

## Clinico-Epidemiological Study of Various Presentations of Cutaneous Tuberculosis at a Tertiary Care Centre

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### ABSTRACT

**Background:** Cutaneous tuberculosis has a myriad of presentations with wider differential diagnosis. It comprises of only 1%-2% of all cases of tuberculosis. **Aim:** To study various patterns presentations of cutaneous tuberculosis. **Materials and Methods:** All the cases were investigated by biopsy, Mantoux-test and ELISA for HIV; chestX-ray, sputum AFB and FNAC from lymph nodes in relevant cases. **Results:** We found cutaneous tuberculosis was more common in males (1:0.68) and in the age group 16-25years(36.54%). Lupus vulgaris (59.06%) was the most common type with most common affected site being limbs 41.09%. Mantoux test was positive in 19.23% in size. The histopathological picture was consistent in 69.23% cases. Associated HIV infection and pulmonary tuberculosis were found in 8 and 2 cases respectively. **Conclusion:** Most common type was lupus vulgaris. In some, cutaneous tuberculosis may point to underlying tuberculosis of internal organs or immunosuppression, highlighting the importance of screening of patients.

**Keywords:** Acid fast bacilli, Cutaneous tuberculosis, Mantoux test.

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### INTRODUCTION

Cutaneous tuberculosis is a rare form of extrapulmonary tuberculosis with incidence of 0.15% in India.<sup>1</sup> Also in recent years, due to the increasing use of immunosuppressants (anticancer and corticosteroid) and emergence of immunocompromised host, it remains to be seen how the position of cutaneous tuberculosis is altered.<sup>2</sup> It has varied clinical presentations and hence many differential diagnosis viz. leishmaniasis, leprosy, actinomycosis, deep-fungal infections, etc; as well as varied histopathological findings viz., necrotizing granuloma, poorly formed granuloma, non-specific inflammatory infiltrate etc<sup>2</sup> and lack of demonstrable acid fast bacilli in most biopsy specimens pose

difficulty in diagnosis of cutaneous tuberculosis. The present study was undertaken with the aim to study the various patterns and presentations of the cutaneous tuberculosis in the saurashtra region of Gujarat.

### MATERIALS AND METHODS:

The present retrospective study was carried out in the department of Skin at PDU Medical College, Rajkot, Gujarat after taking the due permission from the Institutional Ethical Committee. Total- 5,42,271 cases attending to the skin OPD in 7 years duration were observed and out of them 52 cases of cutaneous tuberculosis were selected for the present study. The following investigations were carried out in the patients identified with cutaneous tuberculosis- Skin biopsy, Mantoux-test

(with 1 TU PPD) and ELISA for HIV. FNAC of lymph nodes was also carried out in the patients with palpable lymph nodes and chest X-ray and sputum AFB smear were done in those patients who were having pulmonary symptoms. Epidemiological data like patient's age, sex and socio-economic class were noted in predesigned proforma and various morphological patterns of presentation of cutaneous tuberculosis were noted. All the cases were administered anti-tubercular therapy (AKT) Cat 1. The data were collected, analyzed and compared with the data of other authors.

### RESULTS:

Out of the total 5,42,271 cases 52 cases were of cutaneous TB with a prevalence of 0.01%. The 31 cases were males and 21 were females making Male:Female ratio of 1.47:1. The most common age group affected was 16-25 years (36.54%) followed by 0-15 years (28.85%) and the least affected age-groups were 36-45 years and 56-65 years (3.85% each). Most common morphological variant found in our study was lupus vulgaris (59.06%) followed by scrofuloderma (21.15%), tuberculosis verrucosa cutis (13.46%), tuberculid (5.70%). There was presence of more than one variant in 7.69% cases. [Figure1-4] Amongst overlapping presentations, 2 cases had lupus vulgaris with scrofuloderma and 1 case of lichen

scrofulosorum with papulonecrotictuberculid. Commonly affected sites were limbs (41.09%) followed by face (21.92%), trunk (15.06%) and buttocks (8.22%). Mantoux test was positive in 10 cases (19.23%). Out of three cases with palpable lymph nodes, 2 cases showed FNAC findings consistent with tubercular inflammation. The histopathological picture was consistent in 69.23% cases. [Figure5-6] Eight cases (15.38%) were seropositive for human immunodeficiency virus (HIV) infection and 2 cases had pulmonary tuberculosis suggested by positive chest Xray findings but negative sputum AFB report.

**TABLE 1: Age-wise distribution of cases**

Age group	No of Patients	Percentage
0-15	16	30.76 %
16-25	19	36.54 %
26-35	9	17.31 %
36-45	3	5.76 %
46-55	4	7.69 %
56-65	1	1.92 %
>65	0	00 %
Total	52	100

**TABLE 3: Site-wise distribution of cases**

Site	No of Patients	Percentage
Face	16	21.92 %
Trunk	11	15.06 %
Limbs	30	41.09 %
Buttocks	6	08.22 %
Total	73	100

**TABLE 2: Distribution of cases according to the age of presentation and type of cutaneous tuberculosis**

Type of cutaneous tuberculosis	No. of patients according to age (years)							Total	Percentage
	0-15	16-25	26-35	36-45	46-55	56-65	>65		
Lupus vulgaris	7	14	5	1	4	0	0	31	59.06 %
Scrofuloderma	4	4	2	2	0	1	0	11	21.15 %
Tvc	4	1	2	0	0	0	0	7	13.46 %
Tuberculid	3	0	0	0	0	0	0	3	5.70 %

• 2 cases had overlap of lupus vulgaris and scrofuloderma



**Figure 1: erythematous plaques of lupus vulgaris on face in two cases**



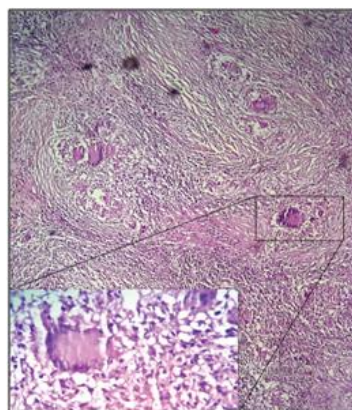
**Figure 2: draining sinuses with crusting and puckered scars over left side neck and upper chest in a case of scrofuloderma**



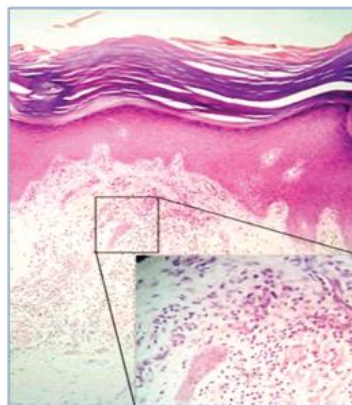
**Figure 3: scaly plaques of lupus vulgaris in left axilla and over BCG scar (left deltoid region)**



**Figure 4: well defined verrucous plaque on right sole of foot in case of tuberculosis verrucosa cutis, with strong positive Mantoux reaction on left forearm in the same subject**



**Figure 5: histopathology of lupus vulgaris showing dense mononuclear dermal infiltrate consisting of epithelioid granulomas and many Langhans type giant cells**



**Figure 6: histopathology of TVC showing hyperkeratosis, hypergranulosis, acanthosis with epithelioid granuloma in dermis**

## DISCUSSION:

The prevalence of cutaneous tuberculosis in this study was 0.01% while the other studies have shown different prevalence like 0.24% by Satyanarayan,<sup>3</sup> 0.28% by Pandhi et al.<sup>4</sup> The prevalence rate of cutaneous TB in our study differed significantly from some other authors like 0.5% by Banerjee<sup>5</sup> and 0.59% by Singh.<sup>6</sup> The commonest type of cutaneous tuberculosis was lupus vulgaris in our study (59.06%), which was also noticed by Singh<sup>6</sup> (74%) and Bhusan et al (81.8%) in their studies.<sup>7</sup> The second most common type was scrofuloderma (21.15%) followed by tuberculosis verrucosa cutis (13.46%). [Table-1] But Pandhi et al<sup>4</sup> found LV more common (44%) and Wong et al<sup>8</sup> found TVC as the commonest type. Tuberculid (lichen scrofulosorum and papulonectrotictuberculid) was least found variant in our study (5.70%). It was also noticed to be negligible by Singh<sup>6</sup> and Satyanarayan.<sup>3</sup> Amongst overlapping presentations, 2 cases had lupus vulgaris with scrofuloderma and 1 case of lichen scrofulosorum with papulonectrotictuberculid. Various case reports showing more than one variant in single case have been reported.<sup>9,10</sup>

Most of the cases belonged to the age group of 16-25 years (36.54%) in our study, corroborating Satyanarayan<sup>3</sup> and Wong<sup>8</sup> and Dwari.<sup>12</sup> [Table-2] Males outnumbered the females in a ratio of 1.47:1 as in other studies.<sup>24,7,12</sup> The commonest site of cutaneous tuberculosis varied from study to study, viz., lower limbs in our study but face in a study from West<sup>11</sup> and also one from north India.<sup>7</sup> The other sites involved were in the following sequence face (21.92%), trunk (15.06%) and buttocks (8.22%). All patients (100%) belonged to low-socioeconomic status as in Dwara BC et al study.<sup>12</sup> Eight cases were seropositive for human immunodeficiency virus infection. 2 (3.85%) cases showed chest X-ray findings consistent with

pulmonary tuberculosis while Banerjee<sup>5</sup> noticed association of pulmonary tuberculosis in 45% cases and Wong noticed it in 10%.<sup>8</sup> Both the cases had negative sputum AFB report. In 11 cases with cervical lymphadenopathy, FNAC findings were consistent with tubercular inflammation with 8 cases showing clusters of epithelioid cells with or without caseation necrosis. AFB could not be demonstrated in these cases.

Mantoux test was positive 19.23% cases in our study but Bhusan et al<sup>7</sup> noticed negative result in 27.7% cases. The low positivity rate could have probably been due to 8 (15.38%) HIV seropositive cases. Histopathology was well correlated with clinical findings in 69.23% cases showing showing epithelioid granuloma, Langhans type of multinucleated giant cells and caseation necrosis. While in rest of the cases therapeutic response to AKT confirmed the diagnosis.

## CONCLUSION:

Although the incidence of cutaneous TB is low, it should be considered in patients presenting with atypical skin lesions suggestive of an underlying infective etiology. Also the patients need to be screened to rule out associated tuberculosis of internal organs or any underlying immunosuppression.

**Conflict of Interest:** None.

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