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Original Research Article.

Variant Cutaneous Manifestations of Extra Pulmonary Tuberculosis

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ABSTRACT

Background: Ulcers and surgical wounds not healing well and expectedly are common problems among patients in countries like us. Ulcers may develop spontaneously or following a penetrating injury. Wounds not healing well are common among poor, lower middle class and middle class people. Postsurgical non-healing wound or chronic discharging sinuses at the scar site are also common in that class of people. Suspecting malignancy or tuberculosis in these types of wounds we have sent wedge or excision biopsy for these ulcers in about 500 cases and found tuberculosis in 65 cases. In rest of the cases histopathology reports found as non-specific ulcers, malignant melanoma, squamous or basal cell carcinoma, Verruca vulgaris.

Objectives: To find out the relationship of tuberculosis with chronic or nonhealing ulcers.

Methods: This is a prospective observational study conducted for patients coming to our chambers, OPD of a district general hospital and Shaheed Suhrawardy Medical College Hospital, Dhaka.

Results: Mean age of the study subjects were 28±2. Among the study subjects nonspecific ulcer or sinus tracts were found in 418 (83.6%), tuberculosis in 65 (13%), Malignant melanoma 7 (1.4%), Verruca vulgaris 5 (1%), squamous cell carcinoma 3(0.6), basal cell carcinoma 2 (0.4%). Biopsy done only for very suspicious ulcers or wounds.

Conclusion: With this very small sample size it is difficult to conclude regarding incidence of cutaneous involvement of extra pulmonary tuberculosis, but every clinician should think of it in case of suspicious non healing wounds, ulcers and prolonged discharge from a surgical incision site.

Key words: Cutaneous Manifestation, Extrapulmonary Involvement, Tuberculosis.

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INTRODUCTION

Cutaneous tuberculosis occurs very rarely despite a high and increasing prevalence of tuberculosis worldwide. Mycobacterium tuberculosis, Mycobacterium bovis and the Bacille Calmette Guerin vaccine can cause tuberculosis involving the skin. Cutaneous tuberculosis can be acquired exogenously or endogenously and presents as a multitude of differing clinical morphologies. Diagnosis of these lesions can be difficult as they resemble many other dermatological conditions that are often primary considerations. Extra pulmonary TB constitutes approximately 10% of all case of TB and is on the rise due to compromised host immunity.[1-3]

A more accurate classification of CTB includes inoculation tuberculosis, tuberculosis from an endogenous source and haematogenous tuberculosis. There is furthermore a definite distinction between true CTB caused by Mycobacterium tuberculosis and CTB caused by atypical mycobacterium species. The lesions caused by mycobacterium species vary from small papules (e.g. primary inoculation tuberculosis) and warty lesions (e.g. tuberculosis verrucosacutis) to massive ulcers (Buruli ulcer) and plaques (Lupus vulgaris) that can be highly deformative. Presently cutaneous TB is rare and makes up only 0.1 to 1.5% of all new cases worldwide but in high prevalent settings can be upto 2.5%.[4-7]

Atukorala et al presented a case series of 15 patients of whom twelve had lupus vulgaris and three had scrofuloderma.[8]

Vyravanathan et al reported five cases of scrofuloderma over the sternum.[9] De Siva et al reported a case of erythema induratum in a patient with active endometrial tuberculosis.[10] Those studies were done in Sri Lanka. There climate is like our country and incidence of TB is almost same as our country.

OBJECTIVES

To find out the relationship of tuberculosis with chronic or nonhealing ulcers.

METHODS

This is a prospective observational study conducted for patients coming to our chambers, OPD of a district general hospital and Shaheed Suhrawardy Medical College Hospital, Dhaka.

RESULTS

Individuals between 31 to 40 year were mostly affected. Some of the ulcers clinically suggestive of squamous cell carcinoma, basal cell carcinoma, Marjolin's ulcer and malignant melanoma and proved histologically were not included in our study. We included only suspicious delayed healing ulcers.

TB infection commonly found in Caesarean section wound.

Table 1: Age distribution

Age (in years)	n	%
20-30	15	23
31-40	20	30.7
41-50	16	24.6
51-60	4	6.15
61-70	7	10.7
71-80	3	4.6

Table 2: Histopathology findings

Histopathology	n	%
Nonspecific ulcer	418	83.6
Tuberculosis	65	13
Malignant melanoma	7	1.4
Verruca vulgaris	5	1
Squamous cell carcinoma	3	0.6
Basal cell carcinoma	2	0.4

Table 3: Tubercular involvement

Site	n	%
Caesarean section site	20	30.7
Laparoscopic umbilical port	6	9.23
Laparoscopic epigastric port	2	3.07
Cheek	2	3.07
Sole of the foot	4	6.15
Buttock	5	7.69
Perianal sinus	2	3.07
Back	7	10.76
Finger	3	4.61
Forearm	6	9.22
Arm	2	3.07
Over shin of tibia	5	7.69

Table 4: Classification of cutaneous tuberculosis

Bacteria load	Mechanism of propagation	Disease form
Multi-bacillary	Direct inoculation Contiguous infection Hematogenous dissemination	1. Primary inoculation TB (chancre) 2. Scrofuloderma 3. Tuberculous periorificialis 4. Acute military TB 5. Gumma (cold abscess)
Pauci-bacillary	Direct Inoculation Hematogenous dissemination Tuberculids	1. Verruca cutis 2. Lupus vulgaris(acral) 3. Lupus vulgaris (facial or multiple) 4. Lichen scrofulosorum 5. Erythema induratum of Bazin 6. Erythema nodosum

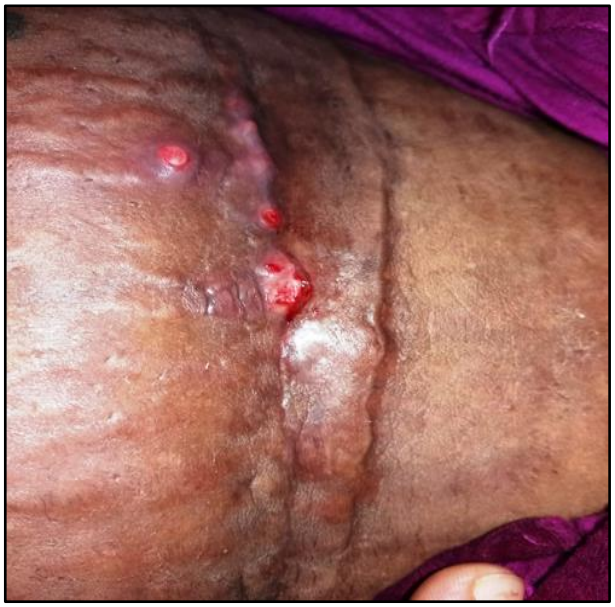

Figure 1: Post CS

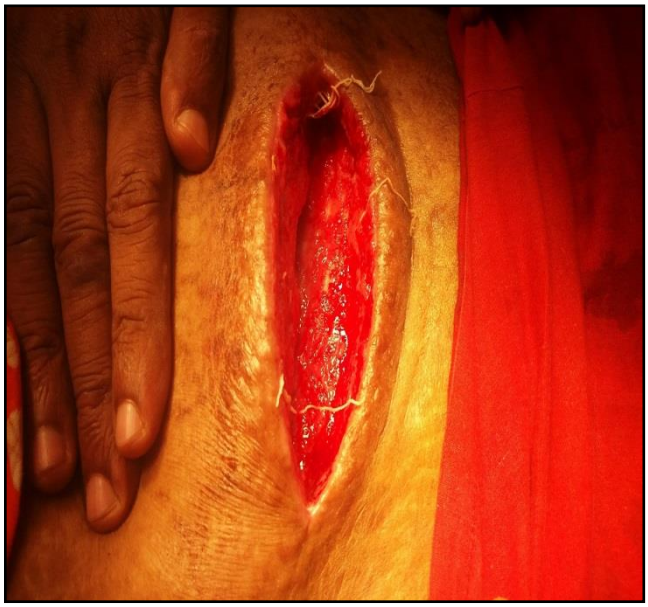

Figure 2:Post Hysterectomy

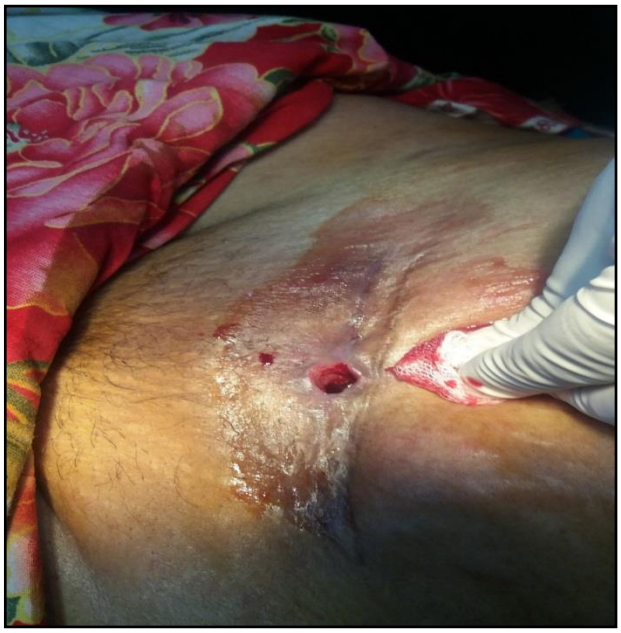

Figure 3: Post CS

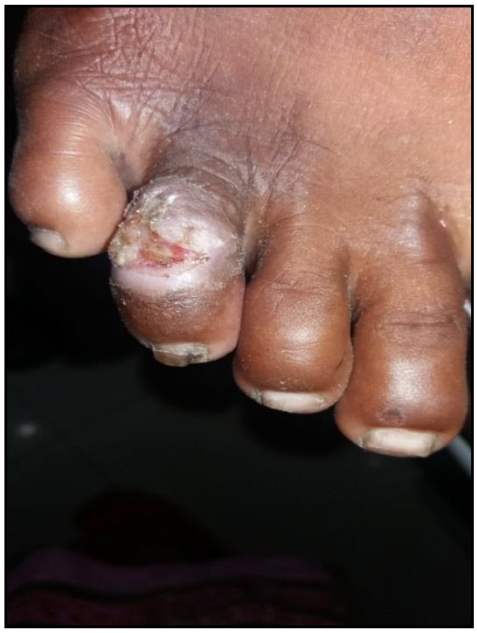

Figure 4: Lupus Vulgaris

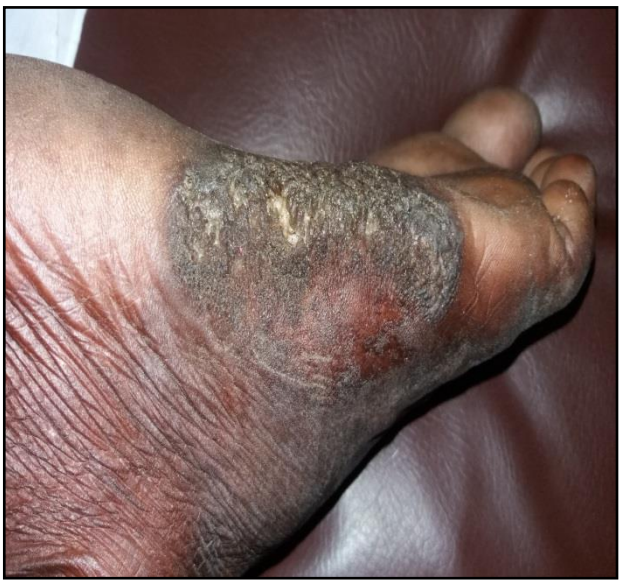

Figure 5: TB Gumma

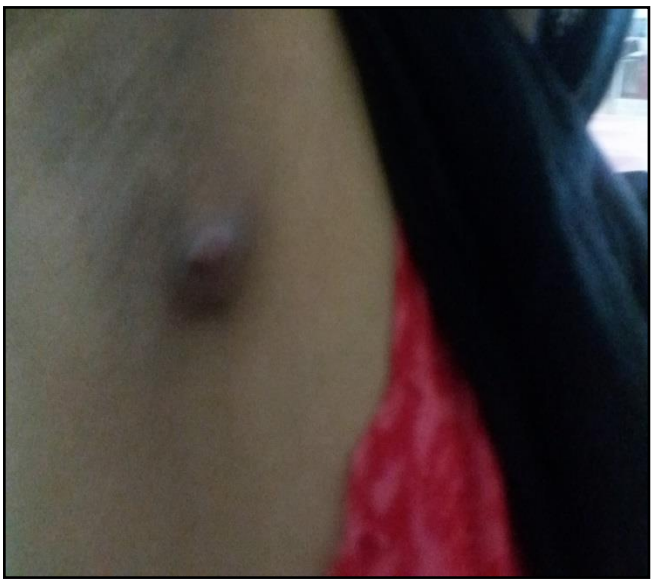

Figure 6: Cold Abscess

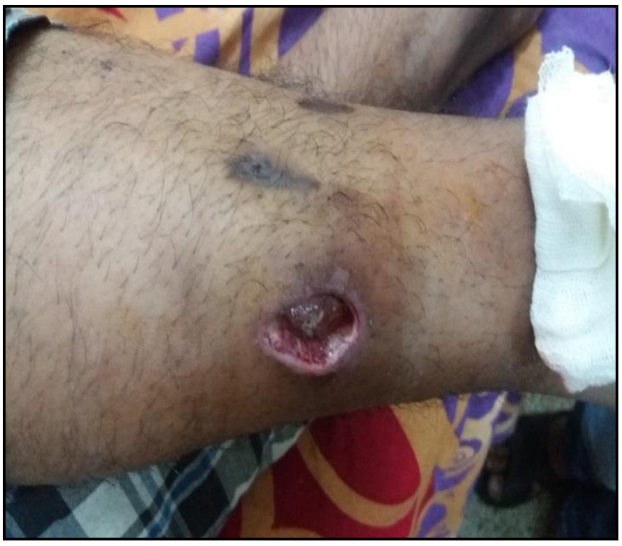

Figure 7: Post Traumatic TB Infection

CLASSIFICATION AND CLINICAL VARIANTS

The most widely accepted classification system for cutaneous TB is based on the mechanism of propagation. The concept of bacterial load has been added to the classification (Table IV), where in multi bacillary forms, direct visualization of Ziehl-Nielson stained organism from skin biopsy is readily possible.[11-14] Tuberculids are symmetric generalized exanthems in the skin of patients, possibly resulting from hypersensitivity reaction to tubercle bacillus.

MULTIBACILLARY FORMS

Primary-inoculation TB (Tuberculous chancre)

Primary-inoculation TB results from direct introduction of mycobacteria into the skin or mucosa of an individual who was not previously infected with TB.

Scrofuloderma

Scrofuloderma is the result of continuous propagation of infection to involve the skin from an underlying structure, most commonly a lymph node, bone or joint and is the most common form of cutaneous TB in many series. Primarily affected areas are the neck, axillae, chest wall and groin.

Tuberculosis periorificialis

Periorificial TB results from autoinoculation of mycobacteria into the periorificial skin and mucous membrane in patients with advanced TB. In perioral TB primary site is usually upper airways or lungs, while perineal TB is secondary to intestinal or genitourinary disease.

Acute military tuberculosis

Acute military TB variant is usually seen in children and adolescents with advanced pulmonary or disseminated TB. The trunk is the most common location, where small erythematous macules or papules develop. Tuberculin test may be negative.

Tuberculousgumma

Gummas are cold abscesses that will develop at extremities or on the trunk as a result of haematogenous spread from dormant mycobacteria in patients without underlying disease.

PAUCIBACILLARY FORMS

Tuberculosis verrucosa cutis

Verrucous TB results from reinoculation of mycobacteria in an individual with previous exposure and is characterized by the presence of a solitary, verrucosae plaque, usually on an extremity such as the hand and the foot.

Lupus vulgaris

This is the most common form of cutaneous TB in many parts of the world with a female preponderance of 2-3:1. Facial lesions usually follow haematogenous spread, while direct inoculation is responsible for many lesions in extremities. Lupus vulgaris may also follow direct extension or lymphatic spread from underlying tuberculous foci, BCG vaccination or scrofuloderma. Head and neck is involved in more than 90% of cases. Characteristically lesions are solitary, small, sharply marginated, red-brown papules or gelatinous consistency. Other than the plaque form, ulcerative, vegetative and nodular forms of lupus vulgaris have been described.

Tuberculids

Tuberculids were once regarded as purely hypersensitivity reactions to the presence of mycobacteria in the host with an acquired immunity against TB. Morphological variants of tuberculids are erythema induratum of Bazin, papulonecrotic tuberculid. Lichen scrofulosorum and other related conditions such as granulomatous mastitis and lupus miliaris disseminatus facial. Now it is thought as hematogenous spread as mycobacterial DNA is found in it.[15] Erythema induratum of Bazin is most common tuberculid, it affects legs of females and can cause scarring. It may occur with active or past disease.[16]

DIAGNOSIS AND TREATMENT

A clinical diagnosis of skin tuberculosis should always be confirmed with biopsy. A strongly positive Mantoux reaction of over 15 mm is considered of diagnostic value, while negative result does not exclude the diagnosis. When available ELISA or PCR is helpful.[17] However since too strict diagnostic microbiological criteria may result in under-diagnosis, therapeutic trials need to be considered in areas of high TB prevalence.[18]

As per the protocol for any case of extrapulmonary TB, all patients with skin TB should be thoroughly screened for associated pulmonary TB, with chest X-rays in all and sputum studies when relevant. Contact tracing is important in containing diseases in children who are generally exposed to a small population only.

Management of skin TB depends on individual's previous TB status. Primary skin TB is considered less severe and category 1 regiment of anti-tubercular therapy should be stated. This comprises the standard six month regimen with a two-month intensive phase including isoniazid, rifampicin, pyrazinamide and ethambutol and a four-month continuation phase including isoniazid and rifampicin. In patients with past TB, category II regimen should be considered for treatment of skin TB. This consists of a three months intensive phase, where injectable streptomycin should be added for the first two months in addition to the standard to the standard four drugs. Continuation phase is also prolonged to five months. When treating children the dosage of medication should be calculated according to body weight and ethambutol preferable not given for the very young. A lower dosage regimen is considered for adults with a body weight below 30 kilograms and hepatic or renal disease, While a higher dose given for adults over 50 kilograms.[19-21]

Response to anti TB drugs depends on the types of skin TB and extent of involvement. The commonest forms, lupus vulgaris and scrofuloderma generally show a good response to medical management. A clinical response is generally detected between 4-6 weeks of treatment, but a prolonged course is required for

improvement of skin condition when present with coexisting miliary or disseminated disease or TB meningitis. Failure to respond to adequate therapy should raise the possibility of drug resistance, where the patient should be managed in a specialized centre with second line therapy.[22,23]

All patients with ATT should be frequently monitored for major and minor adverse effects, including impairment of color vision, drug induced hepatitis or cholestasis and thrombochtopenia.[21,24]

Surgical options such as electosurgery, cryosurgery and curettage with electro-desiccation are occasionally required for hypertrophic and verrucous forms of lupus vulgaris and TB verrucosa cutis. Reconstructive surgery may be needed for disfiguring lesions.

DISCUSSION

A high prevalence of extrapulmonary TB is an indication of poor TB control in a community and early recognition, prompt treatment and effective contact tracing of all TB cases is mandatory to contain the disease. A good understanding of different presentations of TB is essential for all clinicians practicing in high prevalent settings to achieve both national and global TB prevention targets. Skin TB remains to be one of the most elusive and difficult diagnoses to make for clinicians practicing in developing countries, not only because they have to consider a wider range of differential diagnoses such as leishmaniasis, leprosy, actinomycosis, skin cancer and deep fungal infections, but also because of the difficulty in obtaining a microbiological confirmation. Despite all the advances in microbiology, including sophisticated techniques such as polymerase chain reaction, the sensitivity of new methods are no better than the gold standard that is the isolation of organisms in culture and histopathology. Therefore even now sometimes we have to rely on old method of Mantaux test and therapeutic trials. This diagnostic difficulties may lead to serious case underreporting in low resource setting which will obscure the true disease burden of the country.

REFERENCES

1. World health organization. Global tuberculosis control. WHO report 2010.(WHO/HTM/TB/2010.7)
2. World health organization. Trends in tuberculosis incidence and their determinants in 134 countries. WHO bulletin 2009;87:683-91.
3. Sharma SK, Mohan A. Extrapulmonary tuberculosis. Indian J Med Res 2004;120: 316-53.
4. Bravo FG, Gotuzzo E. Cutaneous tuberculosis. Clinical Dermatology 2001; 25(2): 173-80.
5. Kumar B, Rai R, Kaur I, Sahoo B. Murlidhar S. Radotra BD. Childhood cutaneous tuberculosis: a study over 25 years from northern India. Int J Dermatol 2001;40:26-32.
6. Ho CK, Ho MH, Chong LY. Cutaneous tuberculosis in Hong Kong: an update. Hong Kong Med J2006; 12(4): 272-7.
7. Hamada M, Urabe K, Moroi Y, Miyazaki M, Furue M. Epidemiology of cutaneous tuberculosis in Japan: a retrospective study from 1906 to 2002. Int J Dermatol 2004; 43: 727-31.
8. Atukorala DN, Amarasekera LR. Tuberculosis of the skin in Sri Lanka. Cey Med J 1988; 33(3): 97-100.
9. Vyravanathan S, Nadarajah N. Tuberculosis of the skin over the sternum, Jaffna Medical Journal 1981;16:22-3.
10. De Silva HJ, Goonetilleke AK, De Silve NR, Amarasekera LR, Jayawickrama US Erythema induraturatum(ofBazin) in a patient with endometrial tuberculosis. Postgrad Med J 1988;64:242-4.
11. Gawkrodger DJ. Mycobacterial infections. In: Champion RH, Burton JL, Ebling FJG eds. Text Book of Dermatology 6th ed. London; Blackwell Scientific Publications 1998;2:1181-1214.
12. Tappeiner G, Wolff KD. Tuberculosis and other mycobacterial Infections. In: Fitzpatrick TB. Eisen Az, Wolff KD et al, eds. Dermatology in General Medicine 4th ed. McGraw Hill, Inc, New York 1993:237-94.
13. BeytJr BE, Ortbais DW, Santa Cruz DJ, Kobayashi GS, Eisen AZ, et al. Cutaneous mycobacteriosis: analysis of 34 cases with a new classification of the disease. Medicine (Baltimore) 1981;60:95-109.
14. Tigoulet F, Foumier V, Caumes E, Clinical forms of the cutaneous tuberculosis. Bulletin Soc Pathol Exot 2003;96:362-7
15. Tan SH, Tan BH, Goh CL, et al. Detection of Mycobacterium tuberculosis DNA using polymerase chain reaction in cutaneous tuberculosis and tuberculids. Int J Dermatol1999;38:122-7.
16. Schneider JW, Jordan HF, Gelger DH, et al. 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 Dermatopatho 1995;17(4):350-6.
17. Barbagallo J, Tager P, Ingleton R, et al. Cutaneous tuberculosis: diagnosis and treatment. Am J Clin Dermatol 2002;3(5):319-28.
18. Sehgal V, Sardana K, Sehgal R, Sharma S, The use of anti tubercular therapy as a diagnostic tool in pediatric cutaneous tuberculosis. Int J Dermatol2005;44:1-3.
19. World health organization. Treatment of tuberculosis: guidelines (4th edition). WHO publication 2010. (WHO/HTM/TB/20099.420)
20. Handog EB, Gabriel TG, Pineda RT, Management of cutaneous tuberculosis. Dermatol ther2008;21(3):154-61
21. National programme for tuberculosis control and chest diseases. General maual for tuberculosis control. 2nd ed. Ministry of health, Sri Lanka: 2005.
22. Ramam M, Mittal R, Ramesh V. How soon does cutaneous tuberculosis respond to treatment? Implications for a therapeutic test of diagnosis.IntDermatol205; 44(2):121-4.
23. Nanda S, Rajpal M, Reddy BS. Multidrug-resistant cutaneous tuberculosis: response to therapy. PediatrDermatol2003;20:545-7.
24. Yee D, Valequette C, Pelletier M, Parisien I, Rocher I. Menzies D. Incidence of serious side effects from first-line antituberculosis drugs among patients treated for active tuberculosis. Amer J Respi Crit Care Med 2003;167: 1472-77.

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