

Lupus Vulgaris of Elbow – A Case Report

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Abstract: Skin is the largest organ of the body and it is direct contact with external environment so many infectious agents invade the skin and causes much disease. Lupus vulgaris is the most common form of cutaneous tuberculosis in adults. A chronic, progressive, post-primary, paucibacillary form of cutaneous tuberculosis, occurring in a person with a moderate or high degree of immunity. The characteristic lesion is a plaque, composed of soft, reddish-brown papules, the appearance on diascopy being said to resemble apple jelly. Lupus vulgaris originates from an underlying focus of tuberculosis, typically in a bone, joint or lymph node, and arises by either contiguous extension of the disease from underlying affected tissue or by haematogenous or lymphatic spread. Sometimes the underlying focus is not clinically apparent, and in such cases reactivation of a latent cutaneous focus secondary to previous silent bacteraemia is postulated. Microscopically it is characterized by tubercles with scanty or absent central caseation, surrounded by epithelioid histiocytes and multinucleate giant cells, which are present in the superficial dermis with prominent peripheral lymphocytes.

We reported a case of lupus vulgaris in a 22 year old female who presented with single plaque at elbow. Histopathological features of skin biopsy from plaque shows multiple non caseating granuloma suggestive of lupus vulgaris.

Keywords: Lupus Vulgaris, Non Caseating Granuloma, Skin.

I. INTRODUCTION

Lupus vulgaris was the most common form of tuberculosis in adults in published series from India and South Africa^{1,2,3}. The condition appears to be more common in women than men. Until recently tuberculosis was considered to be a diminishing clinical problem in industrialized nations while remaining a dominant public health problem in resource-poor countries. However, there is a global resurgence of tuberculosis because of a combination of factors, including immigration from endemic countries (particularly in Asia and Africa), increased movement of refugees, the HIV pandemic, and poverty⁴. As a result, cutaneous tuberculosis remains a clinical and diagnostic problem^{5,6}. Infection of the skin and subcutis by *M. tuberculosis* occurs by three routes:

- (a) By direct inoculation into the skin (causing a primary chancre, or tuberculosis verrucosa cutis, or tuberculosis cutis orificialis lesions)
- (b) By hematogenous spread from an internal lesion (causing lupus vulgaris, military tuberculosis, and tuberculous gumma lesions); and
- (c) From an underlying tuberculous lymph node by direct extension (causing scrofuloderma). Sometimes the underlying focus is not clinically apparent, and in such cases reactivation of a latent cutaneous focus secondary to previous silent bacteraemia is postulated⁷.

Lupus vulgaris is typically a paucibacillary form of cutaneous tuberculosis, which often makes successful culture difficult. AFB staining is usually negative.

II. CASE REPORT

A 22 year old female present to skin OPD with the complaints of a single plaque at the left elbow. She has notice initial lesion is a small, reddish-brown, flat plaque. On examination plaque is 2x2 cm in size and red brown in colour and soft in consistency. The lesion was elevated, infiltrated and brown in colour with peripheral extension to become discoid in shape

with areas of atrophy. On clinical ground oriental sore or lupus vulgaris were suspected. She has no history of pulmonary tuberculosis or long term drug history.

Routine investigation of patient was normal except microcytic hypochromic anaemia and lymphocytosis, x ray chest was unremarkable. Skin biopsy was taken and sent for histopathological examination to our department.

Gross examination– single grey white soft tissue piece measuring 0.5x0.5cm along with skin attached on one side.

Microscopy – Section shows epidermis and dermis. Epidermis shows ulceration at places with thinning of lining. Dermis shows varying size of multiple granulomas with absent central caseation, surrounded by epithelioid, histiocytes and lymphocytes with interspersed multinucleate giant cells which are present in the superficial dermis (Figure-1,2). Epithelioid cells are elongated, spindle shaped with vesicular chromatin and prominent nucleoli (Figure -3). The giant cells are of the Langhans type with peripheral and irregular arrangement of the nuclei (Figure -4). Dermal appendages are lost or lysed by granuloma.

AFB staining of section was negative.

On clinical and histopathological examination a diagnosis of lupus vulgaris was offered.

III. FIGURE WITH LEGENDS

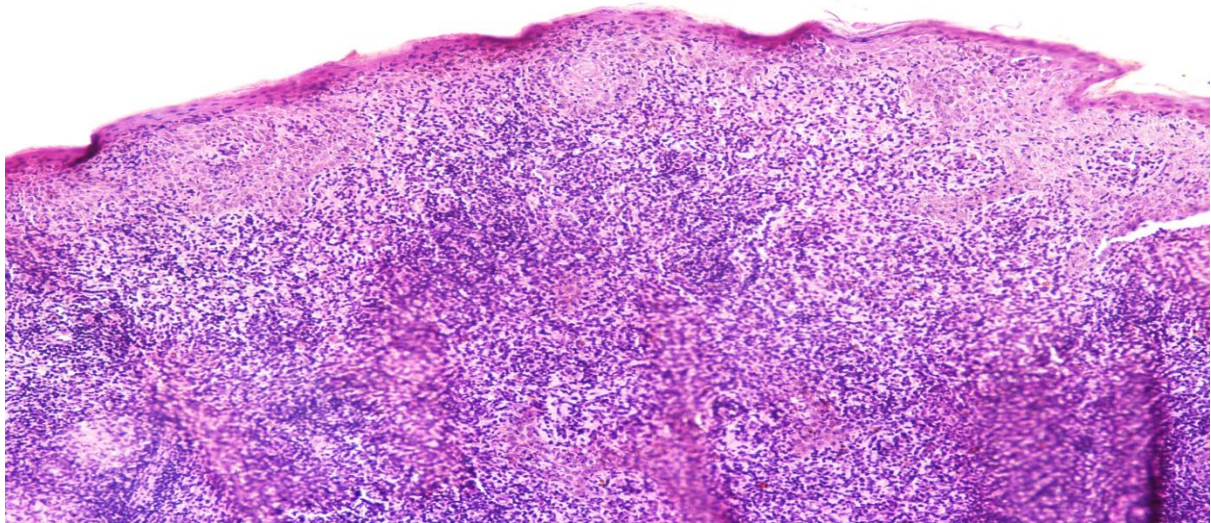


Figure 1 – section shows multiple non caseating granulomas in dermis with thinning of epidermis (H&E Low Power)

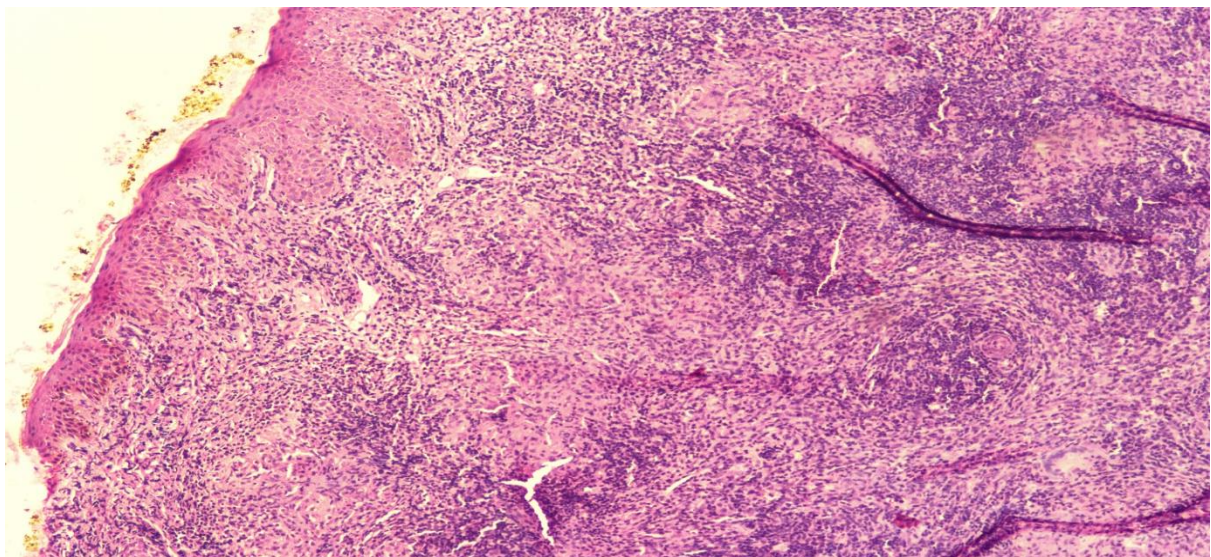


Figure 2- section shows thin layer of epidermis and multiple non caseating granulomas formed by epithelioid cells lymphocytes and langhan's giant cells in dermis. (H&E, Low Power)

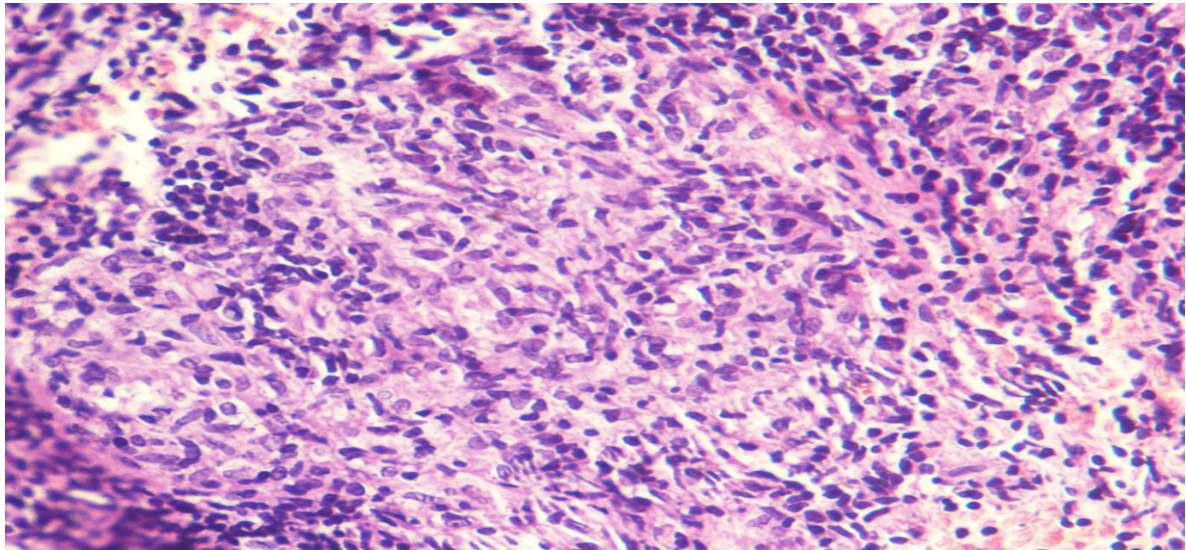


Figure 3- shows cluster of epithelioid cells surrounded by lymphocytes present in dermis. (H&E, High Power)

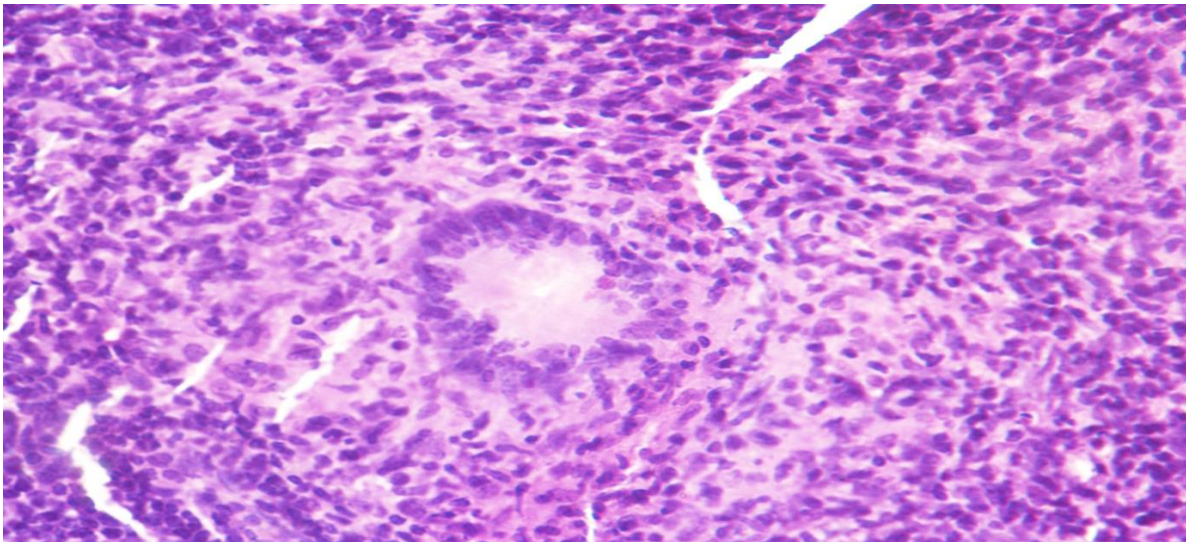


Figure 4- shows langhan's type giant cells (H&E, High Power).

IV. DISCUSSION

Tuberculosis (TB) is caused by bacteria (*Mycobacterium tuberculosis*) that most often affect the lungs³. TB occurs in every part of the world. In 2013, the largest number of new TB cases occurred in the South-East Asia and Western Pacific Regions, accounting for 56% of new cases globally. However, Africa carried the greatest proportion of new cases per population with 280 cases per 100 000 population in 2013.³ Cutaneous tuberculosis continues to be an important public health problem even with the availability of highly effective anti-tuberculous drugs. It constitutes 0.1% of all cases of extrapulmonary tuberculosis.

Lupus vulgaris is an extremely chronic, progressive form of cutaneous tuberculosis. The lesions of lupus vulgaris are usually found on the head or neck. The skin of and around the nose is frequently involved⁸. The lesions consist of one or a few well demarcated, reddish-brown patches containing deep-seated nodules, each about 1 mm in diameter. If the blood is pressed out of the skin with a glass slide, these nodules stand out clearly as yellow-brown macules, referred to, because of their colour, as apple-jelly nodules. The disease is very chronic, with slow, peripheral extension of the lesions. Over time, the affected areas become atrophic, with contraction of the tissue.

It is a characteristic feature of lupus vulgaris that new lesions may appear in areas of atrophy. Superficial ulceration or verrucous thickening of the skin occurs occasionally. Squamous cell carcinoma develops at the margins of ulcers in instances.

Occasionally, tubercle bacilli may be numerous⁹ more often, but they are hard to demonstrate.

Lupus vulgaris commonly appears in normal skin as a solitary lesion, although it can arise at the site of a primary inoculation such as after a tattoo⁷, in the scar of scrofuloderma or at the site of a BCG vaccination¹⁰. In India, the face is affected less often and the buttocks and trunk more frequently¹¹.

.There is usually only a single lesion, except in disseminated forms, which usually occur in association with active pulmonary

Tuberculosis¹². Sporotrichoid-like spread has also been reported¹³.

The many clinical forms fall into five general patterns, depending on the local tissue response to the infection, but atypical forms are becoming more common.

1. Plaque form.
2. Ulcerative and mutilating forms
3. Vegetating form
4. Tumour-like forms
5. Papular and nodular forms.

The lupoid form of leishmaniasis may be impossible to distinguish clinically. On the face, lupus may be mistaken for rosacea¹⁴ or for a port-wine stain¹⁵, and on an extremity for other mycobacterial infections. Leprosy and sarcoidosis, however, are the chief causes of diagnostic difficulty. The nodules of leprosy are firmer, and other signs are present. The nodules of sarcoidosis resemble grains of sand rather than 'apple jelly': this applies to the feel on probing rather than to the colour, which is often greyish. Lupus vulgaris may resemble psoriasis, but is more infiltrated and usually solitary¹⁶. Tubercle bacilli are present in such small numbers that they can very rarely be demonstrated by staining methods. Polymerase chain reaction (PCR) detection of mycobacterial DNA is more often positive¹⁷.

Differential Diagnosis of Cutaneous Tuberculosis because tuberculosis can produce such a wide variety of inflammatory reactions—non necrotic granulomas, necrotic granulomas, nonspecific acute inflammation, and epithelial hyperplasia—it is not surprising that many other lesions have similar histologic appearances. These other lesions include sarcoidosis, mycoses, leishmaniasis, non-tuberculosis mycobacterioses and leprosy, syphilis, foreign body implantation reactions, Wegener's granulomatosis, and rosacea.

Sarcoidosis usually has little lymphocytic reaction around the granulomas, unlike most forms of granulomatous tuberculosis. When necrosis occurs in a sarcoid, it is usually fibrinoid in type rather than caseating. A thorough search for acid-fast bacilli, a search for fungal infection with PAS and Grocott stains, and the use of polarizing light to exclude foreign material are obviously important in arriving at a diagnosis. Clinical data and the result of a tuberculin test are also significant. Culture of a lesion should establish the diagnosis in most cases. Recently, the use of PCR technology on paraffin sections to detect specific mycobacterial DNA has proved useful in confirming tuberculosis in the absence of evident organisms in sections¹⁸. In a recent review, the utility of a PCR test versus other laboratory tests was studied in 37 skin biopsies from patients with different variants of cutaneous tuberculosis. The PCR test showed the maximum positivity of 79% followed by histopathology (73%), BACTEC culture (47%), LJ media culture (29%), and smear examination (6%). Using culture as the gold standard, the sensitivity and specificity of PCR testing were 95.2% and 100.0%, respectively. The mean times to a positive result in different tests were 24 hours for smear examination, 1 day for the PCR test, and 23 to 38 days for different culture methods, demonstrating that PCR is a rapid and sensitive test for diagnosis of cutaneous tuberculosis using skin biopsy samples¹⁹.

V. CONCLUSION

In India where infections are common and immunity is low tuberculosis remains the major health problem. Lupus vulgaris is not so uncommon so patient with skin diseases should be suspected and thoroughly investigated for tuberculosis. Histopathology is an important diagnostic tool for Lupus vulgaris.

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