

Study Of Common Clinical Variants Of Cutaneous Tuberculosis: Two Years Study Experience In A Tertiary Care Centre

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Abstract: Background: Tuberculosis is one of the most common, rampant infectious diseases in developing countries. Cutaneous Tuberculosis describes dermatological manifestations of TB caused by Mycobacterium tuberculosis. The precise diagnosis is often overlooked, due to clinical presentation as those of cutaneous disease with different etiology and relative paucity of pathogens in the lesion. The objective of the study was to describe various clinical presentations of cutaneous TB, their epidemiology, clinical features and histopathology. Material And Methods: All patients with clinical diagnosis of cutaneous tuberculosis attending outpatient department of dermatology in P.D.U Govt. Medical College Hospital Rajkot from march 2020 to November 2022 were included in the study after a detailed history taking, thorough clinical examination, routine blood investigations, biopsy and montoux test. Result: 20 patients of cutaneous TB were included in this study. Most common age group affected was in 30-50 years. 11(55%) patients were male and 9(45%) patients were female. The predominant presentation was lupus vulgaris in 11(55%) cases followed by tuberculosis verrucosa cutis in 5(25%) cases and 4(20%) cases as scrofuloderma. Conclusion: Cutaneous TB has varied presentation. Lupus vulgaris was found to be the most common variant in this study. Interestingly, occurrence of scrofuloderma over uncommon site (abdomen) was reported. [Deshmukh N Natl J Integr Res Med, 2023; 14(3): 5-9, Published on Dated: 18/05/2023]

Key Words: Cutaneous Tuberculosis, Lupus Vulgaris, Tuberculosis Verrucosa Cutis, Scrofuloderma

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Introduction: Cutaneous tuberculosis has been part of medical literature since ancient times. It is an age old disease caused by mycobacterium tuberculosis. It was first described by Theophile Laennec and Robert Koch in 1882¹. Developing countries still account for majority of the cases in the world. Co-infection with HIV and drug resistance further adds up to the burden².

Following infection, only 5-10% of individuals develop clinical disease. Childhood TB represents 5-15% of all cases of TB³.

Diagnosed of cutaneous TB requires detailed history, clinical examination, tuberculin skin test, chest radiograph, skin histopathology, DNA amplification using PCR and newer modalities like Interferon- γ release assay.

Quanti FERON-TB Gold(QFT) which is much more specific for Mycobacterium tuberculosis than tuberculin test. Clinical manifestation of cutaneous TB may vary from localized to disseminated form depending on immunity of the host. Cutaneous TB is classified as primary or secondary and also be classified on the basis of source of infection as endogenous or exogenous.

Treatment of cutaneous TB should follow the same drug regimen as that for systemic tuberculosis.

Material & Methods: All the clinically suspected cases of cutaneous tuberculosis attending outpatient department of Dermatology, venereology and leprosy at P.D.U. Government Medical College and Hospital Rajkot from march 2020 to november 2022 of all age groups and both the sex were included in the study.

Detailed history taking, thorough clinical examination were done in all the cases to diagnose them as cutaneous tuberculosis and confirmed by Histopathological evidence.

Routine blood investigations, X-ray chest, montoux test, biopsy was done in all the cases. ELISA test was carried out to rule out HIV co-infection. AFB smears from discharging sinuses, sputum smear and FNAC was done in relevant cases.

Results and Discussion: A total of 20 patients were included in the study, maximum 4 patients were between 21-30 years and 31-50 years each,

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3 patients were between 1-10 years and 11-20 years each, followed by 2 patients in 21-30years, 51-60years and 60-70years respectively. Youngest patient was 6 year old girl and oldest was 65 year old female. 11(55%) patients were male, 9(45%) were female with male to female ratio of 1.22:1 and 4 were children.

The most common clinical type of cutaneous tuberculosis was lupus vulgaris seen in 11(55%) cases, followed by tuberculosis verrucosa cutis in 5(25%) cases and scrofuloderma in 4(20%) cases.

Amongst all 11 cases of lupus vulgaris commonest variant was found to be plaque type in 7(63.63%) cases, followed by nodular type in 3(27.27%) cases and one case of hypertrophic variant. Frequently involved sites in cutaneous TB was limbs in 8(40%) patients followed by neck in 6(30%) patients, trunk in 4 (20%) patients and face in 2(10%) patients.

Lupus vulgaris was the most common variant seen in children.

In 12(60%) patients hematological examination showed raised ESR and Montoux test showed positivity in 8(40%) cases. Lymphadenopathy was seen in 4(20%) patients.

Histopathology of the lesions showed tuberculoid granulomas composed of epitheloid cells and

Langhans giant cells with lymphocytic infiltrate in 14(70%) patients. Squamous hyperplasia with marked hyperkeratosis seen in 1(5%) case. Elongated rete ridges with acanthosis and neutrophilic infiltrate in 5(25%) patients.

Cutaneous tuberculosis forms a small subset of extra pulmonary tuberculosis and has a worldwide distribution. The disease continues to be a challenging one because of its multifaceted presentation.

In our study cutaneous tuberculosis showed higher incidence in males (55%) than in females (45%) as shown in Figure 1. Commonest age group involved was between 30 to 50 years (table 1) as compared to Pai et al study (4) which showed 50% incidence in males and 50% in females while most of their patients belonged to age group of 20 to 50 years. Predominant involvement of men can be explained by their outdoor work, environmental exposure and personal habits (smoking).

The most common clinical type of cutaneous tuberculosis in our study was lupus vulgaris in 55% cases followed by tuberculosis verrucosa cutis in 25% cases and Scrofuloderma in 20% cases as shown in table 2. Findings were similar to Aruna C et al (5) which showed lupus vulgaris in 44% cases, TVC in 16% and scrofuloderma in 8% cases.

Figure 1: Gender Wise Distribution Of Cutaneous TB

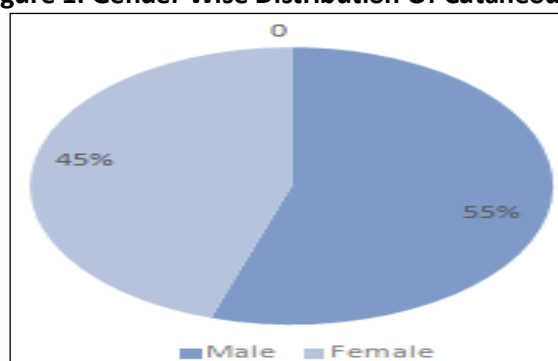


Table 1: Age Wise Distribution Of Cutaneous TB

Parameter	Frequency	%
Age(Years)		
≤10	3	15
11-20	3	15
21-30	2	10
31-40	4	20
41-50	4	20
51-60	2	10
≥61	2	10

Table 2: Various Clinical Presentation Of Cutaneous TB

Clinical Type Of Cutaneous Tuberculosis	Lupus Vulgaris	Tuberculosis Verrucosa Cutis	Scrofuloderma
Present Study, Number Of Cases[%] (N=20)	11 [55%]	5 [25%]	4 [20%]
Aruna C et al Study ⁵ Number Of Cases[%] (N=25)	11 [44%]	4 [16%]	2 [8%]
Raghu M et al Study ⁶ Number Of Cases[%] (N=15)	11 [66.6%]	4 [16%]	1 [6.6%]

Raghu et al(6) study showed the commonest site of involvement was limbs seen in 50% patients followed by neck seen in 25% patients, face in 15%, and trunk in 10% patients. In our study frequently involved sites in cutaneous TB was limbs in 40% patients followed by neck in 30% patients, trunk in 20% patients and face in 10% patients. Most common site of involvement in Lupus vulgaris was lower limb followed by upper limb and face.

TBVC also presented with similar distribution, where as scrofuloderma predominantly involved neck. It was interesting to see that 3 cases of scrofuloderma involved cervical region, except one which involved abdomen.

Duration of the disease in most of the patients ranged from months to years however the longest duration of 45 years was noted in a case of lupus vulgaris, this can be explained by non compliance of the patient to anti-tubercular treatment. Finding was compared to Ramesh A et al study⁷ which had longest duration of 67 years. In 60% patients hematological examination showed raised ESR; corroborating to chronic course of the disease.

Montoux test showed positivity in 30% cases as compared to Pranab et al⁸ study which showed positivity in 21.43% cases.

Lupus vulgaris is form of cutaneous TB that occurs in previously sensitized individuals. The typical lesion is red-brown plaque composed of papulo nodules with an "apple-jelly" colour on diascopy. Clinical presentation of lupus vulgaris includes (1) Plaque form (2) ulcerative form (3) hypertrophic or vegetative form; as shown in Figure 2(4) tumor like and(5) papulo-nodular⁶. Tuberculosis verrucosa cutis (TVC) results from exogenous inoculation of M tuberculosis at the sites prone to trauma in previously infected individuals, as shown in Figure 4. The lesion

begins as small, asymptomatic, indurated wart-like papule with a subtle inflammatory rim. It gradually enlarges, often in a serpiginous manner to form firm reddish-brown verrucous plaque⁹.

Scrofuloderma begins as firm, deep-seated, subcutaneous nodule that has accumulated inflammatory material and necrotic tissue, as shown in Figure 3. The suppurative nodule later becomes fluctuant and drains with ulceration and sinus tract formation.

Keloid and retracted tethered scar can develop at the site of infection. The original focus of TB is usually underlying lymph nodes or bones, but it may be joints or the epididymis⁹.

There was preceding history of trauma over the extremities in 40% of the cases who were working as labourer. It suggests inoculation of tuberculosis bacilli through minor trauma.

Findings were comparable to Ramesh A et al⁷ study which showed history of trauma in 50% of their patients. Higher incidence of cutaneous TB in lower limbs can be attributed to higher risk of trauma over the leg and feet.

3 patients had history of pulmonary tuberculosis in past similar to pai et al study⁴ which showed 2 patients with past history of pulmonary Tuberculosis. A Positive family history of tuberculosis was seen in one patient whose mother had taken anti tubercular treatment 2 years back. No patient was found to be co-infected with HIV in our study similar to that noted by BK Thakur¹⁰. On examination 20% patients had lymphadenopathy which is comparable to pranab et al study⁸ that showed lymph node enlargement in 28.57% cases. In our study FNAC was done from enlarged lymph nodes and one of them showed "cold abscess". Histopathology of the lesions showed tuberculoid granulomas composed of epithelioid cells and

Langhans giant cells with lymphocytic infiltrate in 70% patients. Squamous hyperplasia with marked hyperkeratosis seen in 5% case. Elongated rete ridges with acanthosis and neutrophilic infiltrate in 25% patients. Similar findings were seen in Pai et al study⁴ which showed epithelioid granulomas in 78.5% patients.

Histopathological features were consistent with cutaneous TB in all the patients. Clinico-histopathological correlation is useful in accurate diagnosis of the disease.

All the confirmed cases of cutaneous TB were started on ATT, a fixed dose combination of Isoniazide(INH), Rifampicin(R), pyrazinamide(Z), ethambutol(E) was given in two phases.

Figure 2: Hypertrophic Variant Of Lupus Vulgaris



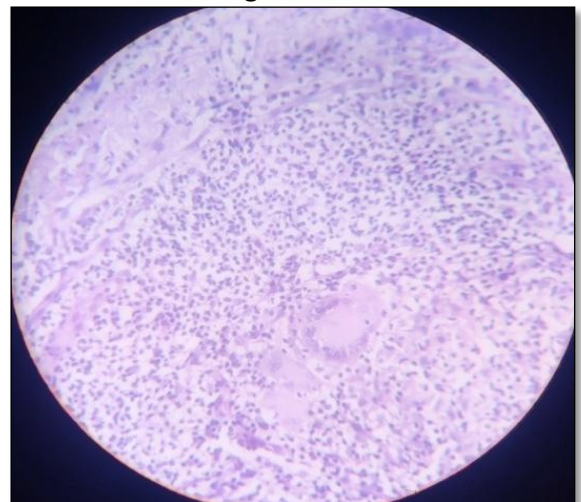
Figure 3: Scrofuloderma



Figure 4: Tuberculosis Verrucosa Cutis



Figure 5: Histopathology Showing Granuloma With Langhans Giant Cells.



Conclusion: Cutaneous tuberculosis continues to be a significant medical problem even with the advent of highly effective anti-tuberculous drugs.

Study showed that cases of cutaneous TB are quite frequent despite nationwide efforts through Tuberculosis control programs hence, it is very important to diagnose and treat the patient at the earliest possible.

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Conflict of interest: None

Funding: None

Cite this Article as: Deshmukh N, Bunker A, Bhuptani N, Patel B. Study Of Common Clinical Variants Of Cutaneous Tuberculosis: Two Years Study Experience In A Tertiary Care Centre. <i>Natl J Integr Res Med</i> 2023; Vol.14(3): 5-9
