A clinical study on non venereal genital dermatoses in adult males at a tertiary care center

P. Sandeep Kumar[1], S. Ramatulasi[2*], Sashanka Darla[3], Anand Acharya[4]

[1]Consultant, [2]Assistant Professor, [3]Post Graduate, [4]Professor, [2,3]Dept. of DVL, [4]Dept. of Pharmacology, [1]Pragati Skin Clinic, Khammam, Telangana, [2-4]Konaseema Institute of Medical Sciences Research Foundation, Andhra Pradesh, India

***Corresponding Author: S. Ramatulasi**
Email: drtulasiderma@gmail.com

Abstract
Introduction: Non-venereal genital dermatoses tend to be confused with venereal diseases, which cause concern to patients and diagnostic dilemma to physicians. A comprehensive understanding of their pattern of presentation, etiology and treatment options is therefore essential to effectively manage the condition and also allay the associated anxiety. This study was to determine the clinico- etiological and epidemiological pattern of presentation of non-venereal dermatoses in male genitalia;
Materials and Methods: This was a hospital based descriptive study of 200 male patients over the age of 18years with non-venereal dermatoses of external genitalia attending DVL OPD of KIMS, Amalapuram. Patients having any venereal disease were excluded. A detailed history was taken and a thorough examination of the genitalia, skin and mucosae was done. Gram's stain, KOH mount, Tzanck smear, patch test, skin biopsy were done as and when required to establish the diagnosis.
Results: The overall prevalence of non-venereal genital dermatoses during the study period was 30.8 per 10,000 male patients. A total of 28 different conditions were identified of which the most common was scabies which accounted for 38% followed by candidiasis and vitiligo 12% each, pearly penile papules (10.5%). Certain interesting cases like verrucous carcinoma, lupus valgaris, Behcet's disease, Erythroplasia of Queyrat, Lymphangiectasia with ramhorn penis and Acrochordon over prepuce were encountered. The data was tabulated and analysed using SPSS version22.
Conclusion: Knowledge about the prevalence, etiology of various non- venereal genital dermatoses will be helpful to arrive at adiagnosis and create awareness among patients.

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

Introduction
Patients with genital dermatoses are anxious and apprehensive at presentation as they believe them to be the manifestations of sexually transmitted diseases (STDs). In contrast to this popular belief, not all genital dermatoses are sexually transmitted. The diseases which are not sexually transmitted are refered to as non-venereal dermatoses. Fitzpatrick and Gentry[1] classified these dermatoses based on pathogenesis as 1) Benign abnormalities 2) congenital abnormalities 3) Trauma and artefacts 4) Inflammatory diseases 5) Non venereal infections and infestations 6) Benign tumours 7) Premalignant lesions 8) Malignant lesions 9) Miscellaneous lesions. Genital dermatoses pose a difficulty in diagnosis as the morphology is modified by the special environment of the genitalia like heat, friction and occlusion. Non-venereal genital dermatoses may not be restricted to the genitalia alone but can also affect other areas of the body. So, examining the extra genital sites aids in the diagnosis. Even with benign lesions some patients develop venerophobia, cancer phobia. Hence it is important to be aware of these conditions and to differentiate them from venereal disease. Explaining the true and benign nature of these lesions will remove this fear. Because of the stigma associated with genital lesions, most of these patients do not approach the medical fraternity unless the disease burden is unbearable which in case of malignant lesions can endanger their lives.[2] Clinicians should have an open mind to look for these genital lesions so that patients feel confident to seek medical help. A comprehensive understanding of the various presentations, their causes and appropriate treatment options is essential to effectively manage these non-venereal dermatoses and allay the associated anxiety. The aim of our study was to determine the clinical and etiological factors, various patterns of presentation of non-venereal dermatoses in male genitalia and to assess which dermatoses have a predilection for exclusive genital involvement and which occur as a part of the generalised skin involvement.

Materials and Methods
This was a hospital based descriptive study approved by the institutional ethics committee. A series of 200 male patients over the age of 18years with non-venereal dermatoses of external genitalia were screened among the patients attending DVL OPD of Konaseema Institute of Medical Sciences, Amalapuram during the period of 3years from January 2016 to December 2018. Patients having any venereal disease were excluded from the study. After informed consent from the patient, detailed history regarding age, education, marital status, sexual practices, circumcision, trauma, drug intake, application of topical creams, recurrence, initial site of affection, duration and progression of the disease, associated medical and skin disorders was taken. Preliminary general and systemic examination was done. External genitalia, anal and perianal regions were examined. A thorough examination of the skin and mucosae was done to look for lesions elsewhere in the body. Gram's stain, KOH mount, Tzanck smear, patch test, skin biopsy were done as and when required to establish the diagnosis. In suspected cases, VDRL, HIV tests were done to rule out STDs. The relevant details of the patient,

examination findings, investigations, diagnosis were recorded in the standard proforma. The data was tabulated into excel sheets and analysed using SPSS version22.

Results

The overall prevalence of non-venereal genital dermatoses during the study period was found to be 30.8 per 10,000 male patients attending the department of DVL, Konaseema Institute of Medical Sciences, Amalapuram. The age of the patients ranged from 18 to 78 years with the mean age of 48years. Majority were in the age group of 21-30 years (60%) followed by 31-40 years (54%) Table 1. Sixty eight (68%) patients were married and the rest 32% were unmarried. Scrotum was affected in 51% of patients, penis in 39% and both in 10%.

Table 1: Age distribution of patients

Age in years	No. Of patients
<20	9(4.5%)
21-30	60(30%)
31-40	54(27%)
41-50	38(19%)
51-60	13(6.5%)
61-70	14(7%)
71-80	12(6%)

A total of 28 different conditions were identified which were broadly classified into 5 categories based on etiology (Table 2). Infections and infestations group formed the majority (37.5%) followed by inflammatory disorders (30%), Benign variants (16%), Miscellaneous conditions, Malignancies (1.5%). The most common disorder was scabies which accounted for 38% followed by candidiasis and vitiligo 12% each, pearly penile papules (10.5%).

Table 2: Categorization of lesions based on etiology

Lesions	No. (%)
Benign conditions and physiological variants	
Pearly penile papules	21 (10.5%)
Lichen nitidus	3 (1.5%)
Angiokeratoma of Fordyce	4 (2%)
Acrochordons	1 (0.5%)
Seborrheic keratoses	3 (1.5%)
Infections & Infestations	
Scabies	38 (19%)
Candidiasis	24 (12%)
Furunculosis	6 (3%)
Tinea	5 (2.5%)
Phthriasis	1 (0.5%)
Inflammatory conditions	
Lichen planus	6 (3%)
Lichen sclerosus et atrophicus	4 (2%)
Psoriasis	4 (2%)
Contact dermatitis	7 (3.5%)
Scrotal dermatitis	6 (3%)
pemphigus	5 (2.5%)
Lymphangiectasia	2 (1%)
Fixed drug eruption	10 (5%)
Stevens-Johnson syndrome	5(2.5%)
Lichen simplex chronicus	9(4.5%)
Behcet's disease	1(0.5%)
Zoon's balanitis	1(0.5%)
Pre-malignant & malignant conditions	
Erythroplasia of Queyrat	1(0.5%)
Squamous cell carcinoma	1(0.5%)
Verrucous carcinoma	1(0.5%)
Miscellaneous	
Vitiligo	24(12%)
Sebaceous cyst	6(3%)
Lupus vulgaris	1(0.5%)

The patients were grouped into four categories based on the site of involvement of the lesions Table 3.

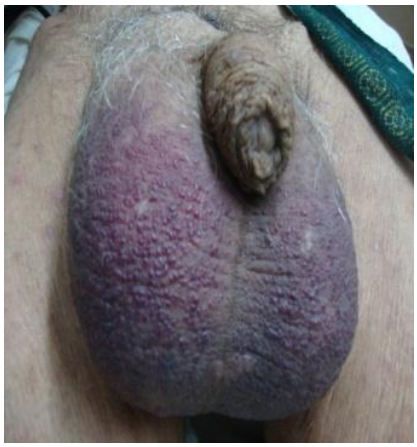

Fig. 1: Angiokeratoma of Fordyce

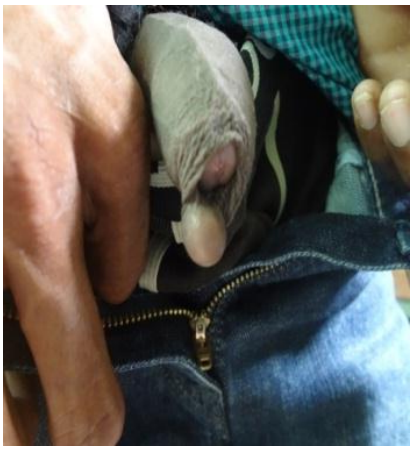

Fig. 2: Acrochordon

Fig. 3: Fixed drug eruption

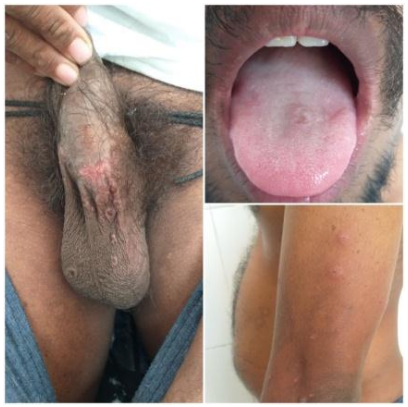

Fig. 4: Behcet's disease

Fig. 5: Lymphangiectasia with Ram-horn penis

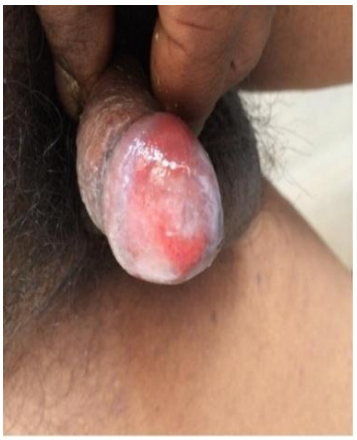

Fig. 6: Zoon's balanitis

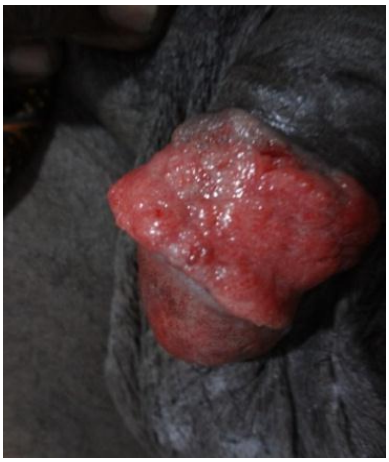

Fig. 7: Erythroplasia of Queyrat

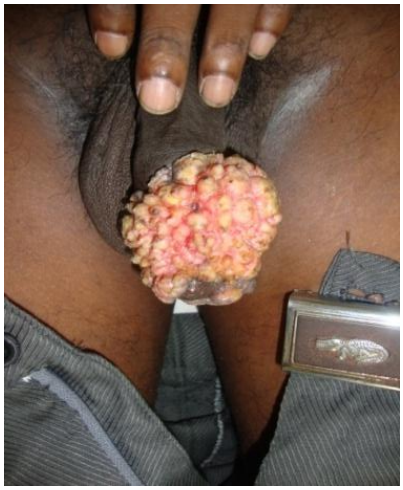

Fig. 8: Verrucous carcinoma

Table 3: Classification based on site

Site	Genital alone (%)	Orogenital (%)	Genital & skin (%)	Orogenital & skin (%)
No. of patients	105(52.5%)	8(4%)	71(35.5%)	16(8%)

Exclusive involvement of the genitalia was significantly higher (52.5%) than genitalia being involved as a part of generalised eruption (47.5%).

Discussion

The overall prevalence of non-venereal genital dermatoses during the study period was found to be 30.8 per 10,000 male patients attending the department of DVL, Konaseema Institute of Medical Sciences, Amalapuram which is more than that observed by Karthikeyan K et al,[3] where the prevalence was 14.1 per 10000 male patients. Some patients with non-venereal dermatoses report to general physicians or genito-urinary surgeons, the true prevalence and pattern can be known only with combined clinics.

The age of the patients in our study ranged from 18 to 78 years with the mean age of 48years.Majority were in the age group of 21-30 years (60%) followed by 31-40years (54%) similar to the studies done by Karthikeyan K et al[3] and Saraswat et al[4] where as in the study done by Acharya et al[5] majority belonged to the age group of 31 to 40years (31%). A total of 28 different conditions were identified in the present study. Karthikeyan et al[3] and Saraswat et al[4] had observed 25 and 16 different types in their respective studies. The cases were broadly classified into five categories based on etiology (Table 2). Infections and infestations group formed the majority (37.5%) followed by inflammatory disorders (30%), Benign variants (16%), Miscellaneous conditions, Malignancies (1.5%). The most common disorder was scabies which accounted for 38% followed by candidiasis and vitiligo 12% each, pearly penile papules (10.5%). The commonest disorder observed in various studies is as shown in Table 4.

Table 4: Commonest disorder observed in various studies

Present study	Scabies
Khoo LS et al[6]	Pearly Penile Papules
Saraswat et al[4]	Vitiligo
Acharya et al[5]	Infections
Karthikeyan et al[3]	Vitiligo

Scabies was found in 19% of cases in the present study. The prevalence of Scabies was 10% in Saraswat et al[4] study and 9% in Karthikeyan et al[3] study.

Candidiasis presented in 12% of cases as erythematous eroded lesions on the glans, radial fissures over the prepuce. Most of these patients were in 40 to 50 year age group and 18 of them were found to have type 2 diabetes mellitus. Patients with recurrent episodes of phimosis secondary to candidiasis were advised circumcision. Karthikeyan et al[3] noted 5% cases of candidal balanoposthitis and it was 6.5% in the study by Acharya et al.[5]

A case of Lupus vulgaris presented as two annular plaques over the scrotum with raised margins at one end and scarring at the other and the diagnosis was confirmed by histopathology. Furunculosis (3%), tinea (2.5%), pthirius pubis (0.5%) constituted the rest in infections and infestations group.

In the present study, we encountered genital vitiligo in 12% cases which is in concordance with the studies done by Karthikeyan et al[3] and Saraswat et al[4] who reported vitiligo in 16% and 18% cases respectively. Pearly Penile Papules were seen in 10.5% of our patients similar to Khoo LS et al[6] (14.3%), Saraswat et al[4] (16%). The percentage of Pearly Penile Papules ranged from 2.5% to 34.4% in various studies.[3,5,7] They appeared as multiple flesh colored to pale small rounded papules around the coronal sulcus. Most of these patients belonged to younger age group and are apprehensive considering them to be warts. They were counselled regarding the benign nature. Sebaceous cysts were found in 6% of cases. A cutaneous horn developed from the underlying sebaceous cyst in one of these patients. Angiokeratoma of Fordyce [Fig. 1] was observed in 4 patients as bluish red keratotic papules over the scrotum. There were no similar lesions elsewhere in the body. Karthikeyan et al[3] and Acharya et al[5] reported two cases each. Acrochordons over the external genitalia are quite rare.[8,9,10] An achrochordon [Fig. 2] of 2×2.5cm size was seen arising from the prepuce. This patient also had multiple acrochordons over his neck. Lichen nitidus and Seborrheic Keratoses were seen in three patients each. Acharya et al[5] and Karthikeyan et al[3] reported similar findings.

Lichen planus was found in six patients(3%) which is in contrast to Saraswat et al[4] (9%),Puri and Puri et al[2] (6.6%), Karthekeyan et al[3] (1%). Of these, four had genital lesions alone with annular morphology, one had orogenital lesions and the other had concurrent oral, genital and skin involvement. Psoriasis involving the genitalia was found in two patients. Out of the two, one had exclusive involvement of glans similar to the observation by Karthikeyan et al[3] and the other had lesions elsewhere. Saraswat et al[4] observed 3% cases of genital psoriasis in their study but all of these patients had lesions elsewhere in the body. Acharya et al[5] came across five cases of psoriasis involving the genitalia in their study. Genital involvement can occur in up to 30% of patients with psoriasis. In 2 to 5% the lesions may occur only in this area.[2] There are several reports of isolated occurence of lichen planus and psoriasis on the glans penis.[11-14] The explanation can be related to Koebnerisation due to intercourse, tight clothes, contact with urine.

Ten cases of Fixed drug eruption (FDE) [Fig. 3] were noticed and the drugs implicated were Ibuprofen, diclofenac, cotrimoxazole, tetracycline, ciprofloxacin, ornidazole and metronidazole. Saraswat et al[4] reported 12% cases of FDE where as Karthekeyan et al[3] had 3 cases in their study. Stevens Johnson syndrome was seen in 5 patients. The causative drugs were Phenytoin in two cases, Carbamazepine in one case, Ciprofloxacin in the other two.

Behcet's disease [Fig. 4] was diagnosed in a 25year old male patient who had oral, genital aphthae and erythema multiforme like lesions over the extremities. The diagnosis was confirmed by histopathology. Lymphangiectasia were seen in 2 known cases of filariasis, as multiple papules and vesicles over the scrotum. One of them had swelling of the penis resulting in Ram-horn penis [Fig. 5]. Lymphangiectasia of scrotum secondary to filariasis was observed in 4 and 2 patients respectively, in the studies done by Karthikeyan et al[3] and Saraswat et al[4]. Binitha et al reported a similar case.[15] Filarial involvement of penis in the late stage may lead to "ramhorn" penis.[16] However, cases of

genital lymphangiectasia along with ramhorn penis were not reported so far. Lichen simplex chronicus of scrotum was seen in 9 patients. History of atopy was present in 3 of these patients.

Concerned about hygiene and STDs, some people use vigorous cleansing regimens, deodorants which can lead to irritant contact dermatitis. We have come across five such cases in the present study. Two of these have followed application of indigenous medication. Lichen sclerosus et atrophicus (LSA) was seen in 3 (1.5%) patients in our study similar to Karthikeyan et al[3] (2%) and Saraswat et al[4] (3%). An uncircumcised middle aged patient presented with erythematous slightly raised plaques over the glans with histology confirming the diagnosis of zoon's balanitis [Fig. 6]. Saraswat et al[4] had reported two cases of zoon's balanitis while Acharya et al,[5] Karthikeya et al[3] didn't find these cases in their study.

Squamous cell carcinoma can develop from chronic inflammatory lesions like LSA.[17] Early recognition and appropriate treatment can prevent this complication. Scrotal dermatitis was seen in 6 patients and responded well with riboflavin therapy. Five cases of pemphigus involving the genitalia were seen.

A 71 year old patient presented with persistent, red velvety plaque over the prepuce. Histology confirmed the diagnosis of erythroplasia of Queyrat [Fig. 7]. A single cauliflower like exophytic growth surrounding the distal shaft of the penis was seen in a 68 year old patient. The patient was referred to surgery for excision biopsy which showed features consistent with verrucous carcinoma [Fig. 8]. A single case of Squamous cell carcinoma presented as an ulcerated growth over the tip of the penis.

Conclusion

Knowledge about the prevalence, clinical and etiological characteristics of various non-venereal genital dermatoses is helpful in arriving at a diagnosis and also creating awareness among patients to improve their personal hygiene and social habits. Clinician should have an unbiased approach towards genital conditions so that patients will be confident to seek medical help. Explaining the true and benign nature of the lesions will remove venerophobia. In case of premalignant and malignant conditions early diagnosis allows for less invasive surgery with resultant lower morbidity for the patients. This study was quite helpful in understanding the various patterns of presentations of the non-venereal dermatoses. We have come across certain interesting cases like verrucous carcinoma, lupus vulgaris of scrotum, Behcet's disease, Erythroplasia of Queyrat, Lymphangiectasia with ramhorn penis and Acrochordon over prepuce.

Conflict of Interest: None.

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