Journal of Pakistan Association of Dermatologists. 2024;**34(4)**:929-937.

Original Article

Recognising the patterns of non-venereal genital dermatoses in males of different age groups presenting to a tertiary care centre in north India

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Abstract

Objective To analyse the pattern of non-venereal dermatoses in males of different age groups.

Methods An observational study was conducted which included all male patients with genital dermatoses visiting the Outpatient Department of Skin and VD in a tertiary care centre of North India over a period of 12 months. Thorough history and general physical examination was performed. Investigations were done as per requirement.

Results 492 cases of non-venereal dermatoses were enrolled. The mean age of patients presenting was 35.33±14.50 years. 280 (56.91%) were infectious in origin, 106 (21.54%) were inflammatory, 62 (12.6%) were benign, 24 (4.87%) were pigmentary, 12 (2.43%) were pre-malignant, 6 (1.21%) were miscellaneous, 1 (0.2%) was congenital and 1 (0.2%) was malignant. Genital pruritus (70.12%) was the most common complaint. Penis was the most common site involved in 227 (46.13%) cases.

Conclusion Non venereal dermatoses of multifactorial etiologies are seen in males of different age groups. Treating physician should be well versed with various pattern of non-venereal dermatoses which may help to rule out several conditions and reach a correct diagnosis.

Key words
Non-venereal dermatoses; Males; Genital dermatoses.

Introduction

Male genitalia extends from pubis anteriorly and perineum posteriorly, comprising of penis and scrotum. External genitalia tend to remain warm, moist and occluded. It frequently comes in contact with irritating substances like faeces or urine which might alter the normal morphology and flora of external genitalia.[1] Hence complex anatomy, local environment, various cleaning practices may contribute in making the genitalia prone to develop rash, itching and infections (venereal and non-venereal) or other dermatoses.[1] Most of the disorders affecting the genitalia are dermatological in origin and have multifactorial etiology.[2]

It has been seen that most of the genital dermatoses are completely or predominantly confined to the genital area and yet not sexually transmitted. Genital dermatoses can be divided into two groups: venereal and non-venereal diseases. Non venereal term is used to define group of disorders involving the genitalia which are not sexually transmitted.[3] Fitzpatrick classified non-venereal dermatoses into the following categories: A) Normal variants B) Inflammatory dermatoses C) Infections and infestations D) Pigmentary disorders E)

Manuscript: Received: September 13, 2023
Revision: September 18, 2023
Accepted: November 23, 2023
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Congenital disorders F) Premalignant lesions G) Malignant lesions H) Miscellaneous.[4] Non-venereal genital dermatoses include a large panel of diseases. Non-venereal genital dermatoses may also be associated to other locations.[5]

Genitals may be the site of infectious, inflammatory, benign, premalignant/malignant entities having their own clinical physiognomy. Dermatoses of different etiologies and morphologies can affect the genital skin. Dermatitis (Atopic, contact, or seborrheic) can all result in erythematous lesions of the genital region, as can tinea, candidiasis and psoriasis.

Non-venereal disorders may impact the psychological and sexual well-being of individuals.[5] Diagnosing non-venereal dermatoses is of prime importance in order to relieve the patient from the stigma of sexually transmitted diseases and the burden of cancer phobia even in benign conditions.

Methods

A descriptive (observational) study was conducted which included all male patients with genital dermatoses (0-80 years) visiting the Outpatient Department of Skin and VD and referred cases from Urology department in a tertiary care centre in North India over a period of 12 months. Written informed consent was taken from each patient enrolled in study. In each case detailed history including the personal history, history of sexual contact, marital status and contraceptive history was noted. Thorough general physical examination, cutaneous and mucosal examination was done. Other investigations (Tzanck, gram staining, KOH, HIV serology) were done as per requirement. Specific investigations like skin biopsy were done whenever indicated with the help of Urology department. The data collected was entered in MS excel sheet and analysed statistically using IBM SPSS version 22.

Results

492 cases of non-venereal dermatoses were enrolled. The mean age of patients presenting with non-venereal dermatoses was 35.33 years with a standard deviation of 14.50 years and an age range of 1-79 years. 362 (73.58%) were married and 130 (26.42%) were unmarried. 370 (75.20%) cases of were heterosexual, 120 (24.39%) cases were not sexually active, 2 (0.41%) cases were bisexual. 280 (56.91%) were infectious in origin, 106 (21.54%) were inflammatory, 62(12.6%) were benign, 24 (4.87%) were pigmentary, 12 (2.43%) were pre-malignant, 6 (1.21%) were miscellaneous, 1 (0.2%) was congenital and 1 (0.2%) was malignant **(Table 1)**.

Scabies **(Figure 1a)** constituted maximum number of cases, i.e. 133 (27%) followed by 79 (16%) cases of candidal balanoposthitis **(Figure 1b)** and 68 (13.8%) cases of tinea cruris **(Figure 1c)**. 39 (7.9%) cases of lichen simplex chronicus, 38 (7.7%) cases of pearly penile papule **(Figure 1d)**, 26 (5.2%) cases of scrotal dermatitis, 24 (4.9%) cases of vitiligo **(Figure 1e)**, 21 (4.2%) cases of psoriasis **(Figure 1f)**, 12 (2.4%) cases of scrotal epidermal cyst, 10 (2%) cases of angiokeratomas **(Figure 2a)**, 8(1.6%) cases of balanitis xerotica obliterans **(Figure2b)**,

Table 1 Prevalance of non-venereal genital dermatoses according to etiology.

	Frequency	*Percentage*
Benign	62	12.60%
Congenital	1	0.20%
Malignant	1	0.20%
Miscellaneous	6	1.21%
Inflammatory	106	21.54%
Infectious	280	56.91%
Pigmentary	24	4.87%
Premalignant	12	2.43%
Total	492	100%

Figure 1a: Nodular scabies
1b: Candidal balanoposthitis
1c: Tinea cruris in HIV positive patient
1d: Pearly penile papules
1e: Genital vitiligo
1f: Genital psoriasis

6 (1.2%) cases of lichen nitidus **(Figure 2c)**, 5(1%) cases of each of lichen planus **(Figure 2d)** and FDE were seen. 4 (0.8%) cases had contact irritant dermatitis. There were 3 (0.6%) cases each of hidradenitis suppurativa **(Figure 2e)** and pemphigus vulgaris. Zoon balanitis **(Figure 2f)**, melanocytic nevus and bowenoid papulosis each constituted 2(0.4%) cases.

There was 1(0.2%) case each of median raphe cyst and squamous cellcarcinoma **(Figure 3)**.

Most common non-venereal dermatoses in every age group except 60-80 years age group was infectious, 50 (53.7%) cases in 0-20 years age group, 115 (58.97%) cases in 21-40 years age group, 107 (58.15%) cases in 41-60 years age

Figure 2a: Angiokeratomas of Fordyce
2b: balanitis xerotica obliterans
2c:Lichen nitidus
2d: Genital Lichen planus
2e:Hidradenitis suppurativa
2f:Zoon's balanitis

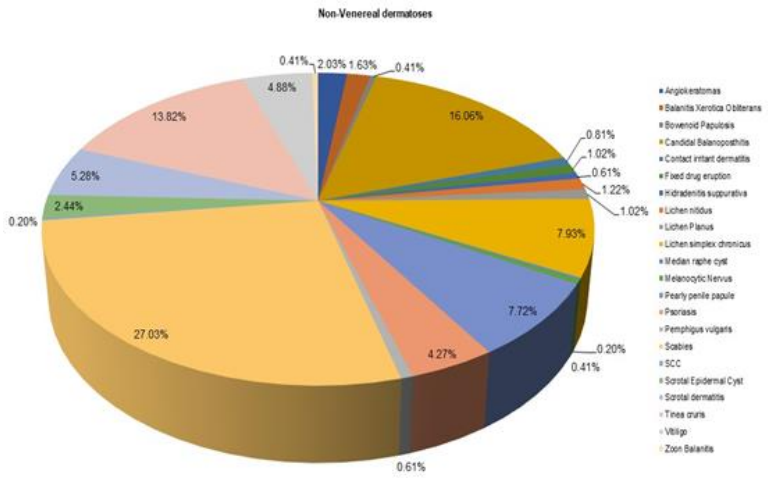

Figure 3 Prevalence of non-venereal genital dermatoses.

93 (18.90%) cases of non-venereal dermatoses were found in age group of 0-20 years. 195 (39.63%), 184 (37.39%), 20 (4.06%) cases were found in age groups, 21-40 years, 41-60 years and 60-80 years respectively. In patients with age less than 20 years as well as 21-40 years age group, most common non-venereal dermatoses was scabies i.e. 40 (43.01%) cases and 55 (28.2%) cases respectively. In patients of 41-60 years age group, most common non-venereal dermatoses was candidal balanoposthitis i.e. 42 (22.82%) cases. In patients of 61-80 years age group, lichen simplex chronicus was found to be the most common non-venereal dermatoses i.e. 10 (50%) cases **(Table 2; Figure 4)**.

Genital pruritus was the most common symptom in patients presenting with non-venereal dermatoses. Genital pruritus was present in 345 (70.12%) cases. 203 (41.26%) cases had growth over their genitalia, 78 (15.85%) cases had discolouration, 50 (10.16%) cases had burning sensation/pain, 12 (2.44%) cases presented with peeling of skin. 39 (7.92%) presented with lichenification **(Figure 5)**.

Penis was involved in 227 (46.13%) cases. Scrotum was involved in 91 (18.49%) cases. In 174 (35.36%) cases, both scrotum and penis were involved **(Table 3)**.

255 (51.83%) cases had involvement of both genital and other cutaneous sites.161 (32.72%) patients had lesions exclusively on genitalia. 38 (7.72%) had perianal involvement along with genital lesions. 24 (4.9%) patients had genital lesions along with nail involvement and 14 (2.8%) patients had genital lesions along with oral mucosa involvement **(Table 4)**.

Discussion

In this observational study, 802 male patients with genital dermatoses in the age group of 0-80 years presenting to Skin and Urology outpatient clinic in a tertiary care centre in North India during the year 2021 were included. 492 (61.3%) cases were of non-venereal dermatoses and 310 (38.7%) cases were of venereal dermatoses. Non venereal dermatoses accounted for greater proportion of male genital dermatoses. This was in agreement with study by Vinay *et al*.[6] in which there were 56.7% and 32.1% cases of non-venereal and venereal genital dermatoses. Among non-venereal dermatoses, there were 73.48% married cases and 26.42% unmarried cases. In a study by Sharanbasava *et al*;[7] 66.7% were married and 33% were unmarried.

Total 22 different non-venereal dermatoses were

Table 2 Age wise prevalence of non venereal dermatoses according to etiology.

Age groups	*0-20 years*		*21-40 years*		*41-60 years*		*61-80 years*		*Total*
	n	*%age*	*n*	*%age*	*n*	*%age*	*n*	*%age*	
Benign	29	31.2%	24	12.3%	9	4.89%	0	0	62
Congenital	1	1%	0	0	0	0	0	0	1
Malignant	0	0	0	0	0	0	1	5%	1
Miscellaneous	0	0	3	1.5%	3	1.6%	0	0	6
NV inflammatory	8	8.6%	40	2.0%	48	26.08%	10	50%	106
NV infectious	50	53.7%	115	58.97%	107	58.15%	8	40%	280
Pigmentary	5	5.3%	12	6.1%	7	3.80%	0	0	24
Premalignant	0	0	1	0.5%	10	9.78%	1	5%	12
Total	93		195		184		20		492

observed in this study as compared to 25 in Karthikeyan *et al*.[8] and 16 in Saraswat *et al*.[3] and 31 in Nyati *et al*.[9] In the current study, 280 (56.91%) were infectious in origin, 106 (21.54%) were inflammatory, 62 (12.6%) were benign, 24 (4.87%) were pigmentary, 12 (2.43%) were pre-malignant, 6 (1.21%) were miscellaneous, 1 (0.2%) was congenital and 1 (0.2%) was malignant. Infectious group constituted maximum number of cases of non-venereal dermatoses. Our study was in concordance with studies by Nyati *et al*;[9] Mamatha *et al*.[10] and Lal *et al*.[11] in which infectious group accounted for greater proportion of non-venereal dermatoses. However in study by Shinde *et al*.[12] inflammatory group accounted for more number of cases of non-venereal dermatoses.

Scabies was the most common non-venereal genital dermatoses in our study which accounted for 133 (27%) cases. In a study by Nyati *et al*;[9] the most common dermatoses was nodular scabies (21.6%) followed by steatocystoma multiplex 24 (9.6%), fixed drug eruption 19 (7.6%), tinea cruris 17 (6.8%) and genital psoriasis 14 (5.6%). This was also in concordance with studies by Kumar *et al*;[13] 38%, Mamatha *et al*;[10] 18.14%, Singhal *et al*;[2] 13.5%, Kumar*et al*;[14] 42.28% and Babu *et al*;[15] 12.6%. In studies by Hogade *et al*;[5] Saraswat *et al*;[3] Karthikeyan *et al*;[8] and Talamala *et al*;[16] vitiligo was the most common non-venereal dermatoses. In a study by Shinde *et al*;[12] psoriasis was the most common. Scrotal dermatitis was the most common in a study by Puri *et al*.[17] In the studies by Lal *et al*.[11] and Kakkar *et al*;[18] candidal balanoposthitis (30.4%) and vitiligo (20%) were the most common findings respectively. So our study results were not in complete concordance with the past studies **(Table 5)**.

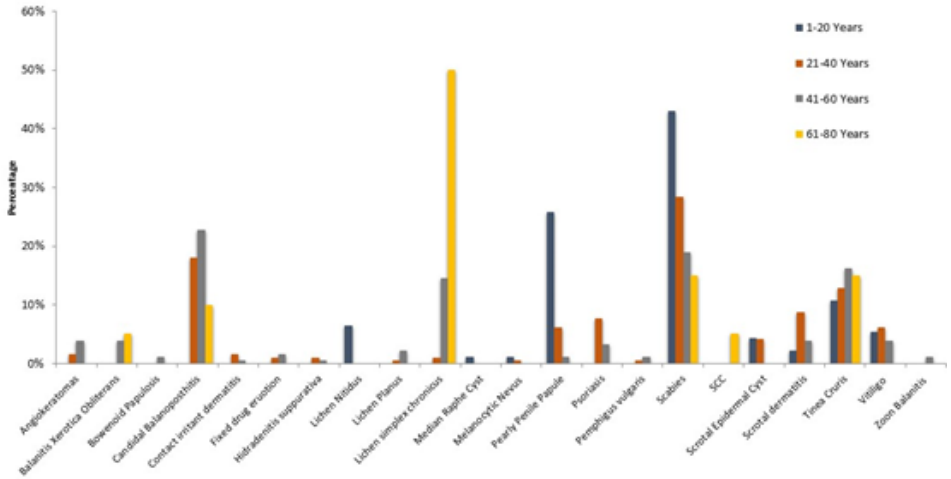

Figure 4 Age wise prevalence of various non venereal dermatoses in males.

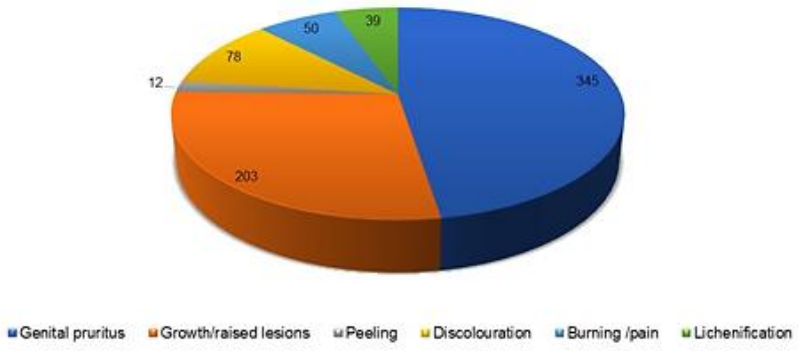

Figure 5 Distribution of patients according to presenting complaints.

Table 3 Distribution of genital dermatoses based on site involved.

Genital sites	*Frequency*	*Percentage*
Penis	227	46.13%
Scrotum	91	18.49%
Penis +scrotum	174	35.36%

Table 4 Distribution of genital dermatoses according to genital and extragenital sites involved.

Sites	*Frequency*	*Percentage*
Lesions only on genitalia	161	32.72%
Perianal involvement along with genital lesions	38	7.72%
Genital lesions and other cutaneous sites	255	51.83%
Genital lesions and oral mucosa	14	2.8%
Genital lesions with nail involvement	24	4.87%

In patients with age less than 20 years as well as 20-40 years, most common non-venereal dermatoses was scabies (43.01% and 28.20%, respectively). In patients with age 40-60 years, most common non-venereal dermatoses was candidal balanoposthitis (22.82%) and in patients with age 60-80 years was LSC (50%). Similarly in a study by Kumar *et al*;[14] scabies was the most common dermatoses in 0-15 years age group (97.6%). In 15- 45 years age group, scabies (39.49%) was more common followed by candidal balanitis (38.55%). In patients of age more than 45 years, candidal balanitis (79.77%) was more common as compared to any other dermatoses diagnosed in that specific group. Our study was in concordance with study by Kumar *et al*.[14] In a study by Mamatha *et al*;[10] scabies and vitiligo were the most prevalent non-venereal dermatoses in prepubertal boys whereas tinea cruris and candidiasis were more prevalent in those who were sexually active.

In present study, maximum no. of cases of non-venereal dermatoses, 220 (44.72%) were seen with duration of symptoms less than 10 days. In a study by Singhal *et al*.[2] maximum number of patients were seen with duration of symptoms varying from 10-30 days. Our study was not in concordance with study by Singhal *et al*.[2]

Genital pruritus was present in 70.12% patients, 41.26% had growth/ raised lesions, 15.85% had discolouration, 10.16% had burning sensation/ pain, 2.44% had peeling. In the study done by Boruah *et al*;[19] raised lesions were the most common presenting feature (50.65%) followed by itching (45.39%), depigmentation (19.07%), burning sensation (15.79%), pain (15.13%), erosion (11.18%), redness (9.21%), oozing from lesion (8.55%), thickening of skin (8.55%), bleeding (4.6%), fluid filled lesion (2%) and ulcer (1.32%). In a study by Nyati A *et al*;[9] the most common presenting complaint of patients was genital itching (38.8%),12.2% patients were asymptomatic. Other complaints included pain, burning, redness, swelling, oozing, discharge, erosions, ulceration, and lichenification. A study by Shinde G *et al*;[12] found that pruritus (30%), discoloration of skin and mucosa (15%), peeling of skin (17%), sore (12%) and growth (11%)

Table 5 Comparison with other studies.

	Present study 2024 (n=492)	Kumar N *et al.*[14] 2022 (n=726)	Kakkar S *et al.*[18] 2022 (n=100)	Singhal RR *et al.*[2] 2021 (n=200)	Lal YA *et al.*[11] 2021 (n=319)	Mamatha P *et al.*[10] 2020 (n=248)	Kumar PS *et al.*[13] 2019 (n=200)	Sarsawat PK *et al.*[3] 2014 (n=100)
Angiokeratomas	2.03%	0.82%	0	3%	0.62%	0	2%	0
Balanitis xerotica obliterans	1.63%	1.92%	3%	0.5%	0	2.82%	2%	3%
Bowenoid papulosis	0.41%	0	0	0.5%	0	0	0	0
Candidal balanoposthitis	16.06%	41.73%	0	7%	1.88%	11.29%	17%	0
Contact irritant dermatitis	0.81%	0	0	3%	0	6.45%	4.5%	0
Fixed drug eruption	1.02%	0.96%	13%	0	1.56%	4.83%	5%	12%
Hidradenitis suppurativa	0.61%	0	0	0	0	0	0	0
Lichen nitidus	1.22%	0.27%	1%	1%		0	1.5%	1%
Lichen planus	1.02%	0.82%	8%	7.5%	2.19%	4.43%	3%	9%
Lichen simplex chronicus	7.93%	3.30%	0	0	3.44%	9.27%	4.5%	0
Median raphe cyst	0.20%	0	0	0.5%	0	0	0	0
Melanocytic nevus	0.41%	0	0	0.5%	0	0	0	0
Pearly penile papule	7.72%	1.10%	15%	5%	1.88%	3.22%	10.5%	16%
Psoriasis	4.27%	0	3%	5%	1.88%	6.4%	2%	3%
Pemphigus vulgaris	0.61%	0	0	1%	0	2.41%	2.5%	0
Scabies	27.03%	42.28%	11%	13.5%	13.47%	18.15%	17%	10%
Squamous cell carcinoma	0.20%	0.13%	1%	0.5%	0/62%	1.2%	0	1%
Scrotal epidermal cyst	2.44%	2.20%	6%	4.5%	1.56%	2.01%	3%	7%
Scrotal dermatitis	5.28%	1.92%	8%	8%	11.91%	0	3%	9%
Tinea cruris	13.82%	0.27%	6%	9.5%	18.80%	10.05%	2.5%	5%
Vitiligo	4.88%	0	20%	6%	4.38%	5%	12%	18%
Zoon's balanitis	0.41%	0.82%	1%	3%	0.62%	0.8%	0.5%	0

were the most common complaints at presentation. Our study was comparable to studies by Nyati *et al*.[9] and Shinde *et al*.[12] Genital pruritus was the most common symptom in both studies.

In the present study, penis was involved in 227 (46.13%) cases whereas scrotum was involved in 91 (18.49%) cases. In 174 (35.36%) cases, both scrotum and penis were involved. In a study by Lal *et al*;[11] the most common site of involvement was penis 187 (58.62%) followed by scrotum 106 (33.22%), whereas in 26 (8.15%) patients both scrotum and penis were involved. Also in a study by Singhal *et al*;[2] penis (44%) was more commonly involved than scrotum (29%), with shaft of the penis as the most common site. Hogade *et al*.[5] observed that the most common site of involvement was the scrotum (68% cases) followed by the penis (26% cases) while both scrotum and penis were affected in 6% cases. In study by Saraswat *et al*;[3] scrotum was involved in 60% and penis in 30% while both scrotum and penis were affected in 10% cases. So our study was comparable to studies by Puri *et al*;[17] Talamala *et al*;[16] Singhal *et al*.[2] and Lal *et al*.[11] which found penis as the most common site of involvement than scrotum while Saraswat *et al*;[3] Hogade *et al*;[5] Karthikeyan *et al*.[8] had scrotum as the common site of involvement. In the current study, 51.83% patients had involvement of genital lesions and other cutaneous sites, 32.72% had lesions only on genitalia, 7.72% had perianal involvement

Table 6 Comparison of Distribution of non-venereal dermatoses according to genital and extragenital sites involved.

	Present study 2024	Sharanbasava V *et al.*[7] 2021	Kumar PS *et al.*[13] 2019
N=No.of cases	492	120	200
Lesions only on genitalia	32.72%	45%	52.5%
Perianal involvement along with genital lesions	7.72%	-	-
Genital lesions and other cutaneous sites	51.83%	41.6%	35.5%
Genital lesions and oral mucosa	2.8%	13.33%	4%
Genital lesions and nail involvement	4.9%	-	-

along with genital lesions, 4.9% had genital lesions along with nail involvement and 2.8% had genital lesions along with oral mucosa involvement. Our results were not in complete concordance with previous studies **(Table 6)**.

Conclusion

This study emphasizes that non venereal disorders account for good proportion of genital dermatoses in males of different age group. Genital dermatoses have multifactorial etiology and varied morphologies. Patients should be properly counselled that any dermatoses inflicting genitalia is not necessarily sexually transmitted. A meticulous clinical examination including examination of other body sites, oral mucosa and nails may play an important role in reaching the final diagnosis. Treating physician should be well versed with pattern of non-venereal dermatoses is necessary for better clinical, diagnostic and therapeutic approach.

Limitations This is a single center study conducted in Covid year which might have altered the actual prevalence.

Ethical Approval: Institutional Review Board approval number BFUHS/2k21p-TH/14768 dated February 04, 2021.

Declaration of patient consent The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship None.

Conflict of interest Authors declared no conflict of interest.

Author's contribution

RK, RA, DC: Substantial contributions to study design, acquisition of data, manuscript writing and final approval of the version to be published.

SG, RS, SM: Substantial contributions to analysis and interpretation of data, critical review and final approval of the version to be published.

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