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Research Article

PATTERN OF NON-VENEREAL GENITAL DERMATOSES IN ADULT MALE- A CLINICAL STUDY IN A TERTIARY CARE CENTRE

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ABSTRACT

Objectives: Non-venereal genital dermatoses are genital dermatoses that are not sexually transmitted. It causes extreme anxiety in patients because venereal disease is often their primary concern. The aim was to study the clinical pattern of various non-venereal genital dermatoses in males aged 18–60 years.

Methods: A cross-sectional clinical study was done among male patients between 18 and 60 years of age with non-venereal genital dermatoses attending the dermatology outpatient department of a tertiary care hospital in Eastern India. Patients clinically diagnosed with non-venereal genital dermatoses were included in the study after signing the informed consent thorough examination of the genital lesion was done with special relevance to the morphology, number, tenderness, regional lymph node involvement, etc. A complete physical and systemic examination was done. Associated skin lesions were noted. Investigations such as blood sugar, Tzanck smear, KOH mount, Gram stain, and histopathological examination were done in relevant cases. At the Venereal Diseases Research Laboratory, HIV tests were done to rule out STDs. Statistical analysis was done using the necessary software.

Results: A total of 133 patients were included in the study. The commonest age group was 18–30 years. The most common [35%] disease was Candidal Balano-Posthitis. Married people were more affected. Diseases predominant in rural areas were LSA. Non-STD genital dermatoses are less more common in Muslims. Diabetes is common in both personal and family histories.

Conclusion: For the differentiation of non-venereal genital dermatoses, apart from history and investigations, the clinical study such as age, residence, religion, and morphology of the lesions are very important. A clinician should have an unbiased approach towards genital conditions.

Keywords: Pattern, Non-venereal genital dermatoses, Male genital dermatoses.

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INTRODUCTION

Genital dermatoses in adult males can be divided into two categories: venereal and non-venereal. Between these two types, the non-venereal is the most common. Non-venereal genital dermatoses can be seen over the genitalia, and are not sexually transmitted [1]. Some of the diseases are seen only in the genitalia such as balano-posthities and scrotal dermatitis and others are seen in different body parts apart from the genital area, for example, vitiligo, psoriasis, etc. They may be inflammatory (psoriasis) or autoimmune (vitiligo). Some of them are exogenous (contact dermatitis, fixed-drug eruption), and some are infectious (scabies, tinea).

The pattern of genital dermatoses varies according to age, as malignancies usually appear in the elderly [2]. Genital diseases caused by non-STD dermatoses frequently resemble those caused by sexually transmitted diseases, so it is important to be aware of that. It causes extreme anxiety in patients [2] because venereal disease is often the patient's primary concern. As people in the adult and older age groups are more concerned about genital diseases, we liked to analyze the pattern of genital dermatoses in this age group.

In this scenario, we intend to carry out a clinical study to find out the pattern of non-venereal genital dermatoses in adult male of 18–60 years of age in a tertiary care center in eastern India.

METHODS

A cross-sectional clinical study was done among male patients between 18 and 60 years of age with non-venereal genital dermatoses attending the dermatology outpatient department (OPD) of a tertiary care hospital in Eastern India from March 2018 to February 2019.

Patients clinically diagnosed with non-venereal genital dermatoses were included in the study after signing informed consent in the patient's language. Patients who declined consent were excluded from the study.

A thorough examination of the genital lesion was done with special relevance to the morphology, number, tenderness, regional lymph node involvement, etc. A complete physical and systemic examination was done. Associated skin lesions were noted.

RESULTS

A total of 133 patients were included in the study. The most common age group was 18–30 years (33.8%), followed by 51–60 years (24.8%). The married-unmarried ratio was 2.4:1 (Table 1). The most common presenting complaint was itching (Fig. 1). The duration of diseases was between 1 day (irritant contact dermatitis) and 10 years. The most common morphology of lesion was patch (21.8%) (Fig. 2). Glans was the most common site involved, 77 (57.75%), followed by prepuce, 44 (33%), the shaft of penis, 18 (13.5%), and scrotum, 22 (16.5%). Involvement of more than one site was present in many patients.

The most common (35%) disease was Candidal Balanoposthitis (47/133), followed by LSA (7.5%, 10/133), (Table 2). Balanoposthitis was the most common disorder in all age groups. Other diseases more common in different age groups were as follows: vitiligo, pearly penile

papules, epidermal cysts, and ICD were more common in the 18–30 year age group; FDE and Lichen Planus in 31–40 year group; LSA and FDE in 41–50 year group; and LSA, Zoon's balanitis, and SCC in 51–60 year age group. Diseases predominant in rural areas were LSA, Peyronie's disease, and scrotal dermatitis, whereas Balanoposthitis and FDE were predominant in urban areas. Non-STD genital dermatoses common in Muslims were only epidermal cysts and ICD. On the other-hand, Balanoposthitis (40 vs. 7), LSA (10 vs. 0), and some others were very common in the Hindu population (Table 3).

Diabetes was common in both personal and family histories. Diabetes was present in 15 (11%) patients, the common genital dermatoses among them were Balanoposthis in 12 (80%); a family history of diabetes was present in 13 (10%) patients;Balanoposthitis was again the most common among them (Table 4). Different genital dermatoses in male genitalia are shown in Figs. 3-5.

Table 1: Demographic profile

Demographic variables	n (%)	p
Age group (years)		
18–30	45 (33.8)	
31–40	25 (18.8)	
41–50	29 (21.8)	
51–60	34 (25.5)	
Marital status		
Married	94 (70.68)	<0.0001
Unmarried	39 (29.32)	
Inhabitance		
Rural	68 (51.1)	>0.05
Urban	65 (48.9)	
Religion		
Hindu	112 (85.2)	<0.0001
Islam	21 (14.8)	
Occupation		
Student	18 (13.5)	
Service	24 (18.0)	
Labour	29 (21.8)	
Business	38 (28.6)	
Farmer	19 (14.3)	
Unemployed	5 (3.8)	

Table 2: Common nonvenereal genital dermatoses

Group	Percentage of total disorders (133)	Name of disorder	Individual disease (%)
Benign conditions and normal variants	12	Angiokeratoma	0.8
		Epidermal cyst	3.7
		Pearly penile papule	6.0
		Tyson's gland	1.5
Infections and infestations	37.8	Tinea	1.5
		Traumaticulcer	0.8
		Balanoposthitis	35.3
Inflammatory conditions	39.0	FDE	6.0
		Genital apthous	1.5
		ICD	3.8
		Lichen nitidus	1.5
		Lichen planus	4.5
		LSA	7.5
		Peyronie's disease	3.0
		Porokeratosis	0.8
		Psoriasis	3.0
		Reiter syndrome	0.8
		Scrotal dermatitis	3.0
		Zoon balanitis	3.8
Premalignant conditions	4.6	Erythroplasia of queyrat	0.8
		SCC	3.8
Miscellaneous	6.7	Vitiligo	6.7
Total	100		100

LSA: Lichen sclerosus ET atrophicus, SCC: Squamous cell carcinoma

DISCUSSION

The most common disease in our study was balanoposthitis (35.3%), followed by LSA (7.5%) and vitiligo (6.8%). Balano-posthitis was also the most common disease, comprises of 35% of total non-venereal diseases. But studies from other parts of India show that it is less common [3-5]. The high incidence of diabetes mellitus in this region may be the reason, as in this study we also observed a statistically significant (p=0.03) association between diabetes and balanoposthitis. In the study of Rajakumari and Sudha [6], 41.6% of total patients had Candidal balanoposthitis, which was followed by pearly penile papules, genital vitiligo, scabies, etc. [6]. The most common non-venereal genital dermatoses observed were scabies (26%), which was followed by vitiligo (17.2%) and it was a general belief that genital dermatoses are poorly understood and difficult to diagnose and treat. But careful history–taking, which includes sexual practices, environmental factors, topical application, the presence of other cutaneous diseases, and a complete dermatological examination with relevant investigations, enables easy diagnosis and satisfactory medical and surgical management in most of the cases. The prevalence of male non-venereal genital dermatoses was not low; in this study, it was 3.54/1000 cases. This was marginally more than a few other studies, such as 2.6/1000 population [2] and 30.8/10,000 male patients [1] from South India.

The commonest age group affected in this study was 18–30 years (33.8%). Except for LSA, Zoon's balanitis, Sq CellCa, Peyronie's disease, and scrotal dermatitis, all other diseases were common in this age

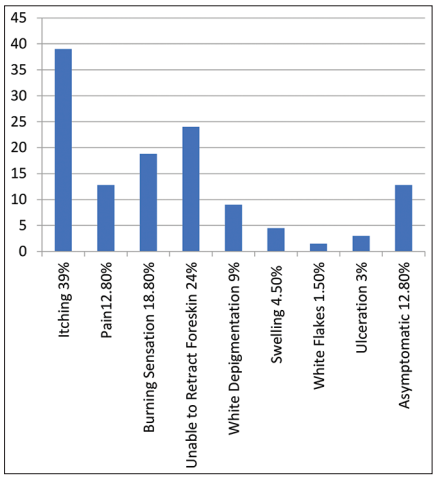

Fig. 1: Presenting complains

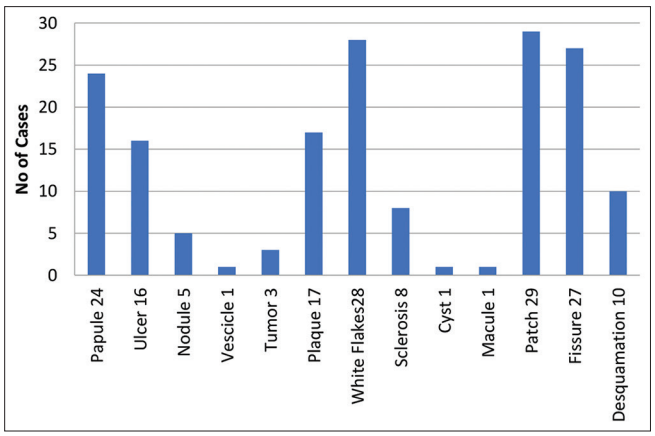

Fig. 2: Morphology of lesions (n=133)

Table 3: Nonvenereal genital disorders in relation to age, religion and habitat

Diseases	Age group in years				Percentage of total cases	Religion		Inhabitat	
	18–30	31–40	41–50	51–60		Hindu	Islam	Rural	Urban
Balanoposthitis	10	9	14	14	47 (35.3)	45	2	20	27
Vitiligo	7	0	1	1	9 (6.8)	8	1	5	4
Pearly penile papule	6	1	1	0	8 (6.0)	7	1	5	3
Epidermal cyst	4	0	1	0	5 (3.8)	1	4	3	2
ICD	4	0	1	0	5 (3.8)	4	1	2	3
Lichen planus	3	2	1	0	6 (4.5)	5	1	2	4
FDE	3	3	2	0	8 (6.0)	6	2	1	7
LSA	1	1	4	4	10 (7.5)	9	1	8	2
Zoon's balanitis	1	0	0	4	5 (3.8)	5	0	3	2
SCC	0	1	1	3	5 (3.8)	4	1	2	3
Angiokeratoma	0	1	0	0	1 (0.8)	1	0	1	0
Bechets disease	0	0	0	1	1 (0.8)	1	0	0	1
Eruthroplasis of queyrat	0	0	0	1	1 (0.8)	1	0	0	1
Genital aphthous	0	1	0	0	1 (0.8)	1	0	0	1
Lichen nitidus	2	0	0	0	2 (1.5)	1	1	2	0
Peyronie's diease	0	1	2	1	4 (3.0)	1	3	4	0
Porokeratosis	0	0	0	1	1 (0.8)	1	0	0	1
Psoriasis	1	1	0	2	4 (3.0)	4	0	2	2
Reiter's syndrome	0	1	0	0	1 (0.8)	1	0	0	1
Scrotal dermatitis	0	2	1	1	4 (3.0)	2	2	3	1
Tinea	1	0	1	0	2 (1.5)	2	0	1	1
Traumatic ulcer	1	0	0	0	1 (0.8)	1	0	1	0
Tyson's gland	1	1	0	0	2 (1.5)	2	0	2	0
Total, n (%)	45 (33.8)	25 (18.8)	30 (22.6)	33 (24.8)	133 (100)	112 (84.2)	21 (15.8)	68 (51.12)	65 (48.88)

LSA: Lichen sclerosus ET atrophicus, SCC: Squamous cell carcinoma

Table 4: Diabetes and nongenital dermatoses

Diabetes present in 15/133 patients of nongenital dermatoses		Family history of diabetes present in 13/133 patients of nongenital dermatoses	
Diseases	**Numbers**	**Diseases**	**Numbers**
Balanoposthitis	12	Balanoposthitis	6
Psoriasis	1	Pearly penile papule	2
Zoon's balanitis	1	Erythroplasia of queyrat	1
SCC	1	Epidermal cyst	1
		LSA	1
		Lichen planus	1
		Vitiligo	1

LSA: Lichen sclerosus ET atrophicus, SCC: Squamous cell carcinoma

group. This group of disorders may appear for the first time in this age group, and at the same time, treatment-seeking behavior of this group may be the underlying reason for its highest frequency. Our finding is similar to other studies as follows: 19–30 years (38%) [3], 21–30 years (60%) [1], 30–40 years [4], 21–30 years (30%) [5], 21–30 years (40%) [7], and 21–40 years (33%) [8]. The mean age of the patients in this study was 39.36 years, which was 40.74 years in [2], 38 years [4], 32.2 years [7], 48 years [1], and 36.9±13.9 [8]. There is a close approximation among all.

There was no difference between rural (51%) and urban (49%) patient populations, (though the population distribution ratio in the state is 68.13% and 31.87%, respectively [9]. It differs from previous studies where the urban and rural distribution was 64% and 36% [3], and 74% and 26% accordingly [7].

But married persons were more affected by with non-venereal genital dermatoses. The married and unmarried patients were 71% and 29%, respectively, in our study; it was 67% and 33% [3], married 96% and 4% unmarried [4], 52% versus 48% [10], and 68% patients versus 32% [1] in other studies. This may be due to the fact that nearly 30% of patients are in the 18–30 age group, and usually older patients are married.

There was a significant difference in affection in different religions, also. The incidence of non-veneral genital dermatoses in Hindu patients was high (85%) compared to Muslim (15%) patients; though in skin OPD, the Muslim patients are seemingly more common than in Hindu patients. We do not know the exact cause of these differences, but they may be due to the circumcision procedure, which Muslims have to follow in childhood as a ritual. This circumcision is the main factor responsible for less occurrence of non-venereal genital disease. Our study on non-venereal genital dermatoses among circumcised individuals was supported by American [11] and European studies [12]. They concluded that properly performed neonatal circumcision prevents phimosis, paraphimosis, and balanoposthitis, and is associated with a markedly decreased incidence of cancer of the penis. It occurs due to the presence of the foreskin, which promotes inflammation by a koebnerization phenomenon, or the presence of infectious agents, as yet unidentified, which may induce inflammation.

Among the patients, the majority were small-scale businessmen (28%) followed by daily labourer (21%) who were involved in rickshaw pulling, coolie, driving, etc. The cause of increased incidence may be due to a lack of hygiene.

Regarding the presenting complaint, itching was most common (39%) in our study, followed by the inability to retract the penis among 24% of patients. This may be due to more BP and LSA cases. Itchy genitalia was the common presenting feature in other studies also, with other features including de-pigmentation, pain, burning sensation, redness, exfoliation of the skin, raised lesions over the skin, oozing, ulceration, erosions, thickening of the skin, and growth [4,5,7]. Various factors for itching may include continuous friction, tight clothing for a long duration, atopy, maceration, the use of various toiletries, etc.

The most common site involved was the glans, affected in 71% of patients, followed by the prepuce in 55%. The moist, warm area under the prepuce may be the reason, ideal place for organisms to grow, chemicals to stay longer, and so on. This may explain the reason for less Muslim predominance, as preputial skin is absent in them. Many patients present with more than one site of involvement. For example, Balanoposthitis involves the glans as well as prepuce. In a previous study,

Fig. 3: (a) penile porokeratosis; (b) multiple genital aphthous ulcer; (c) balano-posthitis with fissuring of prepuce; (d) penile porokeratosis; (e) scrotal epidermal cyst with calcinosis; (f) fixed drug eruption with erosion of glans and prepuce

Fig. 4: (a) genital lichen plauus; (b) zoon's balanitis; (c) lichen scherosis et atrophicus with stricture of prepuce; (d) pearly penile papule; (e) circinate balanitis in reiter's syndrome; (f) penile growth of sguamous cell carcinoma

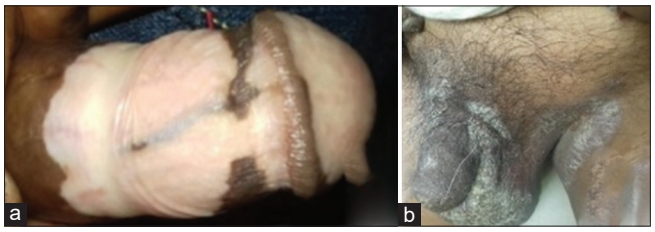

Fig. 5: (a) penile (mucosal) vitiligo involving glans, shaft; (b) genital psoriasis

they did not show the glans and prepuce separately, but the penis (57%) was most commonly involved in their study [3]. Scrotum was affected in 51% of patients, the penis in 39%, and both in 10% in another study [1].

We have observed a total of 23 different non-venereal dermatoses (Table 2) and divided into five major groups. Their prevalence in order of frequency was inflammatory group 39%, infections and infestations 38%, congenital and developmental 12%, miscellaneous 6.7%, and premalignant and malignant 4.6%. In a study from Western India, the distribution was 58%, 23%, 11%, 7%, and 1%, respectively [5], and in a south Indian study, the inflammatory disorders were 58%, the infection and infestation (23%), and benign tumors and cysts (11%) [10]. A comparison table (Table 5) shows the differences between different genital dermatoses in different studies.

The most common disease in our study was Balano-posthitis (35.3%) In the South Indian study, it was psoriasis (17%), followed by superficial dermatophytosis (16%), and Stevens-Johnson syndrome (7%) [10]. In a North Indian study, scrotal dermatitis was most commonly seen (16.6%), followed by vitiligo (14.3%) [4].

Lichen sclerosus ET atrophicus was the most common disorder in the inflammatory dermatoses group, and was noticed in 7.5% (10 patients) in our study. It varies from 2%, 4% to 10% in different studies [2-4].

Lichen planus was found in 4.5% of cases, and the affected age group was between 18 and 50 years old. No patient was found beyond that age. This value is similar to Priya *et al*. (5%) [13].

The prevalence of psoriasis was 3%. This is the same in a few studies; others have more incidence: 8%, 6.6, 17%, 10/70, 3% [1,2,4,5,7,10].

FDE was noticed in 6% of the total study population and more often due to flouroquinolone groups such as norfloxacin, and levofloxacin

Table 5: A comparison between different studies on nonvenereal male genital diseases

Diseases	Our study (number/ percentage of total case)	1. Kumar *et al.* (200 cases)	2. Babu *et al.* (114)	3. Talamala *et al.* (100 cases)	4. Puri and Puri	5. Shinde and Popere	6. Saraswat *et al.* (100)	7. Devanand *et al.* (216 cases)	11. Karunakaran (100 cases)	12. Rajakumari and Sudha (560)	13. Priya *et al.*	14. Karthikeyan *et al.* (100)
Balano posthitis	47 (35.3)	24 (12)	8/114	10		1		11		41.6	2/40	5/100
Vitiligo	9 (6.8)	24 (12)	11	19/100	4/14.3	5	18	17.2	5	9.1	2/40	16/100
Pearly penile papule	8 (6.0)	21 (10.5)	10 (34.4)	16	3/10	3	16		30	10.7	5/40	
Epidermal cyst	5 (3.8)	6 (3)	10	6	2/6.6	5	7		5		2/40	18/100
ICD	5 (3.8)	7 (3.5)	4							4.6		
Lichen planus	6 (4.5)	6 (3)	4	3	2/6.6	2	9			1.4	2/40	1/100
FDE	8 (6.0)	10 (5)	5 (10)	2	3/10	7	12	3.3	7	4.3	5/40	3/100
LSA	10 (7.5)	4 (2)	3	2			3			1	1/40	2/100
Zoon's balanitis	5 (3.8)	1 (0.5)	2 (4)	2			2			1.2	2/40	
SCC	5 (3.8)	1 (0.5)			2/6.6	1	1		1	1	1/40	
Angiokeratoma	1 (0.8)	4 (2)	5 (17.2)	2		3				0.7		2/100
Behcet disease	1 (0.8)	1 (0.5)										
Erythroplasia of queyrat	1 (0.8)	1 (0.5)		2						0.9		
Genital apthous	1 (0.8)											
Lichen nitidus	2 (1.5)	3 (1.5)	1				1					
Peyronie's disease	4 (3.0)											
Porokeratosis	1 (0.8)											
Psoriasis	4 (3.0)	4 (2)	4		2/6.6	17	3	2.8	1	0.7	3/40	1/100
Reiter syndrome	1 (0.8)					3						
Scrotal dermatitis	4 (3.0)	6 (3)	5	9	5/16.6		9			1.2	4/40	13/100
Tinea	2 (1.5)	5 (2.5)	2	6	2/6.6	8	5		1	2.5	4/40	2/100
Traumatic ulcer	1 (0.8)			2						1.7		
Tyson's gland	2 (1.5)		4	1								
Total	133 (100)											

LSA: Lichen Sclerosus et Atrophicus; SCC: Squamous Cell Carcinoma

for loose stool, followed by NSAIDS. Previous studies had a 5–12.5% incidence [1,13].

In the congenital and developmental groups, pearly penile papules were 6% in our study, neither so common nor too few. This is similar to Shinde and Popere [5] (3%). In other previous studies, it was more [1,3,4,7,10,13]. Epidermal cyst, a developmental disorder found in 3.8% of patients, is mostly seen in the early age group, i.e., 18–30 years. In our study, all the patients with epidermal cysts were in this group except one old patient who came with calcinosis. It was 5–14% in previous studies [3,13,14].

Nowadays, superficial fungal infections are very common. Although it infects the crural regions, buttocks, face, scalp, trunk, etc., it is surprisingly not able to infect the genitalia so much. Our study showed 1.5% of patients had tine an infection on the genital. It is similar to a previous study where it was 2% [14]. Whether in other studies it is slightly high (10%) [13]. Maybe the disproportionate usage of topical corticosteroid-containing fixed-dose combination preparations is a reason for that.

In the miscellaneous group, vitiligo may present associated with a generalized form or in an isolated form. In this study, we have taken, vitiligo which only involved genitalia, and it is 6.8% in our study, which is very similar to a study (5%) [13]. But in another study, it was as common as 14% of total patients [4]. Actually, mucosal vitiligo, involving only the genitalia, remains unnoticed in the majority of cases.

There were variations in premalignant and malignant conditions. The incidence was 5 (3.8%), and 3 out of 5 were above 50 years. Earlier studies had 1–5% incidence [3,4,8,9]. Penile carcinoma is one of the most common malignancies in older men.

CONCLUSION

Genital lesions are not always sexually transmitted. For the differentiation of non-venereal genital dermatoses, apart from history and investigations, the clinical study such as age, residence, religion, and morphology of the lesions is very important. A comprehensive understanding of the various presentations and their etiology is therefore equally important. Clinicians should have an unbiased approach toward genital conditions so that patients will be confident in seeking medical help. It also creates awareness in patients about the importance of proper personal hygiene and wherever relevant. Patients, who have fear and a lack of knowledge, need more attention, education, and privacy. This study was quiet useful in understanding the epidemiological, clinical, and etiological characteristics of various non-venereal genital dermatoses. The most common age group is 18–30 years; married persons had a higher incidence, but religion was also a decisive factor, found and circumcision is very effective for the prevention of non-venereal genital disease in adult males. There is no difference in habitat, but it is highly associated with diabetes.

Limitations

Lack of proper data on the total number of patients based on religion, the study should have more participants.

CONFLICT OF INTERESTS

There is nothing to declare, between the author.

FUNDING

This study was done at the Departmental OPD, and it is one tertiary care Government Hospital. There was no funding required for the study, it was done as Post graduate curriculum.

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