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A Clinicoepidemiological Study of infective vulval dermatoses among patients attending a Tertiary Care Center in Assam

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ABSTRACT

Background: Vulval dermatoses occur as a result of multiple etiologies and often involve a combination of immune system malfunction, environmental triggers, hormonal variables, and genetic susceptibility. The vulvar epithelium is especially susceptible to irritants, allergies, and infections due to its thinness, moisture content, and blocked nature. The delicate balance of microbial flora and pH management is essential for maintaining vulvar health, and any disruption of these factors might increase a person's vulnerability to a variety of dermatological conditions. Additionally, underlying systemic illnesses like diabetes mellitus, autoimmune disorders, and hormone imbalances can exacerbate vulvar dermatoses, making treatment even more challenging. Therefore, considering the social stigma and its psychosocial effects on the individual, it is essential to keep a close eye out for potential issues and take early action when necessary.
Method: The study included randomly selected 128 patients (i.e. female patients) attending the Department of Dermatology, Venereology & Leprosy with cutaneous manifestations. Skin lesions indicating assault and those in HIV were excluded from the study. The frequency of various clinical patterns and demographic parameters are studied, tabulated and then analyzed statistically.
Result: The majority of cases were observed in the age group of 15–30 years (24.22%). Dermatophytosis was the most common condition, affecting 44 patients (34.3%).
Conclusion: A significant proportion of patients presented with chronic symptoms, underscoring the need for early recognition and intervention to prevent complications such as scarring and malignant transformation. The study also reveals the impact of hygiene practices, lifestyle factors, and socioeconomic conditions on disease prevalence, emphasizing the necessity of patient education and awareness programs.

Keywords: *Vulval dermatoses, cutaneous changes of vulva.*

INTRODUCTION

Vulval dermatoses have a complex pathophysiology that frequently combines immune system dysfunction, environmental triggers, hormonal factors, and genetic predisposition. The diagnosis and treatment of vulval dermatoses, which include a broad range of inflammatory, infectious, and malignant disorders affecting the vulvar region, can be extremely difficult. A patient's quality of life may be significantly impacted by these disorders' upsetting symptoms, which include pain, burning,

itching, and changes in skin texture. A precise diagnosis is necessary for the right course of treatment because the vulva's intricate architecture and distinct physiological milieu make it vulnerable to a number of dermatological conditions[1].

Because the vulvar epithelium is thin, wet, and occluded, it is particularly vulnerable to irritants, allergies, and infections. Maintaining vulvar health depends on the delicate balance of pH regulation and microbial flora, and any disturbance of these elements can make people more susceptible to a number of dermatological disorders. Furthermore, vulvar dermatoses can be made worse by underlying systemic conditions such diabetes mellitus, autoimmune disorders, and hormone abnormalities, which further complicates their care[2].

A considerable percentage of vulval dermatoses are caused by infectious agents, which include bacterial, viral, fungal, and parasitic infections. A common fungal infection, candidiasis flourishes in the warm, humid vulvar environment and is especially common in immunocompromised people or those with altered vaginal flora as a result of antibiotic use or diabetes mellitus. Cellulitis or abscess formation can result from bacterial infections like streptococcal or staphylococcal infections, which call for immediate antibiotic treatment. Herpes simplex virus (HSV) and human papillomavirus (HPV) are two examples of viral infections that cause different dermatological symptoms, such as painful vesicular eruptions and genital warts, respectively. These disorders present serious psychological and reproductive health issues in addition to dermatological ones [3,4,5].

Research and advancements in the understanding of vulval dermatoses continue to evolve, with ongoing studies exploring novel therapeutic targets, biomarkers for disease progression, and genetic predispositions. Personalized medicine approaches, including biologic therapies and targeted immunomodulators, hold promise for more effective and tailored treatment strategies in the future. Additionally, greater awareness and education regarding vulvar health, both among healthcare professionals and the general population, can facilitate early diagnosis and intervention, ultimately improving patient outcomes[4-6].

MATERIALS AND METHODS

1. STUDY DESIGN

The study was designed as a clinical observational study employing a cross-sectional approach including 128 patients attending the Department of Dermatology, Venereology, and Leprosy at Silchar Medical College and Hospital.

2. STUDY DURATION

The study was carried out over a period of one year

3. INCLUSION CRITERIA:

1. All female patients attending the Department of Dermatology, Venereology, and Leprosy with complaints suggestive of vulval dermatoses.
2. Patients willing to provide informed consent for participation in the study.

4. EXCLUSION CRITERIA:

1. Patients presenting with a history of sexual assault.
2. Individuals diagnosed with HIV/AIDS.

5. STUDY SAMPLING

A non-probability purposive sampling technique was used to recruit eligible female patients presenting with vulval dermatoses during the study period.

6. STUDY PROCEDURE

All eligible patients underwent a thorough evaluation, which included:

- *Detailed medical history*
- *General physical examination and systemic examination*
- *Comprehensive dermatological assessment of vulval lesions-*

The skin lesions in terms of site, size, number, distribution (e.g. symmetry, extensor distribution, flexor distribution, etc.), morphology of lesions (eg. macule, papule, vesicle, bulla, pustule, plaque, nodule, wheal, crust, erosion, scale, telengiectasia, target lesion, purpura, striae, erythema, hyperpigmentation, etc.), hair changes (e.g. alopecia, hypertrichosis, etc.), nail changes (e.g. transverse grooving, brittleness, distal onycholysis, etc.), oral and genital mucosal changes, associated secondary changes were recorded and tabulated.

- *Collection of samples for laboratory investigations where indicated*

Investigations done to diagnose cutaneous manifestations associated with fungal infections :-

a. Potassium hydroxide mount
b. Gram staining”
c. Tzanck smear

d. Skin Biopsy

7. STUDY DATA COLLECTION

Data were collected using a predesigned structured questionnaire, including demographic details, clinical symptoms, examination findings, and investigation reports. Patients' responses and examination findings were documented systematically to ensure accuracy and consistency. Laboratory test results were recorded and analyzed for diagnostic confirmation.

8. ETHICAL CONSIDERATIONS

Ethical clearance was obtained from the Institutional Ethical Committee before commencing the study. Written informed consent was obtained from all participants after explaining the study's purpose, procedures, and potential risks.

RESULTS AND OBSERVATION

In this study, one hundred and twenty-eight (128) patients presented with vulvar diseases in the study period extending from 1st November, 2023 to 31st October, 2024 in the Department of Dermatology, Silchar Medical College, Silchar, Assam, of which 88 (1.38%) were found to be infective.

Table 1: PREVALENCE

Total number of female patients attending Dermatology Department from 1st November 2023 to 31st October 2024	**Number of patients with vulvar diseases**	**Prevalence (%)**
6368	Total: 128 **Infective : 88** Non Infective : 40	2.01 **Infective: 1.38%** Non Infective: 0.63%

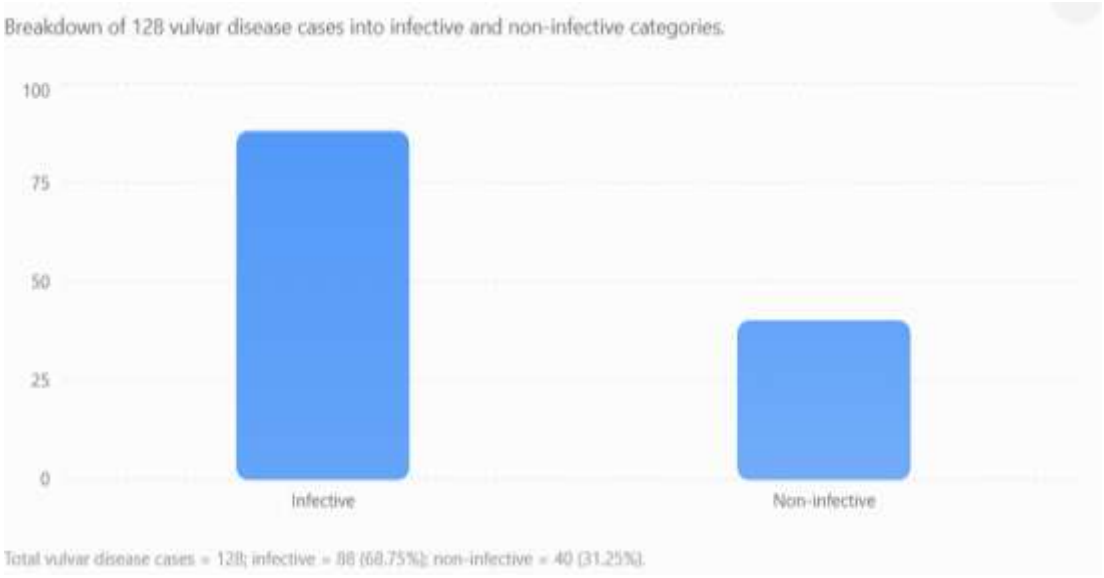


Fig. 1 showing distribution of infective and non-infective vulval dermatoses

Prevalence of Vulvar Diseases:

As depicted in Table 1 and Fig.1, out of 6368 female patients attending the Dermatology department, 128 had vulvar diseases, of which 88 were infective in origin. The overall prevalence of vulvar diseases was 2.01%, and the infective cases accounted for 68.75% (Prevalence 1.38%)

TABLE 2. AGE DISTRIBUTION OF PATIENTS WITH INFECTIVE VULVAR DISEASES:

Age Groups (in years)	**Number of Patients**	**Percentage (%)**
<15	03	3.4%
15-30	26	29.5%
31-40	21	23.9%
41-50	19	21.6%
51-60	15	17%
61-70	3	3.4%

71-80	1	1.1%
>80	0	0
Total	**88**	**100**

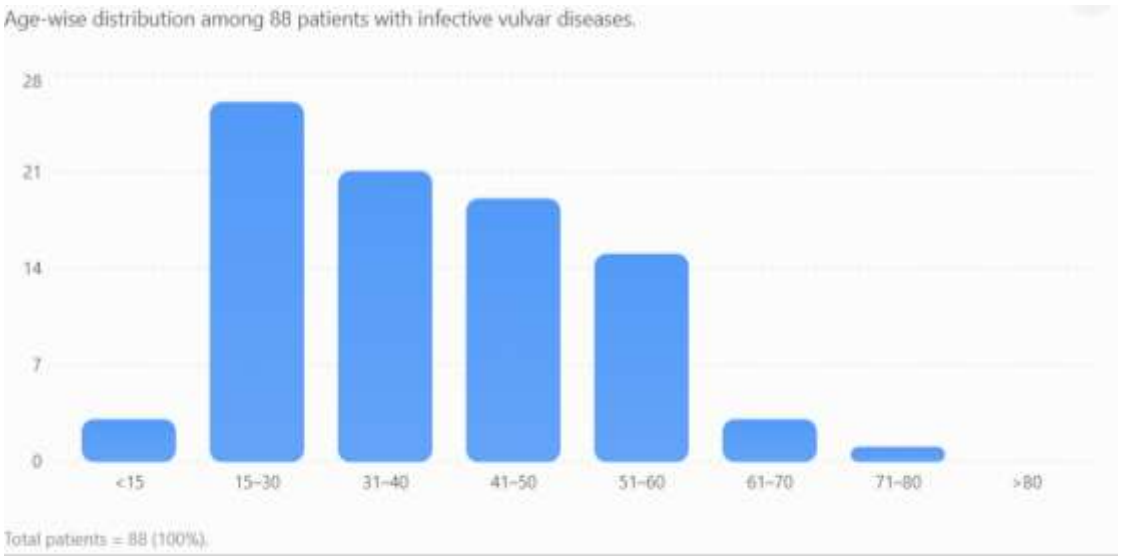


Figure 2. Bar diagram showing age distribution

From Table 2 and Fig. 2 the mean age at presentation was 39 years. The youngest patient was 11 months old, while the oldest patient was 75 years old. Maximum number of patients (29.5%) were found in the age group 15-30 years.

Table 3: PATTERN OF INFECTIVE VULVAR DISEASES

Clinical patterns of vulvar diseases	**Number of Patients**	**Percentage (%)**
Bacterial infections		
Folliculitis	2	2.3
Chancroid	2	2.3
Fungal infections		
Vulvovaginal candidiasis	21	23.9
Dermatophytosis	44	50
Viral infections		
Condyloma acuminata	4	4.5
Molluscum contagiosum	5	5.7
Herpes genitalis	8	9
Varicella	1	1.1
Parasitic infestation		
Phthirus pubis	1	1.1
TOTAL	88	100

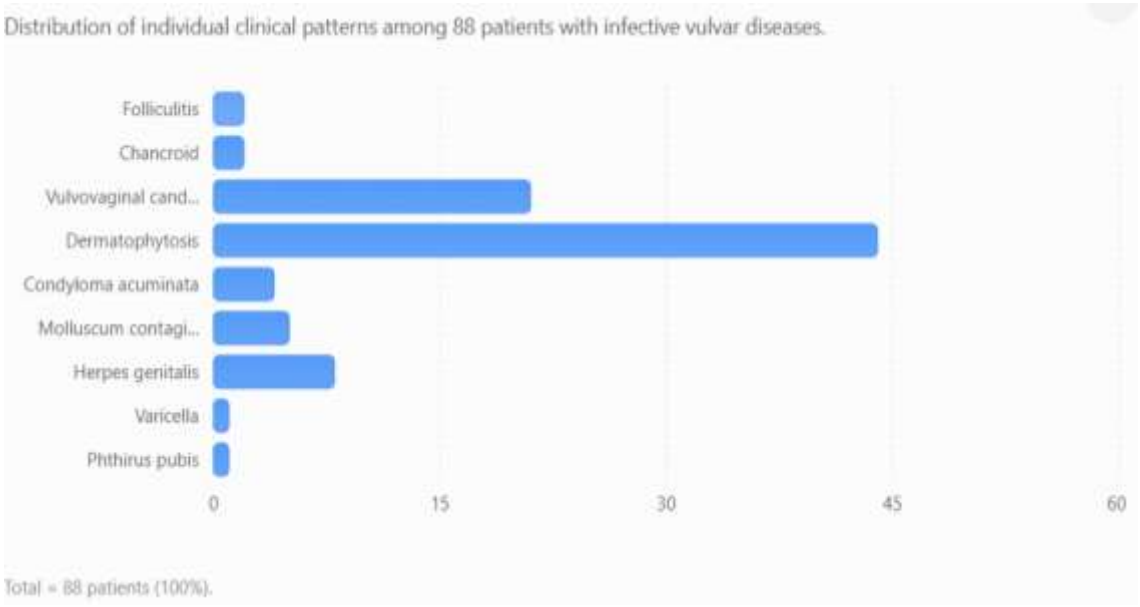


Figure 3. Bar diagram showing patterns of infective vulval diseases

From the above Table 3 and Fig.3, it is evident that highest number of patients (50 %) presented with Dermatophytoses. Second most common pattern was vulvovaginal candidiasis (23.9%) and the third were Herpes genitalis(9%), followed sequentially by Molluscum contagiosum(5.7%), Condyloma acuminata (4.5%), Folliculitis (2.3%), Chancroid (2.3%), Varicella(1.1%) and Pthirus pubis(1.1%)

Table 4: PATTERN OF SEXUALLY TRANSMITTED DISEASES (STDs)

Clinical pattern of STDs	Number of Patients	Percentage (%)
Bacterial infections		
• Chancroid	2	1.56
Fungal infections		
• Vulvovaginal candidiasis	21	16
Viral infections		
• Condyloma acuminata	4	3.1
• Herpes genitalis	8	6.25
TOTAL	**35**	**100**

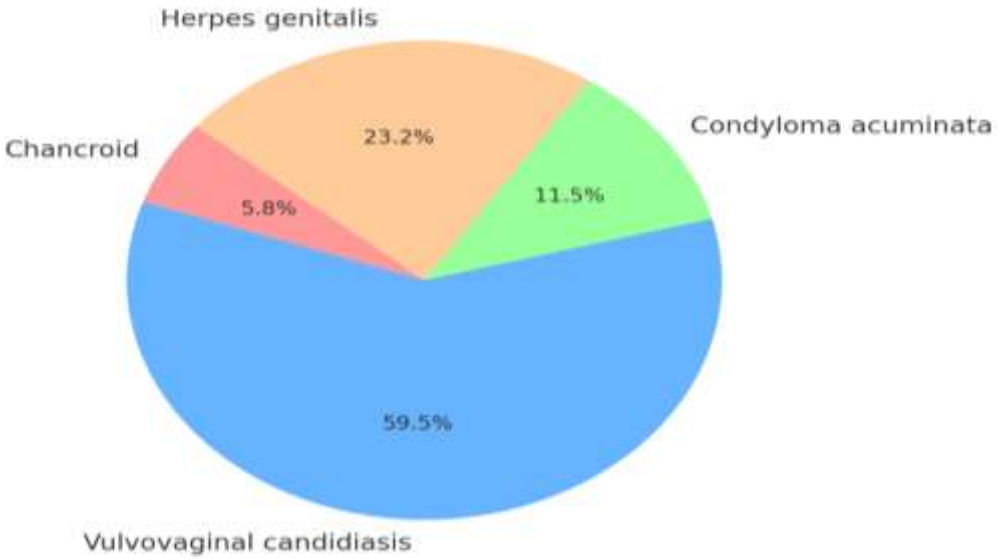


Figure 4. Pie diagram showing clinical patterns of STDs in this study

Table 4 and Fig.4 depicts the distribution of STDs in the study with Vulvovaginal candidiasis being the highest (16%).

PRESENTING SYMPTOMS

Table 5: FREQUENCY OF MAJOR PRESENTING SYMPTOMS

Symptom	Number of Patients	Percentage (%)
Itching	28	32.83
Vulval pain	5	5.6
Burning sensation	20	22.4
Vulval lesions	19	22.13
Discharge per vaginum	14	16.27
Dyspareunia	1	1.1
TOTAL	**88**	**100**

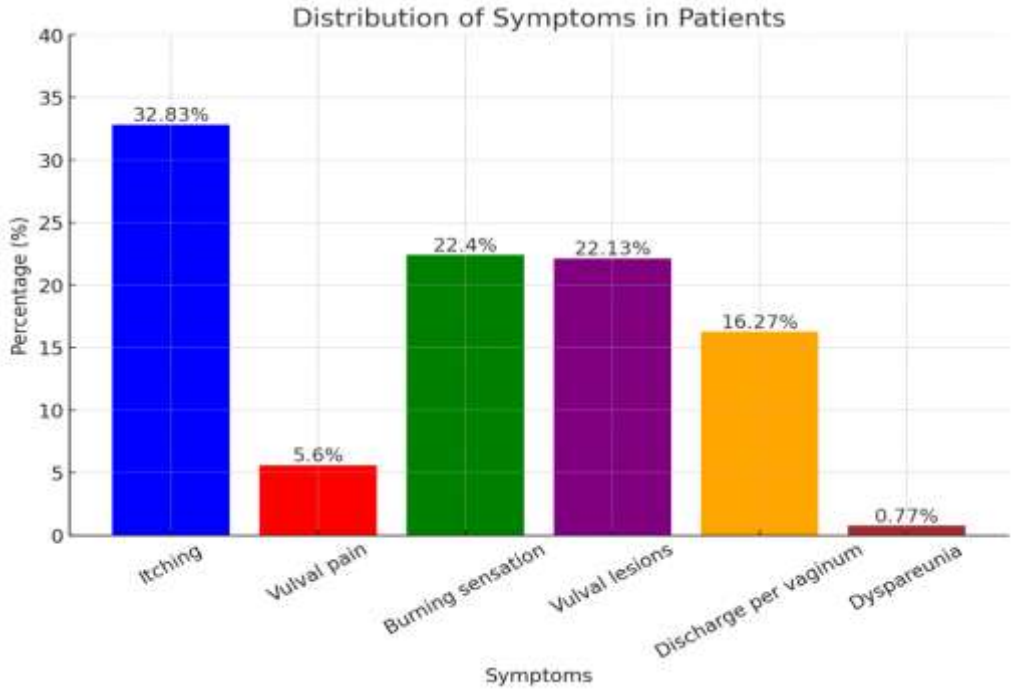


Figure 5. Bar diagram showing the frequency of major presenting symptoms

Above Table 5 and Fig.5 bar diagram shows that itching was the commonest major symptom (32.83%) observed in this study followed by burning sensation(22.4%), vulval lesions (22.13%), discharge per vaginum (16.27%), vulval pain (5.6%) and dyspareunia (0.77%). Many patients had symptoms other than the one major symptom.

Table 6: MORPHOLOGY OF VULVAR LESIONS

Morphology of vulvar lesions	Number of Patients	Percentage (%)
Macule	44	34.10
Papule	5	3.87
Nodule	3	2.32
Vesicle	1	0.77
Pustule	5	3.87
Plaque	9	6.97
Maceration	17	13.17
Erosion	9	6.20
Ulcer	12	9.30
Vulval Oedema	1	0.77

As seen in Table 6, the most common morphology of vulvar lesions observed was macule (34.10%), followed by maceration (13.17%), ulcer (9.30%), plaque (6.97%), erosion (6.20%), papule (3.87%), pustule (3.87%), nodule (2.32%), vesicle (0.77%), and vulval oedema (0.77%). Some patients exhibited more than one type of vulvar lesion, while others had no visible lesions.

Table 7: DISTRIBUTION OF VULVAR LESIONS

Distribution of vulvar lesions	Number of Patients	Percentage (%)
Labia majora	82	63.56
Labia minora	42	32.55
Mons pubis	15	11.62
Vestibule	6	4.65
Fourchette	5	3.87

From above table 7, it can be seen that the most common site is Labia majora (63.56%), followed by Labia minora (32.55%), Mons pubis (11.62%), Vestibule (4.56%) and Fourchette (3.87%). Most of the patients had lesions involving more than one site.

RESULTS OF SPECIAL TEST

KOH mount showed yeasts in 15 cases of vulvovaginal candidiasis and hyphae in 7 cases of dermatophytosis.

Wet mount examination of vaginal discharge showed yeasts in 3 cases of vulvovaginal candidiasis but did not show any motile trichomonads.

HSV 2 IgG was found positive in 7 cases of herpes genitalis.

Rapid plasma reagin test (RPR), HBsAg and anti HCV:

The above tests were done in 40 cases of sexually transmitted diseases. RPR, HBsAg and anti HCV was non-reactive in all cases.

Swab for culture

Smears taken from floor of ulcers showed mixed growth of Staphylococcus aureus and Streptococcus pyogenes in 1 case of synergistic bacterial gangrene and Haemophilus ducreyi was isolated in 2 cases clinically suggestive of chancroid. In the third case which was clinically suggestive of chancroid, the culture was sterile. Staphylococcus was isolated from sample sent from the single case of furunculosis.

DISCUSSION

It is not generally known how common vulvar illnesses are. Embarrassment often makes patients reluctant to talk about their illnesses. The main causes can be underdiagnosis and underreporting of vulvar diseases.[7]

Majority of vulval dermatoses were found to be of infective origin (68.75%) in this study. The results of our study are in concordance with that of Kaur K *et al.*[8] (2022) who also found infective vulval dermatoses to be the majority in their study (66.3%).

The most common age group 15-30 years (24.22%) observed in the present study is consistent with the study done by Mundhe AD *et al*[9] (2022) who found it to be 16-30 years.

In this study most common clinical pattern among the vulval dermatoses was dermatophytosis (34.3%) followed by vulvovaginal candidiasis (16%). Puri N and Puri A *et al.*[10] (2012) found 15% and 10% cases of vulvovaginal candidiasis and dermatophytosis respectively which are consistent with this study. The findings of our study are most consistent with the study done by Mundhe AD *et al.*[9](2022) who also found tinea Cruris(33.5%) to be the most common pattern followed by vulvovaginal candidiasis(17%).

Herpes genitalis has highest prevalence (6.25%) amongst all STDs in the present study. Bacterial STDs accounted for 1.56% of STDs, all of which were due to chancroid in the present study. HPV infection accounted for 3.1% of cases of sexually transmitted diseases in the present study which is in concordance to the findings of Mundhe AD *et al*[9] (2022) who reported 5%, 1.5% and 2.5% of herpes genitalis, chancroid and genital wart respectively.

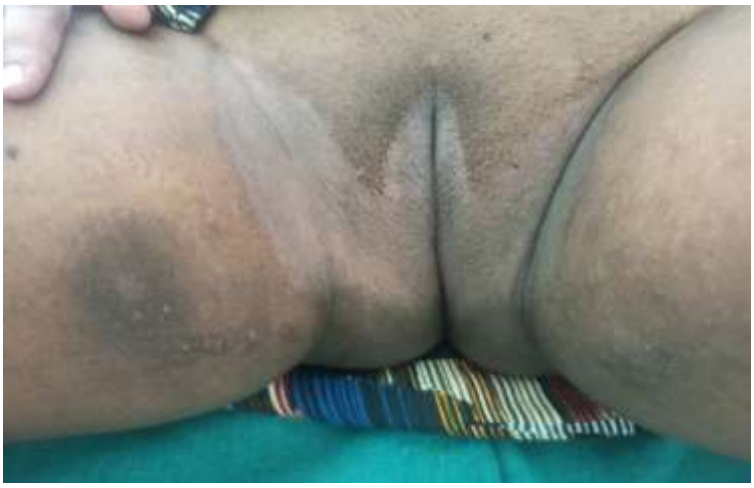
Itching was found to be the commonest complaint in many previous studies, such as those done by Hafiza Shaik *et al*[11] (2023), Karamjot Kaur *et al.*[8] (2022), Pathak D *et al.*[12] (2011). In the present study, the second most common complaint was burning sensation (22.4%) which was also the second most common complaint in the study done by Hafiza Shaik *et al*[11] (2023).

Macule has been found to be the commonest morphology of vulvar lesion by Pathak D *et al.*[12] (2011) as well as in the present study. The second commonest morphology observed was maceration (13.17%). However, Pathak D *et al.*[12] (2011) found maceration in only 1% cases in their study whereas in the present study, maceration was found in 13.17% cases. This may be because of the high number of cases of vulvovaginal candidiasis found in the present study where maceration was observed.

Many studies including those done by AP Nair *et al*.[13] (2024), Puri N and Puri A*et al.*[10] (2012), Mohan H *et al.*[14] (2014), Ozdemir O *et al.* [15](2014) and the current study found labia majora as the commonest site of involvement and labia minora as the second most common site of involvement. Ozdemir O *et al.* [15](2014) found 38.78% cases with involvement of labia minora which is comparable to the result (32.55%) of present study.

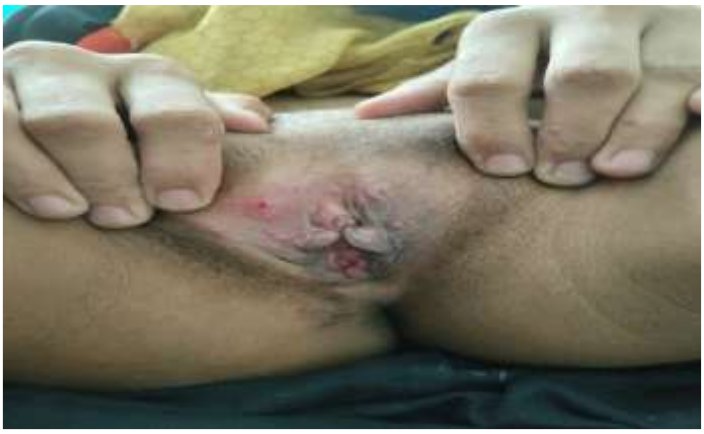
CONCLUSION

This study on vulval dermatoses among patients attending a tertiary care center in Assam provides valuable insights into the prevalence, clinical patterns, and etiological factors associated with these conditions. Given the considerable psychosocial burden associated with vulval dermatoses, a multidisciplinary approach involving dermatologists, gynecologists, and mental health professionals is essential for comprehensive care.



PHOTOGRAPH 1: Clinical picture showing Tinea Cruris lesions manifesting as erythematous plaques with well defined borders involving the vulva and groin

PHOTOGRAPH 2: Clinical picture showing maceration with curdy white discharge and satellite lesions of Candidiasis



PHOTOGRAPH 3: Clinical picture showing Herpes genitalis lesions seen as multiple vescicles rupturing to form erosions over the vulva

PHOTOGRAPH 4: Clinical picture showing skin coloured fleshy papillomatous growths of condyloma acuminata

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