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## Original Research Article

## A cross-sectional study on female genital dermatoses of non-venereal and non-infectious etiology

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## ABSTRACT

**Background:** Various dermatological disorders, including sexually or nonsexually transmitted infections and non-venereal disorders, are present on the genitalia. As with epidemiology, the etiology and pathogenesis of many diseases of the female genitalia are not well understood. In the literature review, we found a paucity of studies on non-venereal dermatoses affecting female genitalia in India. The current study was conducted to estimate the frequency and the clinical pattern of non-infectious, non-venereal dermatoses affecting female genitalia.

**Aim:** A cross-sectional study on female genital dermatoses of non-venereal and non-infectious etiology.

**Materials and Methods:** A total of 48 adult female participants with only non-infectious, non-venereal genital dermatoses attending a tertiary care hospital were enrolled. Cases with a venereal or infectious cause were excluded. A detailed history, including demographic data and complaints related to genital lesions, was elicited. Examination of the genitalia and extra-genital area were done. Relevant investigations were done. The diagnosis was established. Analysis was done using MS Excel 13.

**Results:** The majority of participants were middle-aged with a mean age of  $44.2 \pm 9.5$  years. The most common non-venereal genital dermatoses were Lichen sclerosus et atrophicus, a premalignant conditions (27.1%), followed by pigmentary condition (25.0%), papulo-squamous dermatosis (25.0%), vesiculo-bullous conditions (8.3%), physiological conditions (6.3%), benign conditions (6.3%), and malignant conditions (2.0%). 82.2% of participants had dermatosis over the genitalia only. Lichen sclerosus et atrophicus was the most common dermatoses involving only genitalia.

**Conclusions:** Thirteen different dermatoses were observed involving female genitalia. Although there seems to be some lack of knowledge about genital dermatoses, shyness, and apprehension to seek healthcare facilities in society, females are still concerned about the aesthetics of the genitalia as fifty percent of cases presented with the pigmentary changes of genitalia.

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## 1. Introduction

Various dermatological disorders, including sexually or nonsexually transmitted infections, as well as non-venereal disorders, are present on the genitalia. The vulva is the collective term for the structures that comprise the female external genitalia. The included areas are the mons

pubis, paired labia majora and labia minora, clitoris, and vulval vestibule. The vulval area changes from skin on the outer aspects to mucosa on the innermost region.<sup>1</sup> Both keratinized skin and mucocutaneous surfaces may be affected.<sup>2</sup> As with epidemiology, the etiology and pathogenesis of many diseases of the female genitalia are not well understood. Some diseases have a specific presentation over the genitalia.<sup>3</sup> Non-venereal genital dermatoses include dermatoses of varied etiologies. They

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can either affect genitalia alone or may affect other body parts as well.<sup>4</sup> In the literature review, we found a paucity of studies on non-venereal dermatoses affecting female genitalia in India.<sup>5–8</sup> The present study was conducted to estimate the frequency and presentation of dermatoses of non-infectious, non-venereal etiology affecting female genitalia.

## 2. Materials and Methods

**Sample size calculations:** A desk review of dermatology OPD before conducting the study, from March 2019 to May 2019, fulfilling inclusion criteria, was done to ascertain the average number of participants expected to visit the center. By desk review, we found that per month, approximately 4-5 adult females presented with genital dermatosis. All adult female cases with genital dermatoses met the inclusion criteria. The exclusion criteria included being pregnant, being on treatment, having infectious or venereal causes, and not being willing to participate. During the one-year period (August 2019-July 2020) of data collection, 50+5 cases with genital lesions of non-venereal and non-infective origin were estimated, considering 10 percent (5 cases) of dropout. However, we were able to recruit 48 female participants using non-probability purposive sampling, which can be attributed to the unforeseen timing of the COVID-19 pandemic. The study was approved by the institutional ethics committee.

A detailed history, including demographic data and complaints related to genital lesions, was elicited. An examination of the genitalia as well as the extra genital area was done. Relevant investigations and histopathological examinations were done as and when required to confirm the diagnosis. The diagnosis was established by the first author (dermatologist with more than 17 years of clinical experience). Photographs were taken after obtaining informed, valid consent. Data collection was done by pre-designed proforma. All data was analyzed using MS Excel 13 software. Statistics like proportions, percentages and ratios were calculated.

## 3. Results

A total of 48 study participants were recruited for the study. The majority of the patients were in the age group of 41-50 years. The age range of the study was from 26 to 63 years, with a mean age of  $44.2 \pm 9.5$  years (Table 1). 75.0% of participants were educated only up to the primary level. 95.8% of the participants were married. The majority of the patients were housewives (77.0%) and laborers (10.4%).

Dermatoses were classified according to etiology into seven groups. The most common dermatoses among the 21-30-year-old age group were pigmentary (vitiligo), those between 31 and 40 years old were papulo-squamous conditions, and those above 40 years old were premalignant

conditions (LSEA). Vitiligo was the only dermatoses seen in all age groups. The most common non-venereal genital dermatoses were Lichen sclerosus et atrophicus (LSEA), a premalignant condition (27.0%), followed by pigmentary (vitiligo in 25.0%) and papulo-squamous dermatosis (25.0%).

According to the site of involvement, 81.3% of cases had dermatosis over genitalia only; 10.4% of participants had dermatosis over genitalia and other body sites; 4.2% of patients had lesions involving genitalia and oral mucosa with other body sites; and 4.2% of patients had dermatosis involving genitalia as well as oral mucosa. Among 39 cases (81.2%) having only genital lesions, LSEA was the most common condition, having 13 cases (Table 2). Of the 5 participants (10.4%) having dermatoses involving genitalia along with other body sites (two sites), 3 were of vitiligo, and 2 cases were of psoriasis. Among 2 cases (4.2%) involving genitalia, oral mucosa, and other body sites (three sites), both were of vesiculo-bullous conditions (Pemphigus vulgaris). Among 2 dermatoses (4.2%) involving genitalia and oral mucosa (two sites), one was of the lichen planus and other of the pemphigus vulgaris.

Lichen sclerosus et atrophicus (LSEA) was the only premalignant condition found in 13 (27.0%) cases. The most common age group affected was 41-50 years old. All had lesions confined to the genitals only. Vitiligo was the most common single non-venereal dermatosis observed in all age groups. There were 9 cases of focal-type vitiligo (only genital lesions), and 3 cases of vitiligo vulgaris (other body sites along with genital lesions). Diabetes mellitus, hypertension, and hypothyroidism were present individually in three cases. Among papulo-squamous conditions, half of the cases (60.0%) had psoriasis, with the most common age group being 31-40 years. Among psoriasis cases, 4 patients had only genital lesions, while 2 patients had lesions over the genitalia along with other body sites. Three (69.2%) cases of the lichen planus had only genital lesions, and one had genital as well as oral lesions. Labia majora was the site involved in all four cases. Two cases of lichen simplex had only genital involvement.

## 4. Discussion

The incidence and prevalence of dermatoses affecting the female genitalia are not well established. They are the most under-reported and underdiagnosed diseases.<sup>3</sup> The reported prevalence of vulval dermatoses is much less than the actual disease burden in society because of difficult self-examination and hesitance in visiting the doctor among female patients.<sup>7</sup> The characteristic features of common diseases at this flexural site are lost or modified, making the diagnosis difficult even for an experienced dermatologist.<sup>9</sup> We studied only non-infectious, non-venereal genital dermatoses among females. There are very few studies available that report the overall prevalence and pattern

**Table 1:** Distribution of participants according to age group (n=48).

Dermatoses	21-30 years	31-40 years	41-50 years	51-60 years	>60 years	Total	Percentage
Premalignant (LSEA)	0	2	5	4	2	13	27.08%
Pigmentary (Vitiligo)	2	3	4	2	1	12	25.00%
Papulo-squamous	1	5	4	2	0	12	25.00%
Vesiculo-bullous	1	2	1	0	0	4	8.33%
Physiological	0	1	0	2	0	3	6.25%
Benign	0	1	1	1	0	3	6.25%
Malignant	0	0	0	1	0	1	2.08%
Total	4	14	15	12	3	48	100.00%

**Table 2:** Distribution of participants according to types of dermatoses (n=48).

Dermatoses	No. of cases
Lichen sclerosus et atrophicus	13
Vitiligo	12
Psoriasis	6
Lichen Planus	4
Pemphigus Vulgaris	3
Lichen Simplex Chronicus	2
Lymphangiectasia	2
Angiokeratoma of Fordyce	1
Achrochordon	1
Vestibular Papillomatosis	1
Zoon’s vulvitis	1
Hailey-Hailey disease	1
Squamous cell carcinoma	1
Total	48

**Table 3:** Distribution of dermatoses affecting genitalia alone (n=39).

Dermatoses	Number of cases	Percentage
Premalignant	13	33.33%
Pigmentary	9	23.08%
Papulo-squamous	9	23.08%
Physiological	3	7.69%
Benign	3	7.69%
Vesiculo-bullous	1	2.56%
Malignant	1	2.56%
Total	39	100.00%

of non-venereal dermatoses affecting female genitalia. A total of 13 non-infectious, non-venereal dermatoses were found involving the female genital area. There is no strict classification of such diseases.<sup>2</sup> Dermatoses were classified according to etiology into seven groups.

In the present study, a maximum number of cases (34.9%) were in the 41–50 year age group. Another study also found that 41–50 years old was the most common age group for non-infectious non-venereal dermatosis.<sup>10</sup> Our study reported that the majority of participants (81.2%) had dermatoses with only genital lesions, which might be due to the inclusion of only non-venereal genital dermatoses while excluding cases with venereal or infectious etiology. LSEA and vitiligo were also the most common dermatoses observed among females in the study done by Puri N.<sup>11</sup>

Kaur et al. found that in their study on vulval dermatoses among females of all ages, LSC was the most common nonvenereal, noninfectious dermatosis (9.2%), while others were LSEA (4.6%), lichen planus, psoriasis, etc.<sup>10</sup>

In the present study, LSEA outnumbered (more than one-fourth) the other dermatoses. The anogenital LSEA is more common than the extragenital or oral LSEA. According to literature, LSEA’s women-to-men ratio ranges from 6:1 to 10:1.<sup>2,12,13</sup> Lichen sclerosus can occur at any age, but its incidence has a bimodal peak from the prepubertal group to postmenopausal.<sup>1</sup> In the other studies of female genital dermatoses, it was the most prevalent type among non-infectious dermatoses.<sup>7,11</sup> A fully developed LSEA with hypopigmentation and distinctive shiny or crinkled textural changes can be easily diagnosed.<sup>3</sup> The sites usually affected



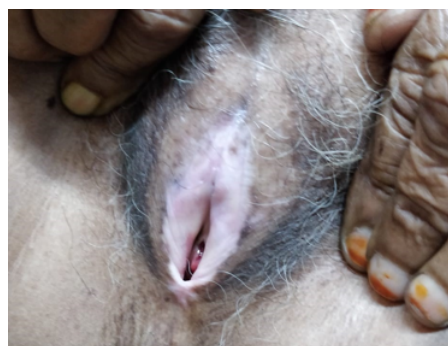
**Figure 1:** Lichen simplex chronicus over genitalia.



**Figure 2:** Lichensclerosus et atrophicus over genitalia.



**Figure 3:** Pemphigus vulgaris.



**Figure 4:** Vitiligo over genitalia.

are the genito-crural folds, the inner side of the labia majora, labia minora, clitoris, and clitoral hood. Vestibular and vaginal lesions are rare, as LS seems to spare mucosal epithelium. A biopsy is essential in an atypical presentation or if there is a no response to treatment.<sup>1</sup>

Vitiligo is reported to be around 3%–4% in general in India, and even as high as 8.8% has also been noticed.<sup>14</sup> No separate incidence of genital involvement is reported. In our study, vitiligo was the most common pigmentary dermatosis. Vitiligo, particularly the acrofacial type, may have depigmented macules over the vulva and perianal area.<sup>2</sup> Women most commonly present with focal genital vitiligo, but a few may present with vitiligo vulgaris along with genital involvement.<sup>15</sup> Vitiligo can occur at any age and affects both sexes equally.<sup>16</sup> Vitiligo is, as such, an asymptomatic pigmentary condition, but the higher number of cases in our study may be due to people's increased aesthetic concerns.

The present study reported one-fourth cases of papulo-squamous dermatoses. Psoriasis is not an uncommon condition occurring over the ano-genital area.<sup>12</sup> The affected areas were the genitocrural folds, mons pubis, outer aspects of the labia majora, the perianal skin, and the natal cleft.<sup>9</sup> Usually, mucosal involvement (oral and vaginal) does not commonly occur in psoriasis because these epithelial surfaces are normally as rapidly proliferative as psoriatic skin.<sup>17</sup> Lichen planus is a common inflammatory dermatosis that has a predilection for the mucosae and can affect these sites in isolation.<sup>13</sup> In about 15% of cases, there is exclusive mucosal involvement, either oral, genital, or both. Along with cutaneous involvement, mucous membrane involvement is seen in up to 30-70% of cases.<sup>2,18</sup> Lichen simplex lesions are well defined, have a pale gray or white surface, and tend to be in one isolated area, usually on the labia majora or mons pubis.<sup>9</sup> Any of the blistering disorders, either as part of the generalized disease or in isolation, can occur on the vulva and vagina.<sup>9</sup> The most common vulval malignancy reported is squamous cell carcinoma.<sup>19</sup>

## 5. Conclusions

Thirteen different dermatoses were observed involving female genitalia during the one-year study period. Although there seems to be some lack of knowledge about genital dermatoses, shyness, and apprehension to seek healthcare facilities in society, females are still concerned about the aesthetics of the genitalia, as fifty percent of cases presented with pigmented changes of the genitalia.

## 6. Limitations of Study

Patients less than 18 years of age were excluded. The study had a small sample size.

## 7. Source of Funding

None.


## 8. Conflict of Interest

None.

## References

- Lewis F. Dermatoses of the Female Genitalia. In: Griffith C, Barker J, Bleiker T, Chalmer R, Creamer D, editors. Rook's Textbook of Dermatology. Wiley Blackwell; 2016. p. 111–2.
- Khaitan BK. Non-Venereal Diseases of Genitalia. In: Sharma V, editor. Sexually Transmitted Diseases and HIV/AIDS. New Delhi: Viva Books; 2009. p. 677–91.
- Togerson RR, Edwards L. Diseases and Disorders of the Female Genitalia. In: Wolff K, Goldsmith L, Katz S, Gilchrist B, Paller A, Leffell D, editors. Fitzpatrick's Dermatology in General Medicine. New York: McGraw-Hill; 2008. p. 675–85.
- Khaitan BK. Non-venereal diseases of genitalia. In: Sharma V, editor. Sexually Transmitted Diseases and AIDS. New Delhi: Viva Books Pvt Ltd; 2003. p. 413–21.
- Acharya KM, Ranpara H, Sakhia JJ, Kaur SC. A study of 200 cases of genital lesions of non-venereal origin. *Indian J Dermatol Venereol Leprol.* 1998;64(2):68–70.
- Karthikeyan KE, Jaishankar TJ, Thappa DM. Non-Venereal Dermatoses In Male Genital Region-Prevalence And Patterns In A Referral Centre In South India. *Indian J Dermatol.* 2001;46(1):18–22.
- Joshi S, Shrestha S, Joshi A. Clinico-epidemiological Profile of Women with Non-venereal Vulval Diseases: A Hospital-based Observational Study. *Nepal J Dermatol Venereol Leprol.* 2019;17(1):32–8.
- Parmar BV, Tandel H. A cross-sectional study of noninfectious - nonvenereal genital dermatoses among adult males at tertiary care hospital in South Gujarat. *Indian J Sex Transm Dis AIDS.* 2024;45(1):39–43.
- Bunker CB, Neill SM. The Genital, Perianal and Umbilical Regions. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. Rook's Textbook of Dermatology. Blackwell Publishing Ltd; 2010. p. 71.1–102.
- Kaur K, Mohi MK, Chopra D, Sarangal R, Saini J, Chopra P, et al. Vulval dermatoses (venereal and nonvenereal) among female patients presenting to a tertiary care hospital in North India. *Indian J Sex Transm Dis.* 2022;43(2):141–5.
- Puri N, Puri A. A study on non venereal genital dermatoses in north India. *Our Dermatol Online.* 2012;3(4):304–7.
- Bunker CB, Bunker C, Porter W. Dermatoses of the Male Genitalia. In: Griffith C, Barker J, Bleiker T, Chalmer R, Creamer D, editors. Rook's Textbook of Dermatology. Wiley Blackwell; 2016. p. 111.1–41.
- Bunker CB. Non-venereal Penile Dermatoses. In: Gupta S, Kumar B, editors. Sexually Transmitted Infections. Elsevier; 2012. p. 709–13.
- Dhar S, Dutta P, Malakar R. Pigmentary Disorders. In: Valia R, Valia A, editors. IADVL Textbook of Dermatology. Mumbai: Bhalani Publishing House; p. 736–98.
- Athota K. Vulvar dermatoses. In: Sacchidanand S, editor. IADVL Textbook of Dermatology. Mumbai: Bhalani Publishing House; p. 2414–20.
- Geel N, Speeckaert R. Acquired Pigmentary Disorders. In: Griffith C, Bleiker T, Chalmer R, Creamer D, editors. Rook's Textbook of Dermatology. Wiley Blackwell; 2016. p. 111.1–41.
- Pavithran K, Karunakaran M, Palit A, Raghunatha S. Disorders of Keratinization. In: RG V, AR V, editors. IADVL Textbook of Dermatology. Mumbai: Bhalani Publishing House; p. 995–1069.
- Bunker CB, Neill SM. The Genital, Perianal and Umbilical Regions. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. The Genital, Perianal and Umbilical Regions. Blackwell Publishing Ltd; 2004. p. 68.1–83.
- Fox H, Buckley CH. Neoplastic disease of the vulva and associated structures. In: Fox H, Wells M, editors. Haines and Taylor Obstetrical and Gynaecological Pathology. London: Churchill Livingstone; 2003. p. 95–145.

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