Section: Dermatology

Original Research Article

PROSPECTIVE ANALYSIS OF INCIDENCE AND CLINICOPATHOLOGICAL CORRELATION AMONG PATIENTS DIAGNOSED WITH CUTANEOUS TUBERCULOSIS IN A TERTIARY CARE HOSPITAL

S.Athilakshmi[1], P. Jemi Singh[2], B. Prithivirajan[3], Gomathi Pon[3]

[1]Associate Professor, Department of Dermatology, Government Medical College, Omandurar Government Estate, Tamilnadu, India
[2]Assistant Professor, Department of Dermatology, Government Medical College, Omandurar Government Estate, Tamilnadu, India
[3]Senior Resident, Department of Dermatology, Government Medical College, Omandurar Government Estate, Tamilnadu, India

Received : 08/01/2024
Received in revised form : 17/02/2024
Accepted : 01/03/2024

Keywords:
Clinicohistopathological, Cutaneous tuberculosis, Tuberculosis, Scrofuloderma, Lupus vulgaris.

Corresponding Author:
Dr. S.Athilakshmi,
Email: athilakshmikarthikeyan@gmail.com

DOI: 10.47009/jamp.2024.6.2.268

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2024; 6 (2); 1342-1344

Abstract

Background: Cutaneous manifestations of TB include a wide and often overlapping spectrum of papules, pustules, papulonecrotic, nodular, verrucous lesions, panniculitis, plaques, ulcers, sinuses, and scars. The study aimed to determine the incidence of various morphological types and clinicohistopathological correlations of cutaneous TB presented to our department and compare that with the literature. **Materials and Methods:** This prospective study was conducted on 30 patients with clinical suspicion of cutaneous tuberculosis in Dermatology OPD, Govt Stanley Hospitals, Chennai, between May 2009 and April 2010. Patients were investigated, including total count, differential count, ESR, haemoglobin %, Mantoux test, sputum for AFB, chest x-ray, skin biopsy, Elisa for HIV, and screening for VDRL. **Result:** In our study, 21 – 30 years age group was the most commonly affected. The study included 16 males, 12 females, and two male children; out of the 30 cases studied, males were more commonly affected than females. Patients with warty TB showed characteristic tuberculoid granulomas in the mid-dermis, epidermal changes in 10 cases, and Langhans giant cells in 4 cases. Chest x-ray findings showed tuberculosis in 10 cases, with hilar adenitis in 3 cases and apical opacity in 2 cases. **Conclusion:** Warty tuberculosis was the most common type, followed by lupus vulgaris. There was an increased incidence of warty tuberculosis among males and lupus vulgaris among females. The clinicopathological correlation was present in all cases except one case of scrofuloderma.

INTRODUCTION

Tuberculosis, one of the oldest diseases known to humanity, continues to be a major public health problem in the world today, especially in developing countries like India. According to WHO, over one-third of the population is at risk of developing tuberculosis today. Extrapulmonary TB constitutes only 10% of all cases of tuberculosis, and cutaneous TB accounts for about 1.5% of all such cases. Improved living standards, effective screening and treatment have greatly reduced the prevalence of TB in industrialized countries, but a resurgence is being witnessed in developing countries.[1-5]

The factors responsible for resurgence are overcrowding due to migration of infected people from areas of high prevalence to low endemic areas, worsening urban economic and social environment, emergence of MDR M. Tuberculosis and increasing incidence of AIDS. Though cutaneous TB constitutes only a minor proportion, bearing in mind the prevalence of TB, these numbers become significant. Cutaneous TB can mimic the clinicopathological features of many other skin diseases, and underlying systemic or organ TB can be difficult to detect, resulting in diagnostic challenges and pitfalls and potential delays in diagnosis and institution of treatment.[6-8]

The varied clinicopathological features of cutaneous TB are attributed to the organism's pathogenicity, the organism, the resistance of the organism, the portal of infection, and the host's immune status. Cutaneous manifestations of TB include a wide and often overlapping spectrum of papules, pustules, papulonecrotic, nodular, verrucous lesions, panniculitis, plaques, ulcers, sinuses, and scars.[9-12]

Aim

The study aimed to determine the incidence of various morphological types and clinicohistopathological correlations of cutaneous TB presented to our department.

MATERIALS AND METHODS

This prospective study was conducted on 30 patients with clinical suspicion of cutaneous tuberculosis in Dermatology OPD, Govt Stanley Hospitals, Chennai, between May 2009 and April 2010.

Inclusion Criteria

Patients with clinical suspicion of cutaneous tuberculosis, which is histopathologically proven, were included.

Patients included in this study were subjected to the following investigations: total count, differential count, ESR, haemoglobin %, Mantoux test, sputum for AFB, chest x-ray, skin biopsy, Elisa for HIV, and screening for VDRL.

RESULTS

Of 30 patients, the highest age incidence was between 20-30 years and most patients with cutaneous TB [Table 1].

Out of 30 cases studied, males were more commonly affected than females. There were 16 males, 12 females, and two male children who were included. Depending upon morphological features and histopathological features, 30 cases were typified, and of this, 14 cases had warty tuberculosis, 9 cases had lupus vulgaris, 2 cases had scrofuloderma, 2 cases had papulonecrotic tuberculid, 2 cases had erythema nodosum, and 1 was a case of lichen scrofulosorum [Table 2].

Patients with warty TB showed characteristic tuberculoid granulomas (11 cases) in the mid-dermis, and epidermal changes were present in 10 cases. Out of 9 cases of lupus vulgaris, epidermal changes were present in 4 cases, characteristic tuberculoid granulomas were present in 3 cases, and Langhans giant cells were present in 4 cases. Ziehl-Neelson stain was performed on all cases but could demonstrate AFB only in one case of scrofuloderma. AFB culture was done in 2 cases of scrofuloderma, and the result was negative in both cases. Chest x-ray findings consistent with tuberculosis were present in 10 cases. Of this, hilar adenitis was present in 3 cases, and apical opacity was present in 2 cases. Mantoux was present in all cases except one case of scrofuloderma, which may be due to anergy. In thirty cases studied, lymphadenopathy was present in 3 cases- tender matted lymphadenitis was present in 1 case of scrofuloderma, a case of warty TB over the right knee joint, and non-tender ipsilateral cervical lymphadenopathy was present in 1 case of lupus vulgaris involving right forearm. [Table 3].

Table 1: Age groups of the study

Age (years)	Number of cases (%)
< 10	1 (3.33%)
11 – 20	6 (20%)
21 - 30	8 (26%)
31 – 40	5 (16.66%)
41 – 50	4 (13.33%)
>50	6 (20%)

Table 2: Clinical types and gender of the study

	Number of cases (%)	Male	Female
Warty TB	14 (46.66%)	10	4
Lupus vulgaris	9 (30%)	4	5
Scrofuloderma	2 (6.66%)	1	1
Papulonecrotic tuberculid	2 (6.66%)	1	1
Lichen scrofulosorum	1 (3.33%)	1	-
Erythema nodosum	2 (6.66%)	-	2

Table 3: Distribution of involved sites of the study.

Anatomical site	Number of cases (%)
Face	5 (16.6%)
Trunk	3 (10%)
Limbs & buttocks	22 (73.3%)

DISCUSSION

Tuberculosis can involve any organ or tissue of the body, including the skin. Patients with cutaneous TB present with diverse forms ranging from single, smooth papules to disseminated, eruptive papules, verrucous or vegetative plaques, ulceration, and sinus tracts. Acute miliary TB occurs in patients with severe immunosuppression. Lupus vulgaris and scrofuloderma are seen in patients with less immunosuppression. Warty TB is a localized form seen in immunocompetent individuals.

In previous studies by Bannerjee, the incidence of lupus vulgaris was 38.29%, warty tuberculosis was 19.14%, scrofuloderma was 14.89%, and gumma was 12.76%. These results were consistent with Khan et al., who found lupus vulgaris the most common, followed by warty tuberculosis and scrofuloderma.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

Kumar and Muralidhar also found lupus vulgaris the most common form. Wong et al. found warty tuberculosis as the commonest form (46%), followed by lupus vulgaris (22%).

In our study, which included 30 cases, warty tuberculosis was the most common form (46.6%), followed by lupus vulgaris (30%). This correlated with the study by Wong et al. Men were more affected than women, and the incidence in males was 56.6% and in females was 43.3%. Warty TB was found to be common in males, the incidence being 33.3% and lupus vulgaris was found to be more common in females; the incidence was 16.6%, which is correlated with Kumar and Muralidhar et al.

In our study, out of 14 cases of warty TB, 78% of patients showed classical tuberculoid granulomas in the mid-dermis, and epidermal changes were present in 70%. Classic epidermal changes were present in 75% of patients with lupus vulgaris, and Langhans giant cells could be seen in 82% of cases. Amongst the 2 cases of scrofuloderma, one case showed ulceration with tuberculoid granulomas, and AFB could be demonstrated by special staining, and this picture was consistent with that described by Lever.

Other than the classical pattern of epitheloid granuloma, Langhans giant cells, and caseous necrosis, several other patterns have been described and should be examined. These patterns include abscess, diffuse infiltration of histiocytes, panniculitis, phlebitis, nonspecific chronic inflammation, naked non-necrotic sarcoid granuloma, and rheumatoid-like nodules. In our cases, panniculitis was present in 2 cases of erythema nodosum. There was a nonspecific histopathological picture in one case of scrofuloderma that showed chronic lymphohistiocytic infiltrate; Cruz and Strayer reported this in their study.

The most common site of involvement was the lower extremity. Wong et al. reported that knees and buttocks were the common sites involved in TBVC, like the studies by Kumar and Muralidhar. In our study, the 21 – 30 age group was the most affected, which was also noticed in studies by Sathyanarayanan and Wong.

There was no association with HIV infection in the cases studied. A history of pulmonary tuberculosis was present in 3 patients. Chest x-ray findings consistent with tuberculosis were present in 10 cases, and raised ESR and Mantoux positivity were present in almost all cases. Most cases belonged to a lower socioeconomic status; the increased risk was probably attributed to overcrowding, poor hygiene and malnutrition.

CONCLUSION

Warty tuberculosis was the most common type, followed by lupus vulgaris. There was an increased incidence of warty tuberculosis among males and lupus vulgaris among females. Most of the patients belonged to the 20-30 years age group. The clinicopathological correlation was present in all cases except one case of scrofuloderma. Most of the patients belonged to low socioeconomic status; the risk was probably due to overcrowding, poor hygiene and malnutrition.

REFERENCES

1. Moschella SL. Mycobacterial infections. In: Moschella SL, Hurley HJ, eds. Dermatology. 2nd ed. London: WB Saunders.
2. Bravo FG, Gotuzzo E. Cutaneous tuberculosis. Clin Dermatol. 2001;25:173-180.
3. Tuberculosis: A comprehensive clinical reference. In: Schaff HS, ed. Harrison's Principles of Internal Medicine. Mycobacterial diseases: Tuberculosis. Mario C. Ravigkone, Richard J. O'Brien. 1006–1023.
4. Lever WF, Schaumberg-Lever G. Histopathology of the skin. 7th ed. Philadelphia: Lippincott; 1990:326-32.
5. Beyt BE, Ortbals DW, Santa Cruz et al. Cutaneous mycobacteriosis: analysis of 34 cases with a new classification of the disease. Medicine. 1981;60:95-109.
6. Bannerjee BN. Tuberculosis of the skin and its relation to pulmonary tuberculosis. Indian J Dermatol. 1957;2:69–72.
7. Khan Y, Anwar J, Iqbal P, Kumar A. Cutaneous Tuberculosis: A study of ten cases. J Pak Assoc Dermatol. 2001;11:6–10.
8. Kumar B, Muralidhar S. Cutaneous tuberculosis: a twenty-year prospective study. Int J Tuberc Lung Dis. 1999;3:494–500. PMID: 10383062.
9. Wong KO, Lee KP, Chiu SF. Tuberculosis of the skin in Hong Kong (a review of 160 cases). Br J Dermatol. 1968;80:424–9. https://doi.org/10.1111/j.1365-2133.1968.tb11977.x.
10. Lever WF, Schaumburg-Lever G. Histopathology of the skin. 7th ed. Philadelphia: Lippincott Company; 1990.
11. Cruz S, Strayer DJ. The histologic spectrum of the cutaneous mycobacterioses. Human Pathology. 1982;13:485–95. https://doi.org/10.1016/S0046-8177(82)80032-4.
12. Satyanarayana BV. Tuberculoderma: A Brief Review Together with Statistical Analysis and Observations. Indian J Dermatol. 1963;29. https://ijdvl.com/content/126/1963/29/1/Images/ijdvl_1963_29_1_25_1715.pdf.

ISSN (O): 2687-5365; ISSN (P): 2753-6556