

A Cross Sectional Descriptive Study of Non-Venereal Dermatoses Affecting the Male and Female Genitalia at A Tertiary Care Hospital of South India

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Abstract: Non-venereal genital dermatoses are common and may be confused with venereal diseases resulting in considerable anxiety and concern to the patients. Our aim was to determine the prevalence, clinical and epidemiological patterns of various non-venereal genital dermatoses involving the external genitalia including the perineal region. In the present study, we enrolled 100 consecutive patients after written informed consent, over a period of 6 months, presenting to the dermatology department with various non-venereal genital dermatoses. Venereal diseases, scabies, pelvic inflammatory diseases, diseases of internal organs like epididymis or testis, urethra, congenital and developmental abnormalities of the genitalia were excluded. The demographic characteristics, clinical findings and photographs of each patient were recorded and later analysed. The prevalence of non-venereal genital diseases observed was 5.5 per 1000 dermatology patients. Their ages ranged from 11 months to 69 years (mean age – 29.5 years) with majority belonging to the 3rd decade. The male to female ratio observed was 3:1. A total of 22 different non-venereal dermatoses were observed in the study. The most commonly observed non-venereal dermatoses were infections (18%) followed by vitiligo in 17%, scrotal dermatitis in 16 %, pearly penile papules in 11%, etc. Other dermatoses observed were lichen planus, lichen simplex chronicus, fixed drug eruption, herpes zoster, furuncle, fungal infections, etc. This study highlights the importance of diagnosing non-venereal dermatoses, which are not uncommon and refutes the general misconception that all genital diseases are sexually transmitted.

Keywords: Non-venereal, external genitalia, dermatoses, sexually transmitted, infections, vitiligo.

INTRODUCTION

A myriad of local and systemic skin diseases may produce dermatoses in the ano-genital region, resembling those produced by sexually transmitted infections (STI's). The non-venereal diseases are not sexually transmitted and may prove confusing to the clinicians as majority of them are dermatological, but patients tend to present themselves to other specialties, which lack adequate knowledge regarding the concerned subject. Their mere confusion with venereal diseases may give rise to mental distress and guilt in the affected patients. Therefore, a comprehensive approach and knowledge of the various non- venereal dermatoses may aid in effective management of the underlying dermatoses and relieve the patient's anxiety.

Depending upon the aetiopathogenesis, non-venereal genital dermatoses have been classified into the following categories [1]

- Congenital anomalies

- Benign conditions and normal variants
- Inflammatory conditions
- Infections and infestations
- Premalignant conditions
- Malignant conditions
- Miscellaneous dermatoses

The literature is saturated with case reports of non-venereal dermatoses; however, very few studies have been carried out on the overall occurrence of the same. Hence, we undertook this study to determine the various non- venereal dermatoses affecting the external genitalia including the perineal region and make the dermatologists aware of them to avoid confusion with the venereal ones.

AIM AND OBJECTIVE

The aim of our study was to determine the prevalence, clinical and epidemiological patterns of various non-venereal dermatoses commonly affecting

the external genitalia in both the sexes and analyse each of them across all age groups including the sexually active age group.

MATERIAL AND METHODS

A cross-sectional descriptive study over a period of 6 months from January 2012 to June 2012 was carried out after obtaining the institutional ethical committee clearance. A total of 100 consecutive patients with non-venereal dermatoses of the external genitalia attending the dermatology outpatient department (OPD) at Vijayanagara institute of medical sciences, Bellary (Karnataka), were enrolled after written informed consent. Patients of both the sexes willing to consent for the study were included; whereas, patients not willing to consent and those with venereal diseases, scabies, pelvic inflammatory diseases, diseases of internal organs like epididymis or testis, urethra, congenital and developmental abnormalities of the genitalia were excluded.

A detailed history including demographic data, history pertaining to external genitalia disease, history of sexual exposure, associated medical or skin disorders

was elicited and recorded. The external genitalia was examined, findings were noted and photographs were taken. To see any associated dermatoses elsewhere in the body, a detailed physical examination was carried out. Investigations such as Gram’s stain, KOH mount, biopsy and histopathological examination were carried out whenever required to establish the diagnosis. To exclude any underlying venereal disease, VDRL and ELISA test for HIV was carried out in all the patients.

RESULTS

A total of 100 patients with non-venereal dermatoses of the external genitalia were enrolled in this study. The data was collected and tabulated, later statistical analysis was done using SPSS 15 software and the results were analysed. The prevalence of non-venereal dermatoses observed was 5.5 per 1000 dermatology patients. Males (n=75) outnumbered females (n=25) and the ratio observed was 3:1. The age of the patients ranged from 11 months to 69 years and a mean age of 29.5 years was noted. Majority of the patients in either of the sexes belonged to the 3rd decade [Table 1].

Table-1: Age distribution of external genitalia dermatoses

Age Group		0-10	11-20	21-30	31-40	41-50	51-60	61-70
		Years						
Non-Venereal Genital Dermatoses								
1.	Scrotal dermatoses	-	3	5	3	3	1	1
2.	Pearly penile papules (PPP)	-	1	9	1	-	-	-
3.	Vitiligo	6	1	1	4	2	1	2
4.	Fixed drug eruptions (FDE)	-	-	2	2	-	1	-
5.	Lichen planus (LP)	-	1	2	2	-	-	-
6.	Bacterial infections	-	3	4	1	-	1	-
7.	Lichen simplex chronicus (LSC)	-	-	3	2	1	1	-
8.	Insect bite reaction (IBR)	3	-	-	-	-	-	-
9.	Herpes zoster	-	-	1	2	-	1	-
10.	Idiopathic scrotal calcinosis (ISC)	-	-	1	-	2	-	-
11.	Lymphangioma circumscriptum	-	1	1	-	-	-	-
12.	Genital psoriasis	-	-	1	-	-	-	-
13.	Generalised pustular psoriasis	-	-	1	-	-	-	-
14.	Erythroderma	-	-	-	-	1	-	-
15.	Lichen nitidus	-	-	1	-	-	-	-
16.	Bowen’s disease	-	-	-	-	1	-	-
17.	Squamous cell carcinoma	-	-	-	-	1	-	-
18.	Toxic epidermal necrolysis (TEN)	-	-	-	-	1	-	-
19.	SJS-TEN overlap	1	-	1	-	-	-	-
20.	Pemphigus Vulgaris	-	-	2	1	-	-	-
21.	Tinea cruris	-	2	1	1	1	-	-
22.	Milia	-	1	-	-	-	-	-
Total		10	13	36	19	13	6	3
Percentage		10%	13%	36%	19%	13%	6%	3%

A total of 77 (77%) patients belonged to the reproductive age group (17 females and 60 males). Out of the total 25 females, most of the females were in the reproductive age group (17 patients, 17%), followed by young girls who had not attained menarche (5 patients, 5%) and the remaining 3 patients (3%) were postmenopausal. Seventy four (74%) of them were married and the remaining 26 (26%) patients were unmarried. Among the married patients, 16 (16%) were females and 58 (58%) were males whereas among the unmarried, 9 (9%) were females and the rest 17 (17%) were males. Thirty two (32%) patients were urban area inhabitants, while the remaining 68 (68%) were from rural area. Majority of the patients were farmers (43%) followed by labourers (19%), students (18%), housewives (17%) and preschool children (3%).

Itching of the genitals, was the common presenting complaint recorded in 46 patients (46%) followed by pain and burning sensation in 20 (20%), white discoloration in 17 (17%) and swelling in 11 (11%) patients. Few other complaints that were observed included dyspareunia, redness, mass, skin exfoliation, raised lesions, oozing, ulceration, erosion and skin thickening. Some of them experienced more than one complaint.

In males, scrotum was most commonly involved in 39 (39%) patients followed by shaft of penis in 26 (26%), coronal sulcus in 19 (19%), glans penis in 16 (16%) and prepuce in 12 (12%), while both scrotum and penis were affected in 10% cases. The most common site involved in females was labia majora in 12 patients (12%) followed by labia minora in 8 (8%), clitoris in 6 (6%), mons pubis in 4 (4%) cases and introitus in 3 (3%) patients. Some of the patients had more than one site involvement.

A total of 22 different types [Table 2] of non-venereal dermatoses were screened in our study. The most common non-venereal dermatoses observed overall was infections (18 patients, 18%); whereas in males, scrotal dermatitis was commonly observed in 16 (16%) patients followed by pearly penile papules in 11 (11%), vitiligo in 9 (9%), fixed drug eruptions in 5 (5%), lichen simplex chronicus in 5 (5%), lichen planus in 4 (4%) patients, etc. and in females, vitiligo was commonly observed in 8 (8%) patients followed by bacterial infections in 5(5%) and lichen simplex chronicus in 2 (2%) patients. In this study, almost all the males and females showed concern and had mild anxiety regarding their genital dermatoses.

Table-2: Non-venereal genital dermatoses in males and females with percentage:

Sr No	Non-Venereal Genital Dermatoses	Males	Females	Total	Percentage
1.	Scrotal dermatitis	16	-	16	16%
2.	Pearly penile papules (PPP)	11	-	11	11%
3.	Vitiligo	9	8	17	17%
4.	Fixed drug eruptions (FDE)	5	-	5	5%
5.	Lichen Planus (LP)	4	1	5	5%
6.	Bacterial infections	4	5	9	9%
7.	Lichen simplex chronicus (LSC)	5	2	7	7%
8.	Insect bite reaction (IBR)	3	-	3	3%
9.	Herpes zoster	3	1	4	4%
10.	Idiopathic scrotal calcinosis (ISC)	3	-	3	3%
11.	Lymphangioma circumscriptum	2	-	2	2%
12.	Genital psoriasis	1	-	1	1%
13.	Generalised pustular psoriasis	1	-	1	1%
14.	Erythroderma	1	-	1	1%
15.	Lichen nitidus	1	-	1	1%
16.	Bowen's disease	1	-	1	1%
17.	Squamous cell carcinoma	1	-	1	1%
18.	Toxic epidermal necrolysis (TEN)	1	-	1	1%
19.	SJS-TEN overlap	1	1	2	2%
20.	Pemphigus vulgaris	1	2	3	3%
21.	Milia	1	-	1	1%
22.	Tinea cruris	-	5	5	5%
	TOTAL	75	25	100	100

DISCUSSION

A wide range of non-venereal genital dermatoses with varied etiology exist [2]. Both the venereal and non-venereal genital dermatoses may be confused owing to the modification of the normal characteristics of common diseases at the flexural sites.

So, it is of utmost importance to distinguish between venereal and non-venereal genital dermatoses and allay the anxiety and psychological distress of these affected patients. Hitherto, very few similar studies have been carried out; however, a comprehensive study as ours from this part of the country has not yet been carried

out. Thus, we conducted this study on 100 cases of clinically diagnosed non-venereal genital dermatoses with the view of studying the various clinical patterns, age/sex distribution and the percentage of cases constituting particular dermatoses.

We studied a total of 100 (M-75, F- 25) consecutive patients with non-venereal genital dermatoses, whereas Priya BT *et al.*[3] studied 75 patients (M-40, F- 35) and Puri N *et al.*[4] studied 50 patients (M=30, F =20). In these studies, males outnumbered females, including ours. Similar studies conducted by Saraswat *et al.*,[5] Karthikeyan *et al.*[6] and Khoo *et al.*[7] screened only the male patients while Singh N *et al.*[8] studied only the females.

In the present study, age of the patients ranged from 11 months to 69 years with the mean age of 29.5 years whereas, Saraswat *et al.*[5] observed that the age of patients ranged from 18 to 65 years with the mean age of 32.2 years and in a study by Karthikeyan *et al.*[6] the age ranged from 9 to 70 years with a mean age of 33.7 years; also in a similar study, Majority of the patients belonged to the 3rd decade in our study, similar to the study by Saraswat *et al.*[5] and Karthikeyan *et al.*[6] However, studies conducted by Priya BT *et al.*[3] and Puri N *et al.*[4] differed from ours as they observed majority of the dermatoses in the 4th decade.

A total of 22 different non-venereal dermatoses were observed in the present study [Table 2], whereas Puri N *et al.*[4] studied 18, Priya BT *et al.*[3] studied 14, Saraswat *et al.*[5] studied 16 and Karthikeyan *et al.*[6] studied 25 different non-venereal dermatoses.

In our study, mean age of the patients observed was 29.5 years, which did not correlate with the studies by Puri N *et al.*[4], Saraswat *et al.*[5] and Karthikeyan

et al.[6] This finding may be attributed to the fact that we included patients across all the age groups.

Overall, the most common non-venereal genital dermatoses observed by us was infections (18%) followed by vitiligo in 17%, scrotal dermatitis in 16 %, pearly penile papules in 11%, lichen simplex chronicus in 7%, fixed drug eruptions and lichen planus in 5% each. In males, the most common non-venereal genital dermatoses encountered was scrotal dermatitis (16%), followed by pearly penile papules (11%) and vitiligo (9%); whereas, in women vitiligo (8%) was most commonly observed followed by bacterial infections (5%) and lichen simplex chronicus (2%). This was in variance with other studies wherein Puri N *et al.*[4] reported scrotal dermatitis, Priya BT *et al.*[3] reported fixed drug eruptions and Saraswat *et al.*[5] and Karthikeyan *et al.*[6] reported vitiligo as the commonest non-venereal genital dermatoses.

Infections (18%) contributed to a significant number of non- venereal dermatoses in this study and were the commonest of all. Males (7%) commonly showed bacterial (4%) and viral (3%) infection while females (11%) in addition to bacterial (5%) and fungal (5%) infection showed viral (1%) infection as well. In females, among the fungal infection, tinea cruris in 5% involving the vulval area showed fungal hyphae on KOH mount, bacterial infection in the form of folliculitis (2%) and furuncle (3%) [Figure 1] was observed in 5% and viral infection constituted herpes zoster in 1%. In males bacterial infection constituted furuncles (2%) and folliculitis (2%) and viral infection in the form of herpes zoster [Figure 2] was seen in 3 (3%) males. Among the 18 patients, 2 males and one female were diabetic and 2 males were infected with HIV disease. This did not correlate with findings of the above mentioned studies. This assertion could be because most of the patients in this study were from the rural background.



Fig-1: Furuncle in the vulval area



Fig-2: Herpes zoster involving the crural area, scrotum and root of penis

Vitiligo, an acquired pigmentary disorder is characterized by depigmentation owing to the loss of melanocytes. [9] Approximately 0.1 - 4 % of people are affected by vitiligo worldwide. Genital vitiligo could be an exclusive finding, or it can be associated with other types of vitiligo. In our study, genital vitiligo was the second commonest non-venereal dermatoses that accounted for 9% of male and 8% of female [Figure 3] patients across all age groups. The study by

Karthikeyan *et al.*[6] showed dissimilarity in this aspect where the vitiligo patients were much older. The duration of the disease ranged from 1 month to 9 years. In addition to the genital involvement, 12 had focal involvement, 3 had vitiligo vulgaris and 2 had acrofacial vitiligo. Considering the social stigma that vitiligo has, all the patients showed great concern due to their genital involvement.



Fig-3: Vitiligo involving labia majora, labia minora and clitoris

The common contributory factors for scrotal dermatitis include over-washing, use of various toiletries, topical medicaments and indigenous preparations, tight clothing, friction, history of atopy, etc.[10,11] In our study, scrotal dermatitis [Figure 4] was the third most common dermatoses encountered, seen in 16% of males. Itching of the scrotum was the common presenting symptom. All gave history of

severe itching and agreed to having tried many topical solutions and creams before coming to us. Erythema, scaling and lichenification of the scrotal skin were observed in all of them. The findings were similar to other studies mentioned earlier. This could be attributed to the reason that males were maximum in the study population.



Fig-4: Scrotal dermatitis

Pearly penile papules is a common entity found in up to 50% of men and was seen in 11% males of our study. They presented with asymptomatic whitish papules arranged in 2-3 rows on the penile corona [Figure 5]. It is very important to convince the patients about the benign nature of the disease, or else it may cause a lot of mental stress to them. They may be

misdiagnosed as ectopic sebaceous glands of Fordyce or warts [2]. Khoo and Cheong *et al.* studied pearly penile papules (14.3%) as the most common non-venereal dermatoses.[7] These findings were in concordance with the study by Priya BT *et al.*[3], Puri N *et al.* [4] and Saraswat *et al.*[5].



Fig-5: Pearly penile papules on the penile corona

Fixed drug eruptions were observed in 5% of cases all of them were males. NSAID's were implicated as the causative factor in 3 (3%) patients whereas phenytoin and ciprofloxacin in one patient (1%) each. These findings were similar to those observed by Priya BT *et al.*[3] and Saraswat *et al.*[5], but were in contrast to the study by Karthikeyan *et al.*[6], where only 3 cases had FDE and all were due to cotrimoxazole. Out of 5 males, 3 presented with dusky erythematous plaques involving the prepuce and glans and 2 presented with erosions over the glans. Three (3%) of our patients with FDE also presented with oral dermatoses.

Lichen planus (LP) of the genitalia usually presents as violaceous or erythematous papules or annular plaques with or without erosions or a lacy white border. In the present study, lichen planus was observed in 5% patients, which constituted 4% males [Figure 6] and one female. This was in concordance to the findings observed by Priya BT *et al.*[3] but was in contrast to Puri N *et al.*[4] where only 2 cases, Saraswat *et al.*[5] where 9 cases and Karthikeyan *et al.*[6] where only 1 case were affected. Three (3%) of the males also had generalised lichen planus dermatoses and 2 males had oral involvement as well.



Fig-6: Lichen planus involving the penile shaft and glans

Anogenital lichen simplex chronicus (LSC) is a common disease predominantly occurring in mid- to late-adult life [12]. LSC may be either primary (arising from normal appearing skin) or secondary (superimposed on other underlying disease) [12]. Lichenification, at times may be very severe leading to marked labial or clitoral hypertrophy [13]. All our LSC patients (7%) were of primary origin, 5% were males and 2% were females. Itching and thickening of the genital skin were the predominant symptoms. The duration of their symptoms varied widely from one year to 10 years. LSC is generally bilateral but sometimes it may be unilateral, mostly determined by the patient's

dominant hand [12]. Our study also revealed this characteristic finding as all cases had bilaterally symmetrical involvement except one case having asymmetrical involvement with lichenification only on the side of the dominant hand (right side). Out of 7 % patients, 3% also had LSC over the legs. Three males gave history of atopy and one female was diabetic. In females, the lichenification was present over labia majora and minora in both the patients and scrotum was affected in all the males [Figure 7]. Priya BT *et al.*[3] and Saraswat *et al.*[5] did not report any LSC case while Karthikeyan *et al.*[6] and Puri N *et al.*[4] reported 2 cases each.



Fig-7: Lichen simplex chronicus involving the scrotum

Approximately, 2% of the general population may be affected by psoriasis. However, the genital appearance of psoriasis is very challenging to interpret [2]. Psoriasis involving the ano-genital region may present alone or with generalised dermatoses. We found only 3 males with generalised psoriasis involving the genitals. One of them was a case of chronic plaque psoriasis [Figure 8], the other a case of generalised

pustular psoriasis and one case had developed erythroderma [Figure 9] following chronic plaque psoriasis. Karthikeyan *et al.*[6] reported a solitary case of psoriasis of glans penis while Priya BT *et al.*[3] and Saraswat *et al.*[5] reported 3 cases each and Puri N *et al.*[4] reported only 2 cases of psoriasis involving genitalia.



Fig-8: Chronic plaque psoriasis involving the scrotum and root of penis



Fig-9: Erythroderma involving the penis and scrotum

Insect bite reaction (IBR) was seen in 3% males. Two of them presented with itchy papules over the shaft of the penis and scrotum, while one had edema

of the entire penis [Figure 10] with severe pain and burning sensation. None of the above studies reported IBR.



Fig-10: Insect bite reaction involving the entire penis

We encountered pemphigus vulgaris in 3 patients, 2 males and one female who presented with erosions in the affected areas. Both the males had involvement of penis and scrotum, whereas the female had involvement of the labia majora and minora. Pemphigus vulgaris affecting the genitalia was not encountered in any of the above mentioned studies.

Toxic epidermal necrolysis (TEN) and Stevens Johnson Syndrome (SJS) are generally precipitated by drugs. We observed one male and female each with SJS-TEN overlap and one male with TEN who was suffering from HIV disease and was on HAART. All of them had cutaneous and mucosal involvement. The offending drugs in the SJS-TEN overlap patients were

NSAIDS in the male and phenytoin in the female, while it was cotrimoxazole in the TEN patient.

Squamous cell carcinoma (SCC) of the genitalia is rare. However, we observed SCC involving the penile shaft [Figure 11] in only one uncircumcised male aged 59 years with history of painless genital ulcer

with induration and everted edges of 9-10 months duration. These findings were similar to the study by Puri N *et al.*[4] In the present study, we observed 3% males with idiopathic scrotal calcinosis, which is almost similar to the study by Karthikeyan K *et al.*[6] None of our patients had any systemic complaints.



Fig-11: SCC involving the penile shaft

A male with bowen's disease presented with a single scaly plaque over the glans penis since a year. In our study, 2 male patients presented with lymphangioma circumscriptum of the scrotum. We came across some rare manifestations of non-venereal dermatoses such as lichen nitidus and milia in a male patient each. However, these findings did not correlate with the above mentioned studies except Saraswat *et al.*[5] and Karthikeyan *et al.*[6] who observed a case of lichen nitidus each.

CONCLUSION

Non-venereal genital dermatoses are not uncommon. In our study, they ranged from infectious to neoplastic disorders. However, larger studies need to be undertaken to validate these findings. One should be aware of the various non-venereal dermatoses of the external genitalia and be able to differentiate them from venereal diseases and remember that all dermatoses over the genitalia are not sexually transmitted. Severe psychiatric breakouts, suicidal tendencies, depression and marital disharmony may be averted if prompt and appropriate diagnosis is made. This study highlights the importance of keeping the various non-venereal genital dermatoses in mind before labelling a patient with sexually transmitted disease.

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Nil

Conflict of Interest

None declared

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