

Original Research Article

Various presentations of cutaneous tuberculosis at a tertiary care centre: a one year prospective study

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ABSTRACT

Background: Cutaneous tuberculosis is a rare manifestation of tuberculosis accounting for about 1.5% of all the extra pulmonary manifestations, though the prevalence of pulmonary tuberculosis is high in India. The aim of the study was to prospectively analyze the various clinical presentations of cutaneous TB and their age and sex distribution among the OPD attending patients over a period of one year.

Methods: Prospective study, conducted during July 2016 to June 2017. Clinically suspected cases of cutaneous tuberculosis were subjected to lesional biopsy and the results obtained were analyzed.

Results: Out of 36 clinically suspected cases, 24 turned out to be cutaneous tuberculosis and apart from these, 5 cases were referred from other departments as cutaneous tuberculosis. The predominant presentation was lupus vulgaris in 12 patients, followed by tuberculous verrucosa cutis in 8 cases, tuberculous ulcers in 3 cases and the remaining 2 cases were erythema induratum of Bazin. Among them, 13 were men accounting to about 52% and 7 were children which accounted for 28% and the remaining 5 were women which added to 20%.

Conclusions: Though the cutaneous manifestations of tuberculosis is very rare, the recent years have shown a rising incidence especially among children and therefore requires a high index of suspicion in them since India has very high prevalence of tuberculosis as such.

Keywords: Cutaneous tuberculosis, Lupus vulgaris, Children

INTRODUCTION

Cutaneous tuberculosis is a relatively rare presentation of tuberculosis with varied manifestations.¹ In developing countries like India since the incidence of tuberculosis is very high, the number of cutaneous tuberculosis cases are significant. It accounts for about 1.5% of all the extra pulmonary manifestations. It can occur via direct inoculation of the bacteria into skin or through contiguous spread, autoinoculation and haematogenous spread. The wide clinical spectrum of cutaneous tuberculosis is dependent on the route of infection (endogenous or exogenous), the immune status of the

patient and whether or not there has been previous sensitization with tuberculosis. Endogenous infection is the most common route and exogenous is very rare. *M. tuberculosis* is the main organism responsible for cutaneous tuberculosis. Occasionally *M. bovis* and, rarely, Bacille Calmette–Guérin (BCG), an attenuated form of *M. bovis*, are implicated. There has been a recent surge in the incidence of cutaneous tuberculosis which can be attributed to the early, better and accurate diagnosis of cutaneous tuberculosis.² In urban areas, the increased co infection with HIV and social risk factors seem to have a role in this rise.^{3,4} A current problem is that even standard presentations may be overlooked

through lack of familiarity with the various patterns that may occur. Hence a proper knowledge about the various manifestations of tuberculosis and a degree of suspicion is always needed for early diagnosis of cutaneous tuberculosis.

Aims

The aim of the study was to prospectively analyze the,

- Various presentations of cutaneous tuberculosis which have been proved by histopathology.
- Age and sex distribution of those proven cutaneous TB cases.

METHODS

Among the patients who attended the Dermatology outpatient department, Stanley Medical College, Chennai, patients who were clinically suspected to have cutaneous tuberculosis were subjected to lesional biopsy and the results were obtained during a period of one year from July 2016 to June 2017. From these biopsy proven cases, the various clinical presentations of cutaneous tuberculosis and their age and sex distribution were analyzed.

Inclusion criteria

Inclusion criteria were patients with clinical suspicion of cutaneous TB; patients willing for biopsy; both sex; age <70 years.

Exclusion criteria

Exclusion criteria were patients not willing for biopsy; patients >70 years.

Statistical analysis

Data were analyzed using SPSS and for count data frequencies were calculated.

RESULTS

Among the patients attending outpatient Department of Dermatology, 36 were clinically suspected to have cutaneous tuberculosis, out of which 24 turned out to be cutaneous tuberculosis histopathologically. Apart from these, 5 cases proven by histopathology as cutaneous tuberculosis were referred from other departments to Department of Dermatology.

Among these 29 biopsy proven cases, the predominant one was lupus vulgaris, found in 12 patients accounting to 41% of the cases, followed by tuberculous verrucosa cutis occurring in 9 patients (31%) and tuberculous ulcers occurring in 4 cases (14%) and the remaining 4 cases were erythema induratum of Bazin (14%) (Figure 1).

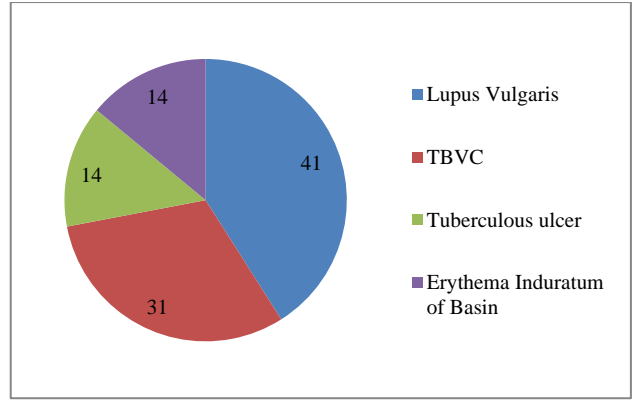


Figure 1: Incidence of various clinical types of cutaneous tuberculosis.

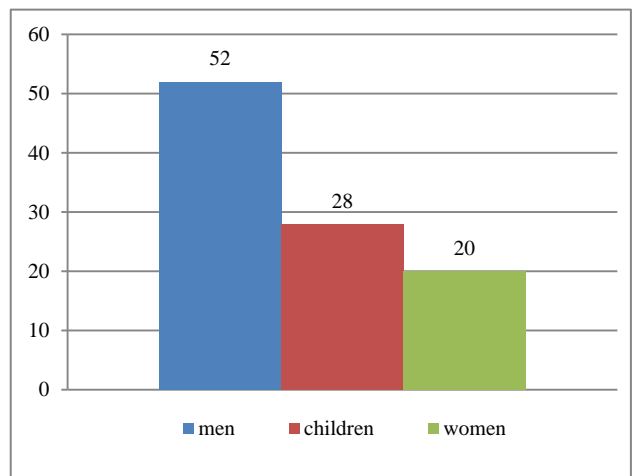


Figure 2: Gender distribution of cutaneous tuberculosis in our study.

Among these 29 cases, 15 were men accounting to 52% and 6 were women who accounted for 20% and the remaining 8 were children which added to 28% (Figure 2).



Figure 3: Lupus vulgaris in a child.



Figure 4: Tuberculous verrucosa cutis.

DISCUSSION

The incidence of the different forms of cutaneous tuberculosis varies globally. Primary inoculation of the skin, usually following trauma, produces a tuberculous chancre in the non-immune host, whereas the so-called 'prosector's wart', or tuberculous verrucosa cutis, occurs in primary infection in the immune host.³ Lupus vulgaris occurs mainly through haematogenous, lymphatic or contiguous spread but can occur following inoculation. Scrofuloderma results from contiguous involvement of the skin overlying tuberculosis in a deeper structure, most commonly lymphadenitis, bone or joint disease, or epididymitis. Metastatic tuberculous abscesses (tuberculous gumma) can occur due to haematogenous spread from a primary focus. This usually occurs when host resistance is suppressed, can be part of miliary tuberculosis, and results in single or multiple lesions. Orificial, perioral or perianal tuberculosis can occur following ingestion of mycobacteria from either swallowed respiratory secretions or from milk contaminated with *M. bovis*.⁴

However, with increasing number of cases in immunocompromised individuals and improved diagnostic tools, many uncharacteristic manifestations have been discovered recently. Though it is generally considered that the incidence of cutaneous tuberculosis is very less, in tropical countries like India it is found in significant numbers.⁵

In our study there were totally 29 cases of biopsy proven tuberculosis over a period of one year which was higher than in the study conducted by Kumar Bhushan, where a total of 66 cases in a period of four years were diagnosed.⁶

Among the various presentations of cutaneous tuberculosis the most common one in our study was lupus vulgaris accounting to 41% of the total cases and TBVC was seen in 31% of the cases (Figure 3 and 4). Whereas in the study conducted by Kumar et al and Neeraj et al, the commonest presentation was lupus vulgaris, which

was seen in 81.8% and 55% of the cases respectively, which was higher compared to our study and also TBVC was found only in 9.1% and 5% respectively of cases which was very less compared to our study.^{6,7} Similarly, in studies by Singh Gurmohan and Varadaraj et al lupus vulgaris was the most common presentation.^{8,9} The incidence of scrofuloderma was 0% in our study whereas in Kumar et al and Neeraj et al study, it was 21.2% and 25% respectively.^{6,7}

The tuberculids are thought to be the result of immunological reactions to hematogenously spread antigenic components of *M. tuberculosis*, usually occurring in individuals with high levels of immunity, with an extracutaneous source of *M. tuberculosis*. The three forms of tuberculids are lichen scrofulosorum, papulonecrotic tuberculid and erythema induratum of basin.¹⁰ Among tuberculids, erythema induratum of basin was seen in four cases and no cases of papulonecrotic tuberculid and lichen scrofulosorum were reported whereas in Kumar Bhushan study among the 6 tuberculid cases, 3 were erythema induratum of basin, 2 were papulonecrotic tuberculid and one was lichen scrofulosorum.

The predominant sex affected by cutaneous tuberculosis is men which may be attributed to their frequent outdoor exposures and other environmental and social factors but in recent times the increasing incidence in women and children is also being emphasized greatly.⁸ Among the total cases, 52% were men and 20% were women and 28% were children below 14 years of age (Figure 2). Similar male predominance was noted in studies by Kumar et al and Pai et al.^{6,9} Among children the predominant presentation was lupus vulgaris in our study which varies from the study by Singal et al where scrofuloderma was the predominant presentation.¹¹ Children may acquire tuberculosis accidentally by playing or sitting on the ground contaminated by tuberculous sputum or other discharges and living in overcrowded dwellings.¹² Children are also more likely to have an underlying systemic involvement compared to adults.

Clinical assessment of lymph nodes, pulmonary and gastrointestinal system, nervous system, eyes and musculoskeletal system should be performed to rule out any systemic involvement. So a multispecialty approach is needed once a case of tuberculosis is diagnosed. All newly diagnosed cases of cutaneous tuberculosis must be treated as extrapulmonary tuberculosis and started on category - 1 anti tuberculosis therapy and followed up regularly.

CONCLUSION

Though the cutaneous manifestations of tuberculosis is very rare, the recent years have shown a rising incidence especially among children and therefore requires a high index of suspicion in them since India has a very high

prevalence of tuberculosis as such. A proper diagnostic approach along with timely starting of anti-tuberculous therapy can help in bringing down the burden of this disease in resource poor countries where tuberculosis is found to have a heavy toll on life.

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Ethical approval: The study was approved by the institutional ethics committee

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