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Research Article

Genital Dermatoses: A Retrospective Study in a Tertiary Hospital

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Abstract

Introduction: Anogenital dermatoses are often more complicated to diagnose and manage due to atypical appearances and psychological impacts. The identification of clinical and epidemiological characteristics of anogenital dermatoses is crucial for timely diagnosis and treatment.

Methods: We analyzed data from 500 consecutive patients who underwent skin biopsy for 3 consecutive years. A variety of characteristics of the patients, including their age, sex, location, and duration, as well as their histopathological diagnoses, and clinical symptoms, were collected. Logistic regression was used to analyze the frequency of diagnoses for each gender and age group. Clinical symptoms for disease subtypes were analyzed using Fisher's exact test.

Results: The most common diagnoses were chronic dermatitis among women (51 15.84%) and condyloma acuminatum among men (30 16.85%) and those patients older than 60 (11 18.33%). Significant differences in odds ratios were observed based on gender for multiple disease subtypes including inflammatory diseases (Female to Male (F/M) odds ratio (OR): 2.10), and for individual diagnoses including chronic dermatitis (F/M OR: 2.18). Differences were observed also based on age groups for subtypes such as immunobulous (≥60/<60 OR: 9.90) diseases and for diagnoses including lichen sclerosis (≥60/<60 OR: 3.24). Burning/itching odds ratio for multiple subtypes including inflammatory diseases (OR: 5.46), scaling/pigmentation OR for infectious diseases (OR: 0.21), and inflammation/erythema OR for subtypes including inflammatory (OR: 6.18) diseases were significantly different.

Conclusion: Genital skin disorders are common and significant. Elucidating their characteristics may facilitate the diagnosis and prevent reversible and irreversible consequences.

Keywords: Genital dermatose, Biopsy, Neoplasm, Infection, Inflammatory disease

Introduction

Anogenital dermatoses constitute heterogeneous etiologies including neoplasms, infections, and inflammatory origins among which deadly etiologies could be found. They are highly diversein presentation and appearance. Lesions may be confined to the genitalia or be part of a systemic disease [1,2]. Although genital lesions affect patients' lives broadly, both physically and psychologically, there are some issues related to the diagnosis of lesions in these areas [3]. As part of a systemic disease, the lesions

may present in different appearances due to varying characteristics of the region [4]. Patients are often reluctant to discuss the lesions with their primary care physicians [5]. There is a lack of sufficient training in many programs, particularly for non-dermatologist physicians However patients usually may feel more comfortable discussing the lesions with their habitual doctor, not necessarily a dermatologist [4]. Physicians including dermatologists, frequently fail to examine, discuss or enquire about genital lesions and symptoms [3,6,7]. Altogether, due to multiple factors, the diagnosis process may not be as straightforward as that of lesions elsewhere, contributing to delayed diagnosis and treatment. Elucidating the epidemiological and clinical factors related to these lesions contributes to an early diagnosis and management, which may prevent irreversible consequences.

Methods

Herein, we report a comparative retrospective descriptive record review study of patients who underwent anogenital biopsy. The study was approved by Iran National Committee for Ethics in Biomedical Research with the approval code of IR.TUMS.MEDICINE.REC.1397.899.

Written informed consents were obtained from all the patients or their legal guardians for minor patients. Pathological diagnoses were of concern in this study as we intended the most conclusive diagnoses to be studied. The biopsies were performed due to inconclusive clinical characteristics, unresponsiveness to treatment, or as a standard diagnostic procedure. We gathered the data from medical records of 500 consecutive patients who underwent anogenital biopsy in a tertiary skin hospital, Tehran, Iran, for 3 consecutive years from January 2017 to January 2019. Patients' characteristics including age, sex, location, time duration since the appliance of the lesions, pathological diagnosis, and symptoms were collected. The most frequent diagnoses were identified in the whole population, in women, men, and those over 60 separately. Considering their broad range, we categorized diagnoses based on their common etiologies into 8 major subtypes: infectious, cystic, immunobulous, inflammatory, neoplastic, precipitatory, vascular, and miscellaneous disease types. Analysis of clinical symptoms was performed exclusively based on different disease categories described earlier since the clinical data were available only for a portion of the patients. Female/male and older/younger odds ratios were analyzed for diagnoses and also for disease categories. We used multivariate logistic regression to adjust odds ratios for different diagnoses and also for different disease subtypes among women and men and also among those patients younger and those older than 60. Fisher exact test, as a non-parametric test, was performed to assess the prevalence of symptoms among different disease types. The omnibus test was followed by posthoc tests with adjusted Bonferroni P-values. An alpha level of .05 was used for all statistical tests. All statistical tests were performed using R open-source environment (R Foundation for Statistical Computing, Vienna, Austria). The study was conducted in accordance with the Declaration of Helsinki.

Results

The most common diagnoses in the whole population were chronic dermatitis (n:65 13.0%), condyloma acuminatum (63 12.0%), lichen planus (40 8.0%), pilonidal sinus (27 5.40%), lichen sclerosus (19 3.80%), hemorrhoid (18 3.60%), bowenoid papulosis (15 3.0%), psoriasis (12 2.40%), and skin tag (12 2.40%) Table 1. Among women, chronic dermatitis (51 15.84%), condyloma acuminatum (33 10.25%), lichen planus (31 9.63%), lichen sclerosus (16 4.97%), pilonidal sinus (12 3.73%), bowenoid papulosis (11 3.42%), and skin tag (11 3.42%) were the most common diagnoses Table 1. In men, condyloma acuminatum (30 16.85%), pilonidal sinus (15 8.43%), chronic dermatitis (14 7.87%), hemorrhoid (126.74%), lichen planus (9 5.06%), and anal fistula (8 4.49%) were the most frequent diagnoses (Table 1).

Regarding age, condyloma acuminatum (11 18.33%), chronic dermatitis (6 10.0%), lichen planus (5 8.33%), lichen sclerosus (5 8.33%), basal cell carcinoma (3 5.00%), Bowenoid papulosis (3 5.00%), allergic dermatitis (2 3.33%), and fixed drug eruption (2 3.33%) were the most commonly seen diagnoses in those patients over 60 (Table 1).

Data on age were not available for 3 patients. The mean age of the patients was 39.25 (Standard Deviation (SD): 16.29, Range: 1-90), with younger patients (younger than 60) more frequent among women ($\chi 2$: 4.81, P: 0.03). Female gender was associated with a higher risk of inflammatory (OR: 2.10, $P < 0.001$) and neoplastic (OR: 2.36, $P < 0.001$) diseases, and lower risk of infectious (OR: 0.58, P: 0.034), cystic (OR: 0.26, $P < 0.001$), and vascular (OR: 0.41, P: 0.018) diseases. In those patients older than 60, a higher risk of immunobulous (OR: 9.90, P: 0.024) diseases and a lower risk of cystic (OR: 0.12, P: 0.036) diseases were observed (Table 2). Regarding individual diagnoses (Table 3), the female gender was associated with a higher risk of chronic dermatitis (OR: 2.18, P: 0.015) and a lower risk of condyloma acuminatum (OR: 0.54, P: 0.028), pilonidal sinus (OR:0.38, P: 0.017), and hemorrhoid (OR: 0.25, P: 0.007). Lichen sclerosis (OR: 3.24, P: 0.033) and allergic dermatitis (OR: 16.02, P: 0.026) were more prevalent in those patients over 60 compared to those under 60 (Table 3). The most common symptoms among the patients were burning, itching, inflammation, erythema, scaling, and pigmentation (Table 4). Based on common features, etiologies and chronicity, we treated the symptoms as three distinct categories: Burning/itching, Scaling/pigmentation, and Inflammation/erythema. The omnibus tests for differences in odds ratios among different disease subtypes were significant for all 3 symptom subtypes. As per post hoc tests, burning/itching sensation was more common in the patients with inflammatory diseases (OR: 5.46, $P < 0.001$), and less common in the patients with neoplastic (OR: 0.25, $P< 0.001$) diseases. Scaling/

pigmentation were less prevalent in those with infectious (OR: 0.21, P: 0.001) diseases, while Inflammation/erythema were more frequent in those patients with inflammatory (OR: 6.18, P < 0.001) and infectious (OR: 0.00, P: 0.021) etiologies (Table 4). The mean time duration from the appearance of the lesions was 31.05 months (SD: 49.62, Range: 0-324). The expected time since was not significantly different based on gender, age categories, or disease types (data not shown).

Table 1: The most common diseases in the entire population and also, in different gender and age subgroups.

The Whole Population				Women		
S. No	**Diagnosis**	**Type**	**n (%)**	**Diagnosis**	**Type**	**n (%)**
1	Chronic Dermatitis	Inflammatory	65 (13%)	chronic dermatitis	Inflammatory	51 (15.84%)
2	Condyloma Acuminatum	Infectious	63 (12.6%)	Condyloma Acuminatum	Infectious	33 (10.25%)
3	LP	Inflammatory	40 (8%)	LP	Inflammatory	31 (9.63%)
4	Pilonidal Sinus	Cystic	27 (5.4%)	LSA	Inflammatory	16 (4.97%)
5	LSA	Inflammatory	19 (3.8%)	Pilonidal Sinus	Cystic	12 (3.73%)
6	Hemorrhoid	vascular	18 (3.6%)	Bowenoid Papulosis	Neoplastic	11 (3.42%)
7	Bowenoid Papulosis	Neoplastic	15 (3%)	Skin Tag	Neoplastic	11 (3.42%)
8	Psoriasis	Inflammatory	12 (2.4%)	Vestibular Papillomatosis	Neoplastic	9 (2.8%)
9	Skin Tag	Neoplastic	12 (2.4%)	Seborrheic Keratosis	Neoplastic	7 (2.17%)
10	Seborrheic Keratosis	Neoplastic	10 (2%)	Hemorrhoid	vascular	6 (1.86%)
11	Vestibular Papillomatosis	Neoplastic	9 (1.8%)	Psoriasis	Inflammatory	5 (1.55%)
12	Anal Fistula	miscellaneous	8 (1.6%)	Fibroepithelial Polyp	Neoplastic	4 (1.24%)
13	Epidermal Inclusion Cyst	Cystic	8 (1.6%)	Hidradenoma Papilliferum	Neoplastic	4 (1.24%)
14	Pilonidal Cyst	Cystic	8 (1.6%)	Molluscum Contagiosum	Infectious	4 (1.24%)
15	Fibroepithelial Polyp	Neoplastic	5 (1%)	Compound Nevus	Neoplastic	3 (0.93%)
16	Hidradenoma Papilliferum	Neoplastic	5 (1%)	Epidermal Inclusion Cyst	Cystic	3 (0.93%)
17	Molluscum Contagiosum	Infectious	5 (1%)	Syringoma	Neoplastic	3 (0.93%)
18	Compound Nevus	Neoplastic	4 (0.8%)			
19	Allergic Dermatitis	Inflammatory	3 (0.6%)			
20	BCC	Neoplastic	3 (0.6%)			
21	Fixed Drug Eruption	Inflammatory	3 (0.6%)			
22	Irritant Contact Dermatitis	Inflammatory	3 (0.6%)			
24	SCC	Neoplastic	3 (0.6%)			
25	Suppurative Hidradenitis	Inflammatory	3 (0.6%)			
26	Syringoma	Neoplastic	3 (0.6%)			

Men				Age ≥ 60		
S. No	**Diagnosis**	**Type**	**n (%)**	**Diagnosis**	**Type**	**n (%)**
1	Condyloma Acuminatum	Infectious	30 (16.85%)	Condyloma Acuminatu m	Infectious	11 (18.33%)
2	Pilonidal Sinus	Cystic	15 (8.43%)	Chronic Dermatitis	Inflammatory	6 (10%)
3	Chronic Dermatitis	Inflammatory	14 (7.87%)	LP	Inflammatory	5 (8.33%)
4	Hemorrhoid	vascular	12 (6.74%)	LSA	Inflammatory	5 (8.33%)

5	LP	Inflammatory	9 (5.06%)	BCC	Neoplastic	3 (5%)
6	Anal Fistula	miscellaneous	8 (4.49%)	Bowenoid Papulosis	Neoplastic	3 (5%)
7	Pilonidal Cyst	Cystic	7 (3.93%)	Allergic Dermatitis	Inflammatory	2 (3.33%)
8	Psoriasis	Inflammatory	7 (3.93%)	Fixed Drug Eruption	Inflammatory	2 (3.33%)
9	Epidermal Inclusion Cyst	Cystic	5 (2.81%)			
10	Bowenoid Papulosis	Neoplastic	4 (2.25%)			
11	Fixed Drug Eruption	Inflammatory	3 (1.69%)			
12	LSA	Inflammatory	3 (1.69%)			
13	Seborrheic Keratosis	Neoplastic	3 (1.69%)			
14	Foreign Body Reaction	Inflammatory	2 (1.12%)			
16	Prurigo	Inflammatory	2 (1.12%)			
17	SCC	Neoplastic	2 (1.12%)			
18	Venous Hemangioma	vascular	2 (1.12%)			
19	Verrucous Carcinoma	Neoplastic	2 (1.12%)			

Note*: LP: Lichen Planus; LSA: Lichen Sclerosus et Atrophicus; SCC: Squamous Cell Carcinoma; BCC: Basal Cell Carcinoma.

Table 2: Adjusted Odds-Ratios for Different Diagnosis Types Calculated Using Multivariate Logistic Regression.

Disease Type	Frequencies	F/M odds ratio					≥ 60 to <60 odds ratio				
	Total n (%)	Female (n:322) n (%)	Male (n:178) n (%)	OR	95% CI	P-value	≥ 60 (n:60) n (%)	<60 (n:437) n (%)	OR	95% CI	P-value
Inflammatory	195 (39.00%)	144 (44.72%)	51(28.65%)	2.1	1.42-3.14	<0.001***	28 (46.67%)	167 (38.22%)	1.59	0.91-2.78	0.1
Neoplastic	111 (22.2%)	87 (27.02%)	24 (13.48%)	2.36	1.45-3.94	<0.001***	11 (18.33%)	100 (22.88%)	0.85	0.40-1.65	0.64
Infectious	76 (15.20%)	41 (12.73%)	35 (19.66%)	0.58	0.35-0.96	0.03*	13 (21.67%)	61 (13.96%)	1.58	0.78-3.04	0.19
Cystic	46 (9.20%)	17 (5.28%)	29 (16.29%)	0.26	0.14-0.49	<0.001***	1 (1.67%)	45 (10.3%)	0.12	0.01-0.56	0.04*
Miscellaneous	33 (6.60%)	13 (4.04%)	20 (11.24%)	0.34	0.16-0.71	<0.01**	3 (5%)	29 (6.64%)	0.63	0.15-1.87	0.46
Vascular	31 (6.20%)	14 (4.35%	17 (9.55%)	0.41	0.19-0.86	0.02*	2 (3.33%)	29 (6.64%)	0.42	0.07-1.47	0.25
Precipitatory	4 (0.80%)	2 (0.62%)	2 (1.12%)	0.51	0.06-4.27	0.50	0% (0.00%)	4 (0.92%)	0.00	0-Inf	0.99
Immunobulous	4 (0.80%)	4 (1.24%)	0 (0.00%)	Inf	0.00-Inf	0.99	2 (3.33%)	2 (0.46%)	9.90	1.15-85.01	0.02*

Note*: F: Female; M: Male; OR: Odds Ratio; CI: Confidence Interval. Significant codes: ***< 0.001, **< 0.01, *< 0.05

Table 3: Analysis of the Odd-Ratios of the Most Common Diseases Through Multivariate Logistic Regression.

S. No	Disease	Total	F/M Odds-Ratio					≥ 60 to <60 Odds-Ratio				
		n (%)	Female (n:322) n (%)	Male (n:178) n (%)	OR	95% CI	P	≥ 60 (n: 60) n (%)	<60 (n: 437) n (%)	OR	95% CI	P
1	Chronic Dermatitis	65 (13.00%)	51 (15.84%)	14 (7.87%)	2.18	1.19-4.21	0.01*	6 (10.00%)	59 (13.50%)	0.79	0.29-1.80	0.60

2	Condyloma Acuminatum	63 (12.60%)	33 (10.25%)	30 (16.85%)	0.54	0.32-0.94	0.03*	11 (18.33%)	50 (11.44%)	1.6	0.74 - 3.20	0.21
3	LP	40 (8.00%)	31 (9.63%)	9 (5.06%)	2.02	0.97-4.62	0.07	5 (8.33%)	35 (8.01%)	1.15	0.38-2.85	0.78
4	Pilonidal Sinus	27 (5.40%)	12 (3.73%)	15 (8.43%)	0.38	0.17-0.84	0.02*	0 (0.00%)	27 (6.18%)	0	0-Inf	0.98
5	LSA	19 (3.80%)	16 (4.97%)	3 (1.69%)	3.46	1.11-15.18	0.05	5 (8.33%)	14 (3.20%)	3.24	1.0001-9.04	0.03*
6	Hemorrhoid	18 (3.60%)	6 (1.86%)	12 (6.74%)	0.25	0.09-0.66	<0.01**	1 (1.67%)	17 (3.89%)	0.34	0.02-1.73	0.30
7	Bowenoid Papulosis	15 (3.00%)	11 (3.42%)	4 (2.25%)	1.63	0.54-6.01	0.41	3 (5.00%)	12 (2.75%)	2	0.44-6.60	0.30
8	Psoriasis	12 (2.40%)	5 (1.55%)	7 (3.93%)	0.37	0.11-1.19	0.1	1 (1.67%)	11 (2.52%)	0.57	0.03-3.04	0.59
9	Skin Tag	12 (2.40%)	11 (3.42%)	1 (0.56%)	5.82	1.12-106.84	0.09	0 (0.00%)	12 (2.75%)	0	0-Inf	0.99
10	Seborrheic Keratosis	10 (2.00%)	7 (2.17%)	3 (1.69%)	1.28	0.35-6.04	0.72	1 (1.67%)	9 (2.06%)	0.83	0.04-4.62	0.87
11	Vestibular Papillomatosis	9 (1.80%)	9 (2.80%)	0 (0.00%)	Inf	0.00-Inf	0.99	0 (0.00%)	9 (2.06%)	0	0 - Inf	1.00
12	Anal Fistula	8 (1.60%)	0 (0.00%)	8 (4.49%)	0	0-Inf	0.99	0 (0.00%)	7 (1.60%)	0	0 - Inf	1.00
13	Epidermal Inclusion Cyst	8 (1.60%)	3 (0.93%)	5 (2.81%)	0.3	0.06-1.24	0.1	0 (0.00%)	8 (1.83%)	0	0 - Inf	0.99
14	Pilonidal Cyst	8 (1.60%)	1 (0.31%)	7 (3.93%)	0.07	0.00-0.40	0.01*	0 (0.00%)	8 (1.83%)	0	0-Inf	0.99
15	Fibroepithelial Polyp	5 (1.00%)	4 (1.24%)	1 (0.56%)	2.06	0.30-40.56	0.52	0 (0.00%)	5 (1.14%)	0	0-Inf	0.99
16	Hidradenoma Papilliferum	5 (1.00%)	4 (1.24%)	1 (0.56%)	2.37	0.34-46.95	0.44	1 (1.67%)	4 (0.92%)	2.05	0.10-14.44	0.53
17	Molluscum Contagiosum	5 (1.00%)	4 (1.24%)	1 (0.56%)	2.37	0.34-46.95	0.44	1 (1.67%)	4 (0.92%)	2.05	0.10-14.44	0.53
18	Compound Nevus	4 (0.80%)	3 (0.93%)	1 (0.56%)	1.54	0.20-31.32	0.71	0 (0.00%)	4 (0.92%)	0	0-Inf	0.99
19	Allergic Dermatitis	3 (0.60%)	2 (0.62%)	1 (0.56%)	1.57	0.14-34.80	0.72	2 (3.33%)	1 (0.23%)	16.02	1.48-352.51	0.03*

20	BCC	3 (0.60%)	2 (0.62%)	1 (0.56%)	1.93	0.18 - 42.94	0.6	3 (5.00%)	0 (0.00%)	Inf	0-Inf	1.00
21	Fixed Drug Eruption	3 (0.60%)	0 (0.00%)	3 (1.69%)	0	0- Inf	0.99	2 (3.33%)	1 (0.23%)	10.89	1.01-239.20	0.05
22	Irritant Contact Dermatitis	3 (0.60%)	2 (0.62%)	1 (0.56%)	1.02	0.10-22.15	0.98	0 (0.00%)	3 (0.69%)	0	0-Inf	0.99
23	SCC	3 (0.60%)	1 (0.31%)	2 (1.12%)	0.31	0.01-3.29	0.34	1 (1.67%)	2 (0.46%)	3.12	0.14-33.77	0.36
24	Suppurative Hidradenitis	3 (0.60%)	2 (0.62%)	1 (0.56%)	1.02	0.10-22.15	0.98	0 (0.00%)	3 (0.69%)	0	0-Inf	0.99

Note*: LP: Lichen Planus; LSA: Lichen Sclerosus et Atrophicus; SCC: Squamous Cell Carcinoma; BCC: Basal Cell Carcinoma; F: Female; M: Male; OR: Odds Ratio; CI: Confidence Interval.

Significant codes: ***< 0.001, **< 0.01, *< 0.05

Table 4: One-vs-Rest Odds-Ratios of Different Disease Types for Each Symptom, Analyzed with Hypergeometric Distribution Through Fisher Exact Test.

Disease Type	Data available	Burning/Itching Sensation				Scaling/Pigmentation				Inflammation/Erythema			
	n (%)	n (%)	OR	95% CI	Adjusted P§	n (%)	OR	95% CI	Adjusted P§	n (%)	OR	95% CI	Adjusted P§
Inflammatory	173 (88.72%)	85 (49.13%)	5.46	3.11-9.9	<0.001***	81 (46.82%)	1.65	1.03-2.67	0.25	41 (23.7%)	6.18	2.62-16.91	<0.001***
Neoplastic	73 (65.77%)	10 (13.70%)	0.25	0.11-0.51	<0.001***	34 (46.58%)	1.32	0.76-2.32	1.00	4 (5.48%)	0.27	0.07-0.78	0.07
Infectious	41 (53.95%)	6 (14.63%)	0.30	0.10-0.76	0.06	6 (14.63%)	0.21	0.07-0.52	<0.01**	0 (0.000%)	0.00	0.00-0.48	0.01*
Miscellaneous	17 (51.52%)	4 (23.53%)	0.60	0.14-2	1.00	6 (35.29%)	0.77	0.23 -2.33	1.00	2 (11.76%)	0.75	0.08 -3.38	1.00
Vascular	8 (25.81%)	1 (12.5%)	0.28	0.01-2.21	1.00	4 (50%)	1.44	0.26 -7.86	1.00	1 (12.5%)	0.81	0.02 -6.51	1.00
Immunobulous	3 (75.00%)	0 (0.00%)	0.00	0.00-4.82	1.00	1 (33.33%)	0.71	0.01 -13.78	1.00	0 (0.00%)	0.00	0.00-13.85	1.00
Cystic	3 (6.52%)	0 (0.00%)	0.00	0.00-4.82	1.00	0 (0.00%)	0 (0.00%)	0.00-3.44	1.00	0 (0.00%)	0.00	0.00-13.85	1.00
Precipitatory	2 (50.00%)	1 (50.00%)	2.00	0.03-157.53	1.00	0 (0.00%)	0 (0.00%)	0.00-7.58	1.00	0 (0.00%)	0.00	0.00-30.39	1.00

Note*: F: Female; M: Male; OR: Odds Ratio; CI: Confidence Interval.

§Bonferroni adjusted P-values. Omnibus P-values were significant for all three groups (not shown).

Significant codes: ***< 0.001, **< 0.01, *< 0.05

Discussion

Here we observed a higher prevalence of infectious, cystic, and vascular diseases among men and neoplastic and inflammatory diseases among women [8]. Immunobulous diseases were more common in those patients over 60, while cystic diseases were more common in those under 60. Being aware of the demographic characteristics of each disease type in genital areas may contribute to implementing a more precise diagnostic approach for each population group.

We observed a high prevalence of viral etiologies and also, dermatitis in the whole population in accordance with the previous studies Table 1 [5,9]. Condyloma acuminatum was the most common viral etiology and was more common among men [5]. We observed a low prevalence of zoon balanitis (0.56%) and lichen sclerosus (1.69%) in men in contrast to some previous studies, which could be explained by a high rate of circumcision in Muslim communities who constitute the majority of the patients in our study Table 1 [8,10].

Regarding lichen sclerosus, we observed a higher prevalence in those patients over 60, consistent with the previous evidence [2,9,10]. However, the higher prevalence of lichen sclerosus in women was not significant (P-value: 0.05) in contrast to what was previously reported Table 3 [2,8,11]. Genital lesions often have a broad range of presentations and differential diagnoses, making their diagnosis and management more complicated. Typical dermatological diseases may have atypical appearances when they appear in the genital regions. This is due to different vascularization, higher moisture, temperature, skin thickness, and friction in these areas, making clinical identification more difficult [4,12]. A delay in the correct diagnosis imposes financial and non-financial costs such as fear and guilt and may worsen the prognosis [13]. Hence, it is particularly crucial to elucidate the changes and characteristics of the lesions in these areas. We observed that infectious diseases are more probable when erythema, burning, or itching sensation is present, while neoplastic diseases are less probable when patients complain of burning or itching sensation [14]. Furthermore, erythema, scaling, or pigmentation lower the probability of infectious diseases Table 4. Elucidating the clinical properties of these legions may provide an earlier and more accurate diagnosis. Anogenital lesions lead to grave psychological impacts making patients reluctant to report and prolonging the time interval between the appearance of symptoms and diagnosis [3,5].

Psychological impacts contribute to comorbidity to the underlying disease and diminish the quality of life and self-esteem [3,9,15]. Reduced quality of life is present in various domains of life including work, school, emotions, and sexual life [7,12,16]. Genital lesions damage sexual life, by impeding both satisfaction and arousal which may be worse in women [17-19]. It has been shown that giving sufficient attention to the lesions and timely implementation of treatments increase quality of life parameters and sexual health, with women showing improvements on more parameters [20]. The broad range of impacts on patients' lives and its preventable nature reinforces the need for timely diagnosis and treatment for lesions in genital areas.

The psychological burden and subsequent delay may be magnified in older individuals due to the misconception of asexual status in the older population [10,21]. Sexually Transmitted Diseases (STDs) may be inaccurately presumed to have a low prevalence in the elderly [6]. We found no significant difference in the prevalence of infectious diseases between patients over 60 and those younger Table 2. Genital symptoms such as pruritus may cause a sense of shame and guilt among the elderly population [6]. An increasing rate of obesity in the elderly increases the rate of neo- and pseudo-foreskin and thus, the rate of associated diseases such as lichen sclerosis [6]. Furthermore, there is a higher tendency of genital involvement in the elderly population in some conditions such as atopic dermatitis [22].

Altogether, the specific profile and consequences of lesions in these areas in the elderly population necessitate a more proactive approach to the lesions in this population group. As patients are often reluctant to discuss the lesions, they may practice self-treatment as an unfavourable consequence [23]. STDs are very contagious and early diagnosis and management are of high priority in containing them in the community. Malignant and pre-malignant lesions may be more neglected in these areas which in turn, may lead to more severe consequences and a poorer prognosis. As we used biopsies to include patients in our study, this results in selection bias limitation as patients with distinct and common anogenital lesions for whom biopsy was not needed were excluded from our study. Additionally, several less common diagnoses had low numbers of patients, reducing the study power for those groups. Further studies with higher sample sizes may find more associations for these groups of patients.

Conclusions

Genital skin disorders are common and significant. Their presentations are different regarding gender and age. Elderly people are particularly vulnerable as some etiologies are more prevalent in this population group, and some consequences are more severe. Infectious and malignant etiologies require prompt diagnosis and management to prevent irreversible consequences. Diagnosis should be made with a holistic approach taking advantage of clinical symptoms and diagnostic tools. In fact, due to the altered appearance and profile of the lesions in the anogenital area, laboratory studies such as assays on biopsy specimens should be considered more often than for the lesions found elsewhere. Raising physicians' awareness of these lesions and their epidemiological and clinical characteristics make them able to take a more proactive approach regarding these lesions. This is crucial in minimizing the burden of these common disorders.

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Conflict of Interest

None.

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