Journal of Population Therapeutics & Clinical Pharmacology

RESEARCHARTICLE
DOI:10.53555/ef2q9862

SPECTRUM AND CLINICAL PROFILE OF NON-VENEREAL GENITAL DERMATOSES IN ADULT MALES: A PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT

Background: Non-venereal genital dermatoses (NVGD) encompass a diverse group of dermatological conditions affecting the male genitalia, often mimicking sexually transmitted infections (STIs). Misdiagnosis can lead to psychological distress, social stigma, and inappropriate treatment.

Objective: To evaluate the clinical patterns, demographic characteristics, and diagnostic challenges of NVGD in adult males attending a tertiary care center.

Methods: A prospective observational study was conducted over 12 months, including 140 male patients aged ≥18 years presenting with genital dermatoses. Patients with confirmed STIs were excluded. Detailed history, clinical examination, and relevant investigations (KOH mount, skin biopsy, fungal culture, etc.) were performed.

Results: The most common NVGD observed were fungal infections (34.3%), lichen planus (17.1%), psoriasis (12.9%), scabies (10.7%), and vitiligo (8.6%). Less common conditions included lichen sclerosus (6.4%), fixed drug eruptions (5.0%), and benign tumors (3.6%). Pruritus (65.7%) and erythema (58.6%) were the predominant symptoms. The 31-50 age group was most affected (52.9%).

Conclusion: NVGD are frequently misdiagnosed due to overlapping features with STIs. Fungal infections and lichen planus were the most prevalent conditions in our study. Increased clinical suspicion and appropriate diagnostic workup are essential for accurate management.

INTRODUCTION

Non-venereal genital dermatoses (NVGD) encompass a heterogeneous group of dermatological conditions affecting the male genitalia that are not transmitted through sexual contact. These disorders present with a wide array of clinical manifestations, including erythema, scaling, erosions, ulcers, hypopigmentation, and hyperpigmentation. Due to their morphological resemblance to sexually transmitted infections (STIs), NVGD are frequently misdiagnosed, leading to unnecessary psychological distress, social stigma, and inappropriate antimicrobial therapy.[1–3] The male genital region, characterized by its unique anatomical and physiological properties, is particularly susceptible to dermatoses influenced by factors such as humidity, friction, and localized immune responses.[4,5]

The prevalence and clinical presentation of NVGD vary significantly across different geographical regions and populations. In developing countries, cultural taboos and lack of awareness often delay medical consultation, exacerbating the burden of these conditions.[6,7] Previous studies have identified fungal infections, lichen planus, psoriasis, and eczematous dermatitis as the most common NVGD, but regional variations necessitate further research to refine diagnostic and therapeutic strategies.[8–10] For instance, tropical climates may predispose individuals to fungal infections, while genetic and autoimmune factors may play a role in conditions like lichen planus and psoriasis.[11–14]

Despite their clinical significance, NVGD remain understudied compared to STIs, and there is a paucity of large-scale epidemiological data, particularly from resource-limited settings.[15-17] This gap in knowledge underscores the need for comprehensive studies to elucidate the spectrum, demographic correlates, and diagnostic challenges of NVGD. The present study aims to address this need by analyzing the clinical and epidemiological profile of NVGD in adult males attending a tertiary care center in India. By doing so, it seeks to enhance clinical awareness, reduce diagnostic errors, and improve patient outcomes through evidence-based management.

MATERIALS AND METHODS

Study Design & Setting

A prospective observational study was conducted in the dermatology outpatient department (OPD) of a tertiary care hospital over 12 months.

Inclusion Criteria

- Males aged ≥18 years
- Patients presenting with genital dermatoses
- Willing to provide informed consent

Exclusion Criteria

- Confirmed STIs (syphilis, herpes, HPV, etc.)
- Traumatic or iatrogenic lesions
- Unwilling patients

Data Collection

- Detailed history (duration, symptoms, sexual history, drug intake)
- Clinical examination (morphology, distribution)
- Investigations: KOH mount, skin biopsy, fungal culture, patch testing (where applicable)

Statistical Analysis

Data were analyzed using SPSS v26. Descriptive statistics (percentages, mean ± SD) were used for demographic and clinical variables.

RESULTS

Demographic Characteristics

Table 1: Age-wise Distribution of Patients (n=140)

Age Group (years)	Number of Patients	Percentage (%)
18-30	40	28.6
31-50	74	52.9
>50	26	18.6

This table outlines the age distribution of the 140 male patients included in the study. The majority (52.9%) belonged to the 31-50 age group, followed by 28.6% in the 18-30 age group and 18.6% in the >50 age group. This suggests that middle-aged males are most commonly affected by non-venereal genital dermatoses (NVGD).

Table 2: Occupational Distribution of Patients

Occupation	Number of Patients	Percentage (%)
Manual laborers	59	42.1
Office workers	40	28.6
Farmers	28	20.0
Others	13	9.3

The occupational profile of patients revealed that manual laborers constituted the largest group (42.1%), followed by office workers (28.6%) and farmers (20.0%). This highlights the potential role of occupational factors, such as prolonged sweating and friction, in the development of NVGD.

Table 3: Frequency of Various NVGD Diagnoses

Diagnosis	Number of Cases	Percentage (%)
Fungal infections	48	34.3
Lichen planus	24	17.1
Psoriasis	18	12.9
Scabies	15	10.7
Vitiligo	12	8.6
Lichen sclerosus	9	6.4
Fixed drug eruption	7	5.0

Diagnosis	Number of Cases	Percentage (%)
Others	5	3.6

Fungal infections were the most prevalent NVGD (34.3%), followed by lichen planus (17.1%), psoriasis (12.9%), scabies (10.7%), and vitiligo (8.6%). Less common conditions included lichen sclerosus (6.4%) and fixed drug eruptions (5.0%). This distribution underscores the diverse etiologies of NVGD.

Table 4: Subtypes of Fungal Infections (n=48)

Subtype	Number of Cases	Percentage (%)
Tinea cruris	32	66.7
Candidiasis	12	25.0
Pityriasis versicolor	4	8.3

Among fungal infections, tinea cruris was the most common subtype (66.7%), followed by candidiasis (25.0%) and pityriasis versicolor (8.3%). This indicates that dermatophytosis is the predominant fungal cause of NVGD in the study population.

Table 5: Distribution of Presenting Symptoms

Symptom	Number of Patients	Percentage (%)
Pruritus	92	65.7
Erythema	82	58.6
Scaling	60	42.9
Pain/Burning	36	25.7
Hypopigmentation	20	14.3
Ulceration	8	5.7

Pruritus (65.7%) and erythema (58.6%) were the most frequent symptoms, followed by scaling (42.9%) and pain/burning (25.7%). Hypopigmentation and ulceration were less common, suggesting that inflammatory symptoms dominate the clinical presentation of NVGD.

Table 6: Site-wise Distribution of Lesions

Anatomic Site	Number of Cases	Percentage (%)
Glans penis	68	48.6
Penile shaft	54	38.6
Scrotum	42	30.0

Anatomic Site	Number of Cases	Percentage (%)
Inguinal region	**38**	**27.1**
Pubic area	**22**	**15.7**

The glans penis was the most commonly affected site (48.6%), followed by the penile shaft (38.6%) and scrotum (30.0%). This anatomic distribution aligns with the mucosal and intertriginous susceptibility to dermatoses.

Table 7: Investigations Used for Diagnosis

Diagnostic Method	Number of Cases	Percentage (%)
Clinical diagnosis	**98**	**70.0**
KOH mount	**62**	**44.3**
Skin biopsy	**28**	**20.0**
Wood's lamp	**12**	**8.6**
Patch test	**6**	**4.3**

Clinical diagnosis alone was sufficient in 70.0% of cases, while additional tools like KOH mount (44.3%) and skin biopsy (20.0%) were employed for ambiguous cases. This reflects the reliance on clinical expertise complemented by targeted investigations.

Table 8: Treatment Approaches

Treatment	Number of Patients	Percentage (%)
Topical antifungals	**52**	**37.1**
Topical steroids	**46**	**32.9**
Systemic antifungals	**18**	**12.9**
Emollients	**34**	**24.3**
Systemic steroids	**12**	**8.6**
Others	**8**	**5.7**

Topical antifungals (37.1%) and steroids (32.9%) were the most prescribed treatments, followed by emollients (24.3%) and systemic antifungals (12.9%). This indicates a preference for localized therapy in managing NVGD.

Table 9: Treatment Response at 4 Weeks

Response	Number of Patients	Percentage (%)
Complete resolution	**86**	**61.4**
Partial improvement	**42**	**30.0**
No improvement	**12**	**8.6**

At the 4-week follow-up, 61.4% of patients achieved complete resolution, while 30.0% showed partial improvement. The 8.6% non-response rate highlights the need for alternative therapies in refractory cases.

DISCUSSION

Our study found fungal infections (34.3%) to be the most common NVGD, consistent with previous studies by Verma et al.[18] and Patil et al.[19] The high prevalence can be attributed to factors such as tropical climate, excessive sweating, and poor hygiene practices among manual laborers (42.1% of cases). Dermatophytosis and candidiasis were the predominant subtypes, reinforcing the need for antifungal therapy rather than unnecessary antibiotics.

Lichen planus (17.1%) was the second most common condition, presenting as violaceous papules and plaques on the glans and shaft. These findings align with Bansal et al.[20], who reported similar presentations in Indian males. Genital lichen planus is often chronic and may lead to scarring, necessitating early intervention with topical steroids.

Psoriasis (12.9%) manifested as well-demarcated erythematous plaques with silvery scales, frequently misdiagnosed as fungal infections or eczema. Unlike classical psoriasis, genital lesions often lack scaling due to moisture, complicating clinical diagnosis. A high index of suspicion and histopathological confirmation are crucial in such cases.[21]

Scabies (10.7%) was prevalent in younger patients (18-30 years), likely due to overcrowded living conditions.[22] The presence of burrows and intense nocturnal itching aided diagnosis, though secondary eczematization often obscured classical features.

Lichen sclerosus (6.4%) predominantly affected older males (>50 years), with white sclerotic plaques and phimosis being key features.[23] Its potential malignant transformation underscores the importance of long-term follow-up.

The anatomic distribution showing glans penis (48.6%) as the most commonly affected site supports existing literature on mucosal susceptibility to inflammatory dermatoses.[24] Our diagnostic approach, combining clinical examination with KOH mount (44.3%) and biopsy (20.0%), proved effective in differentiating clinically similar conditions.[25]

The treatment outcomes demonstrate good response to conventional therapies, with 61.4% achieving complete resolution at 4 weeks.[26] However, the 8.6% non-response rate highlights the need for alternative therapeutic strategies in refractory cases.[27]

Study Limitations

Single-center design limits generalizability. Lack of long-term follow-up for chronic conditions like lichen sclerosus. Potential referral bias in a tertiary care setting.

CONCLUSION

NVGD in males are common yet underrecognized, often masquerading as STIs. Fungal infections and lichen planus were the most prevalent conditions in our study. Clinicians must maintain a high index of suspicion and employ appropriate diagnostic tools to avoid

mismanagement. Public awareness campaigns and continued medical education can further reduce diagnostic delays.

Recommendations

Routine use of KOH mount and skin biopsy in ambiguous cases. Patient education on genital hygiene and early medical consultation. Multicentric studies to establish regional epidemiological patterns.

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