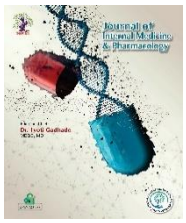
Journal of Internal Medicine & Pharmacology (JIMP)

[E-ISSN: 3049-0049]

Journal Homepage: https://sennosbiotech.com/JIMP/1



**Case Study**

# Reimagining Lupus Vulgaris: Case Studies and Emerging Insights

**Dr. Rohini Shinde**

Yashwantrao Chavan Ayurvedic Medical College, Aurangabad, Maharashtra 431007

ARTICLEINFO ABSTRACT

Tuberculosis remains a significant global health challenge, particularly in developing nations. Lupus vulgaris, a rare and chronic form of cutaneous tuberculosis, poses unique diagnostic difficulties due to its indolent progression and paucibacillary nature. It affects both immunocompromised and immunocompetent individuals, often manifesting in those with prior sensitization to Mycobacterium tuberculosis. This article examines three clinical cases of lupus vulgaris, showcasing its varied presentations and the complexities involved in diagnosis. In addition, a comprehensive review of the literature is presented, covering the epidemiology, pathogenesis, clinical features, diagnostic techniques, and treatment approaches for lupus vulgaris. The aim is to increase awareness and understanding of this under-recognized manifestation of tuberculosis, enabling healthcare professionals to recognize and manage it effectively. Emphasizing the importance of early diagnosis and intervention, this article seeks to improve patient outcomes and address the tuberculosis burden, especially in resource-constrained settings.

**Keywords**: Lupus Vulgaris, Cutaneous Tuberculosis, Paucibacillary, Indurated Plaques, Tuberculosis Management

**** Corresponding author**

**Dr. Rohini Shinde***

Yashwantrao Chavan Ayurvedic Medical College, Aurangabad, Maharashtra 431007

**E-mail addresses:** shinderohini3007@gmail.com

**Received date:** 29-Oct-2024 Revised date: 15-Nov-2024 Accepted date:12-Dec-2024

**DOI**: https://doi.org/10.61920/jimp.v1i04.35

## 1. Introduction

Tuberculosis (TB) remains a significant global health concern, particularly in developing countries where it imposes a substantial burden on healthcare systems and communities. Among the diverse clinical manifestations of TB, lupus vulgaris stands out as a distinctive form characterized by its chronic, indolent course and paucibacillary nature. Lupus vulgaris represents a cutaneous manifestation of TB, occurring in both immunocompromised and immunocompetent individuals, often in those with previous sensitization to Mycobacterium tuberculosis [1].

Despite its historical significance and clinical relevance, lupus vulgaris poses unique challenges in diagnosis and management due to its variable presentation and paucibacillary nature. Recognizing the clinical features and distinguishing lupus vulgaris from other dermatological conditions is crucial for timely intervention and effective management. In this article, we present three cases of lupus vulgaris encountered in clinical practice, highlighting the diverse clinical presentations and diagnostic dilemmas faced. Furthermore, we conduct an extensive review of the existing literature to provide a comprehensive overview of lupus vulgaris, including its epidemiology, pathogenesis, clinical manifestations, diagnostic modalities, and therapeutic approaches. Through this review, we aim to enhance understanding and awareness of lupus vulgaris among healthcare professionals, ultimately contributing to improved patient outcomes and the effective control of TB burden [2].

## 2. Cases Report

### 2.1 CASE 1

A 15-year-old female patient presented with a chronic, slowly progressive indurated plaque located on the left gluteal region, measuring approximately 10 x 7 cm in size. The lesion had been evolving over the past decade, with its onset reportedly following an injection administered at the same site, details of which were unfortunately unavailable. The development and progression of the lesion are depicted in Figure 1 [3-5].

Given the clinical presentation, the differential diagnosis initially included lupus vulgaris and sarcoidosis. Further investigation revealed findings consistent with tuberculosis. Chest X-ray examination demonstrated hilar lymphadenopathy, a common radiological manifestation of tuberculosis. Additionally, Mantoux testing produced a strongly positive result, as demonstrated in Figure 2. Confirmatory histopathological examination of a biopsy specimen obtained from the lesion revealed characteristic features consistent with lupus vulgaris, thus establishing the diagnosis. Subsequently, the patient was promptly initiated on a regimen of anti-tubercular therapy (ATT) to manage the condition effectively and prevent potential complications associated with tuberculosis [6].

### 2.2 CASE 2

A 32-year-old male presented with a gradually evolving skin-colored to hyperpigmented, well-defined indurated plaque measuring 10 x 4 cm, located on the inner aspect of the right thigh. The lesion exhibited central clearing and scaling, as

depicted in Figure 3. Prior to seeking consultation, the patient had received treatment at another healthcare facility, where a combination of clobetasol, neomycin, miconazole, and chlorhexidine cream had been administered, resulting in minimal improvement [7-8]. Given the persistent nature of the lesion, a differential diagnosis of Majocchi granuloma and lupus vulgaris was considered. Initial diagnostic evaluations included a potassium hydroxide (KOH) examination, which yielded negative results. However, Mantoux testing revealed a strongly positive reaction, with a diameter of 15 mm. Chest X-ray findings were unremarkable. Histopathological examination of a biopsy specimen obtained from the lesion confirmed the diagnosis of lupus vulgaris, consistent with clinical suspicion. Subsequently, the patient was commenced on anti-tubercular therapy (ATT), following which the skin lesions exhibited gradual regression [9-10].

**2.3 CASE 3**

A 23-year-old laborer presented with a complaint of a slowly progressing erythematous, indurated plaque on the right leg, persisting for five months (refer to Figure 4). The patient reported a history of trauma to the affected area caused by a rod during work, which occurred five months prior. Initial management by a local physician involved dressing and antibiotic therapy. Notably, there was no history of systemic involvement [11-14].

Upon evaluation, Mantoux testing revealed a strongly positive reaction, as depicted in Figure 5. Chest X-ray findings were within normal limits. Histopathological examination of a biopsy specimen obtained from the lesion was consistent with lupus vulgaris, confirming the diagnosis. Subsequently, the patient was initiated on anti-tubercular therapy (ATT) for the management of the condition. However, the patient was lost to follow-up, highlighting the challenges associated with continuity of care in resource-limited settings [15-16].

**3. Discussion**

Lupus vulgaris represents a chronic, slowly progressive form of cutaneous tuberculosis, primarily occurring in individuals previously sensitized to Mycobacterium tuberculosis. It is typically characterized by its paucibacillary nature, often caused by either M. tuberculosis or, less frequently, by M. bovis or BCG. Unlike other forms of tuberculosis, lupus vulgaris can disseminate via various routes, including hematogenous spread, contiguous extension, and external inoculation.

Clinically, lupus vulgaris manifests as red to brown papules or nodules that evolve into indurated granulomatous plaques, displaying a centrifugal spread with areas of scarring and pigmentary changes. The disease may present in various forms, including papular, nodular, plaque, hypertrophic, ulcerative, vegetative, atrophic, or mutilating, influenced by factors such as disease duration, host immunity, virulence of the organism, and the site of occurrence. Notably, lupus vulgaris is commonly observed on extremities and buttocks in India due to cultural practices facilitating reinoculation of the organism.

Pyodermas, often seen in the gluteal region in Indian children, may facilitate the penetration of the organism. The underlying primary foci frequently remain unnoticed, possibly due to subclinical silent bacteremia leading to the reactivation of latent cutaneous foci. Diascopy and dermoscopy aid in clinical diagnosis, revealing characteristic apple jelly nodules and linear telangiectasia, respectively.

Differential diagnosis includes other granulomatous conditions such as sarcoidosis, leprosy, leishmaniasis, deep fungal infections, and tertiary syphilis, necessitating histopathology, serology, or organism demonstration for confirmation.

Due to its paucibacillary nature, lupus vulgaris poses diagnostic challenges, often yielding negative results in acid-fast bacilli staining and culture. Advanced techniques like PCR and IFN-α assay offer improved sensitivity and specificity, although their utility is limited due to availability and cost constraints.

Mantoux testing serves as a valuable predictor of immune status, with large necrotizing reactions indicating active disease and the potential for organ damage.

Diagnosis primarily relies on history, radiological findings, sputum examination, histopathology, and a strongly positive Mantoux test (>15mm). Empirical therapy with first-line DOTS regimen may be initiated in suspected cases with negative investigative results, typically resulting in favorable response within 4-6 weeks.

Lupus vulgaris demonstrates a good response to anti-tubercular therapy (ATT) in patients with robust immune status. However, poor or absent response warrants reconsideration of diagnosis or consideration of drug-resistant tuberculosis. Prolonged cases may culminate in malignant transformation, necessitating vigilant monitoring for potential squamous cell carcinoma, basal cell carcinoma, or melanoma.

**Acknowledgment**

I express my heartfelt gratitude to Yashwantrao Chavan Ayurvedic Medical College, Aurangabad, Maharashtra 431007, for their invaluable support and guidance during this work. Their encouragement and resources have played a pivotal role in the successful completion of this endeavor.

**Conflict of Interest**

The authors declare no conflict of interest.

**Funding**

**Not applicable**

**Refrences**

1. Garg T, Chaisson LH, Naufal F, Shapiro AE, Golub JE. A systematic review and meta-analysis of active case finding for tuberculosis in India. The Lancet Regional Health – Southeast Asia. 2022;7:100076. doi:10.1016/j.lansea.2022.100076.
2. Sehgal VN, Wagh SA. Cutaneous tuberculosis. International Journal of Dermatology. 1990;29(4):237–52. doi:10.1111/j.1365-4362.1990.tb04714.x.
3. Yates VM, Walker SL. Mycobacterial infections. In: Griffiths C, Barker J, Bleiker

T, et al., editors. Rook's Textbook of Dermatology. 9th ed. Oxford: Wiley-Blackwell; 2016. p. 1–57.

4. Meyer S, Naumann L, Landthaler M, Vogt T. Lupus vulgaris caused by Mycobacterium bovis subsp. caprae. British Journal of Dermatology. 2005;153(1):220–2. doi:10.1111/j.1365-2133.2005.06547.x.
5. Tan HH, Seow CS. A review of cutaneous granulomas and lupus vulgaris following BCG vaccination in a skin hospital in Singapore. Annals of the Academy of Medicine, Singapore. 2002;31(5):663–5.
6. Farsinejad K, Daneshpazhooh M, Sairafi H, Barzegar M, Mortazavizadeh M. Lupus vulgaris at the site of BCG vaccination: report of three cases. Clinical and Experimental Dermatology. 2009;34(5):e167–9. doi:10.1111/j.1365-2230.2008.02999.x.
7. Sacchidanand S, Sharavana S, Mallikarjun M, Nataraja HV. Giant lupus vulgaris: A rare presentation. Indian Dermatology Online Journal. 2012;3(1):34–6. doi:10.4103/2229-5178.93494.
8. Singal A, Sonthalia S. Cutaneous tuberculosis in children: The Indian perspective. Indian Journal of Dermatology, Venereology and Leprology. 2010;76(5):494–500. doi:10.4103/0378-6323.69049.
9. Pai VV, Naveen KN, Athanikar SB, Dinesh US, Divyashree A, Gupta G. A clinico-histopathological study of lupus vulgaris: A 3-year experience at a tertiary care centre. Indian Dermatology Online Journal. 2014;5(4):461–4. doi:10.4103/2229-5178.142485.
10. Hsiao PF, Tzen CY, Chen HC, Su HY. Polymerase chain reaction-based detection of Mycobacterium tuberculosis in tissues showing granulomatous inflammation without demonstrable acid-fast bacilli. International Journal of Dermatology. 2003;42(4):281–6. doi:10.1046/j.1365-4362.2003.01756.x.
11. Santos JB, Figueiredo AR, Ferraz CE, Oliveira MH, Silva PG, Medeiros VL. Cutaneous tuberculosis: diagnosis, histopathology and treatment-Part II. Anais Brasileiros de Dermatologia. 2014;89(4):545–55. doi:10.1590/abd1806-4841.20142863.
12. Thomas M, Antony M. Cutaneous lupus vulgaris: Bringing the wolf out of the darkness. Global Dermatology. 2014;1:39–44. doi:10.15761/GOD.1000114.
13. Khan F, Nayak CS, Dongre A, Zambare U. A rare case of multidrug-resistant lupus vulgaris with a mixed pattern of resistance: A long journey to diagnosis and treatment. Indian Dermatology Online Journal. 2022;13(5):633–5. doi:10.4103/idoj.idoj_401_21.
14. Kumaran MS, Narang T, Jitendriya M, Tirumale R, Manjunath S, Savio J. Cutaneous squamous cell carcinoma in lupus vulgaris caused by drug-resistant Mycobacterium tuberculosis. Indian

Dermatology Online Journal. 2017;8(4):257–9. doi:10.4103/idoj.IDOJ_194_16.

15. Kate MS, Dhar R, Borkar DB, Ganbavale DR. Longstanding lupus vulgaris with basal cell carcinoma. Indian Journal of Pathology and Microbiology. 2009;52(4):588–90. doi:10.4103/0377-4929.56142.
16. Sowden J, Paramsothy Y, Smith AG. Malignant melanoma arising in the scar of lupus vulgaris and response to treatment with topical azelaic acid. Clinical and Experimental Dermatology. 1988;13(5):353–6. doi:10.1111/j.1365-2230.1988.tb00899.x.

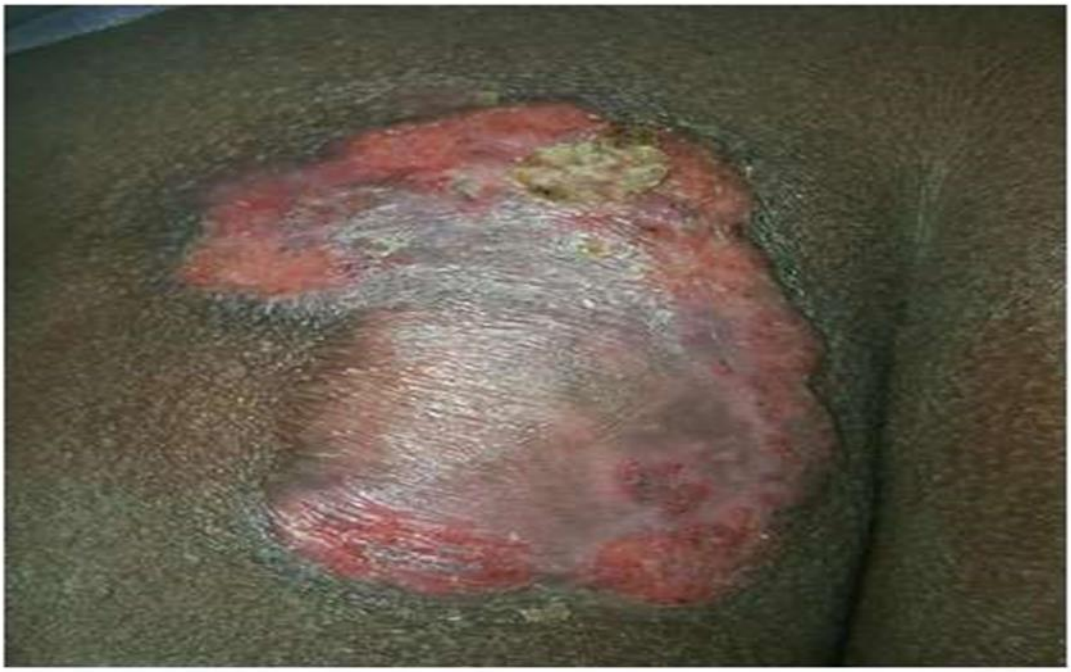


**Figure 1: Showing slow growing indurated erythematous plaque with well-defined irregular margins with erosions and mild scaling in the periphery**

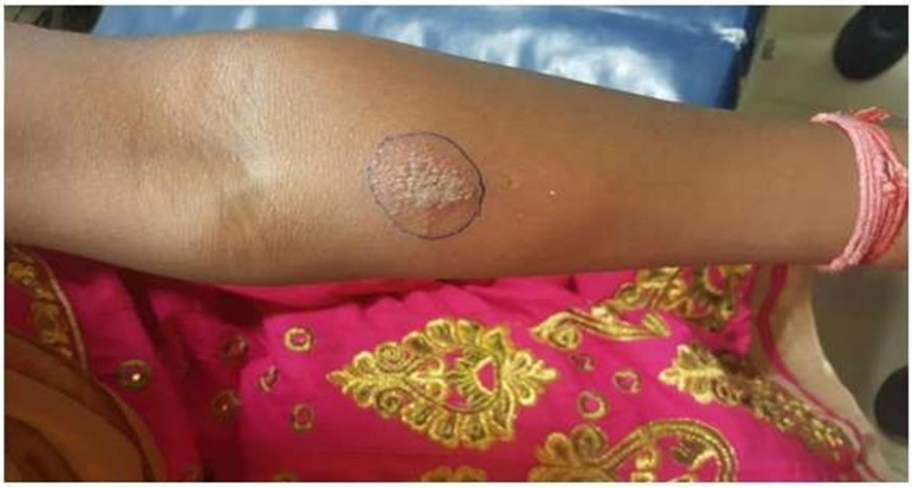


**Figure 2: Shows strongly positive Mantoux with vesicular eruptions**

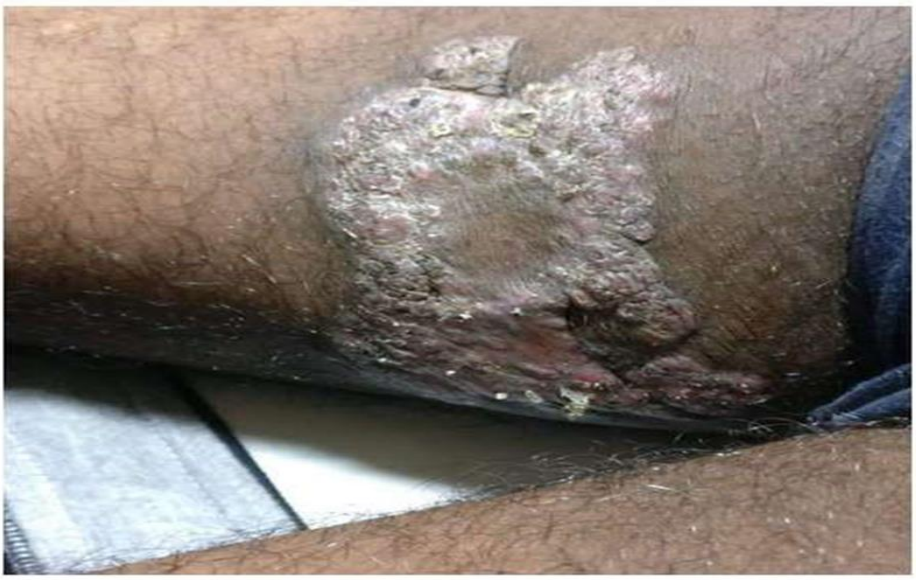


**Figure 3: Showing well defined skin colored to hyperpigmented plaque with central clearing with atrophic scarring. Periphery showing induration with coalescing erythematous papules & scaling.**

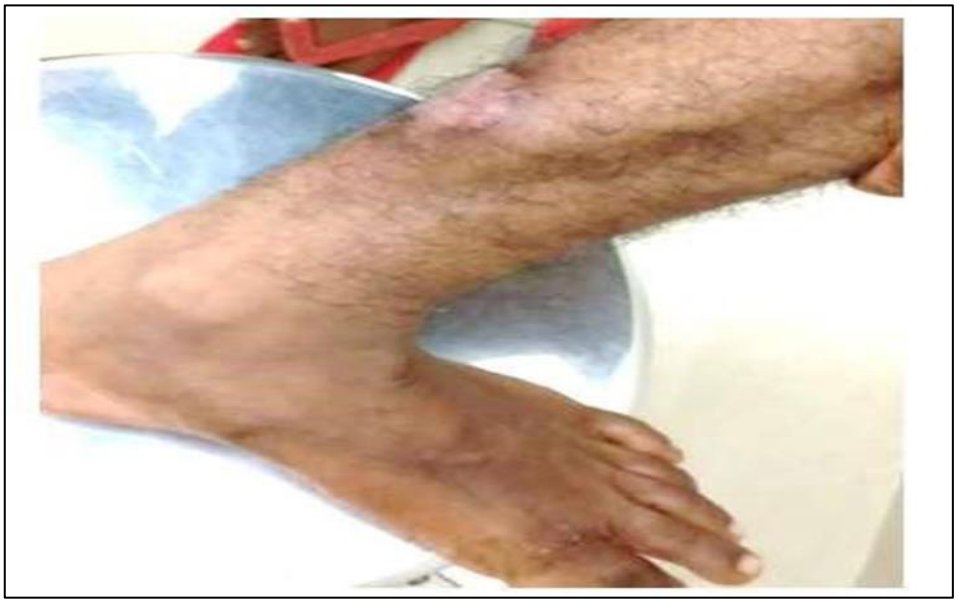


**Figure 4: Shows indurated erythematous plaque over the posterior aspect of leg**