO production in both H37Rv and XDR-TB infected RAW 264.7 cells. What is more, the lowered expression of iNOS, TNF-α and IL-6 was observed in H37Rv-infected cells resulting in reduced pathogen-derived stress in host cells.

12. Home Remedies for Skin Tuberculosis Patients

Although the treatment for tuberculosis continues for 6-9 months, its treatment can be accelerated with these 7 natural home remedies.

A. Foods rich in vitamins A, C, B complex and E

Foods that are a rich source of vitamins A, C and E like tomato, orange, carrot, mango, sweet pumpkin, guava, amla, and nuts, if added in the diet of a Skin Tuberculosis patient, can benefit them immensely. Foods with vitamin B complex like fish and chicken can form an important component of their diet.

B. Protein-rich food

Skin Tuberculosis patients suffer from weight loss and loss in appetite. Thus, protein-rich food like eggs, cottage cheese, and soya can be added in their diets in large quantities to give them energy.

C. Foods that are a storehouse of Zinc

Nuts, sunflower seeds, chia seeds, flax seeds, and pumpkin seeds are a great source of zinc. They provide large amounts of nutrients to the body and help in fighting against diseases like TB.

D. Calorie dense food

Since Skin Tuberculosis patients undergo weight loss, calorie dense food is the best way to increase their metabolism. Including foods like bananas, peanut chikki, cereal porridge and ragi can prove beneficial.



Fig. 13 Mint used in Skin Tuberculosis



Fig. 14 Garlic used in Skin Tuberculosis

E. Garlic

Garlic is an effective home remedy for Skin Tuberculosis. It contains a compound – Allicin – which is active against the bacterium that causes TB. This helps in fighting tuberculosis. Adding fresh garlic to a regular diet or steeping some garlic in water can work wonders and can help keep our body safe from Skin Tuberculosis.

F. Mint

The easiest home remedy for Skin Tuberculosis is to use fresh mint leaves to flavor drinks. It helps in clearing the respiratory tract and allows free passage of air. Rich in antioxidants and with immunity-boosting components, mint leaves protect the body from the risk of infections.

G. Black pepper

Piper nigrum L., black pepper, is a herb of the Piperaceae family, native to tropical, Indo-Malaya region. It is regarded as “the king of spices” and generally used in almost every cuisine. The black pepper has an essential role in the traditional Indian system of medicine, called ‘Ayurveda’ where it has been used as a basis of medicinal formulations recommended in the treatment of various infectious diseases such as leprosy or tuberculosis . The wide spectrum of pharmacological activities of black pepper, including antimicrobial, antifungal and anti-inflammatory are related to the presence of various phytoconstituents, but primarily, alkaloid – piperine. In the recent years, therapeutic potential of different Piper taxa, piper extracts and piperine was described in a number of research.

While talking about Skin Tuberculosis home treatment, black pepper, when crushed and fried in butter can treat tuberculosis. With its anti-inflammatory properties, it clears the lungs and reduces pain and discomfort.

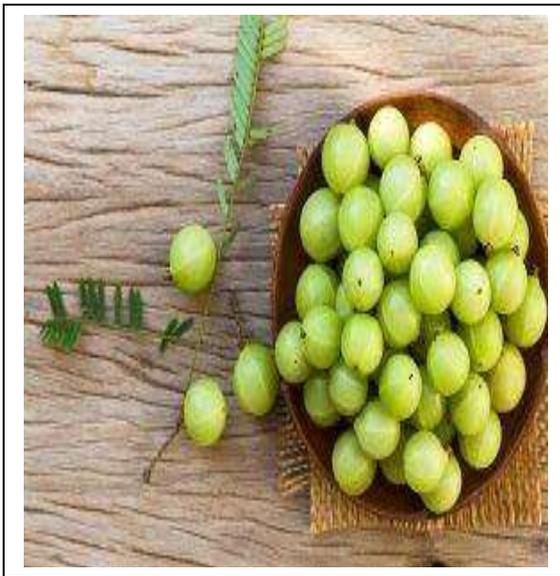


Fig. 15 Amla used in Skin Tuberculosis



Fig. 16 Black Pepper used in Skin Tuberculosis

It is important to raise awareness and follow these 7 home remedies for Skin Tuberculosis to treat this disease. For more information on lifestyle conditions and nutrition, visit the Active Living Blog.

Conclusion

Ancient Unani scholars were well aware with the in-depth knowledge and the infectious nature of the disease, Sil, so by adopting steps of management mentioned by them, along with modern medical treatment the standard of living can be improved amongst the tubercular patients as well. It is important to be aware of this rare manifestation of extra pulmonary TB (Skin Tuberculosis) because all forms of TB have increased worldwide due to the spread of HIV infection, intravenous drug use, immune suppressive treatment of various systemic diseases, high population migration, and the emergence of multidrug resistant TB. In addition, recognition of Skin Tuberculosis is imperative because these lesions resemble other dermatologic conditions and diagnosis often heavily relies on clinical history, morphologic features, and typical histopathologic findings. Immuno-compromised patients with Skin Tuberculosis can develop hematogenous dissemination to internal organs, metastatic TB abscesses, or miliary disease quite rapidly and early diagnosis and treatment can be lifesaving. Our goal was to increase the awareness of Skin Tuberculosis in the medical community in hopes to prevent delay in diagnosis and treatment.

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