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RESEARCH ARTICLE

CHRONIC VULVAL SYMPTOMS: COMPARISON OF VARIOUS DIAGNOSTIC METHODS

Akanksha Sharma¹, Saritha Shamsunder², Niti Khunger³, Geetika Khanna⁴ and Vijay Zutshi⁵

1. Scientist- C, Indian Council of Medical Research, New Delhi, India .
2. Senior Specialist & Associate Professor, Department of Obstetrics & Gynaecology, Vardhmaan Mahaveer Medical College & Safdarjung Hospital, New Delhi, India.
3. Consultant & Professor, Department of Dermatology, Vardhmaan Mahaveer Medical College & Safdarjung Hospital, New Delhi, India.
4. Professor of Pathology, Department of Pathology, Vardhmaan Mahaveer Medical College & Safdarjung Hospital, New Delhi, India.
5. Professor & Consultant, Department of Obstetrics & Gynaecology, Vardhmaan Mahaveer Medical College & Safdarjung Hospital, New Delhi, India.

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Abstract

The aim of our study was to compare the various diagnostic modalities for evaluation of chronic vulval symptoms. We studied 100 women presenting with chronic vulval symptoms who underwent examination of vulva with low magnification, scrape cytology, colposcopy & directed biopsy. The overall sensitivity and specificity for detecting vulvar lesions was 29.87% and 100% with low magnification; 58.44% and 13.04% with cytology; 77.92 % and 17.39 % with colposcopy. We concluded that clinical examination with or without magnification can detect most of the neoplastic lesions. Colposcopy and cytology have high negative predictive value and provide reassurance in absence of disease.

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Introduction:-

Vulvo-vaginal symptoms are among the most common reasons for women seeking health care.^{1,2} Chronic vulval conditions (pruritus, vulvodynia and vulval lesions) are common presentation in gynaecological clinics; the commonest being pruritus and vulvodynia³. Despite this, gynaecologists feel diagnostically challenged when presented with women with these symptoms and feel that colposcopy and biopsy alone can make a diagnosis.

Clinical examination alone with or without magnification has often been used for evaluation of vulval disease. Cytology, though used less often, is an effective and easy diagnostic technique⁴. Colposcopy of the vulva was first described by Coppleson&Pixely in 1976⁵; however not often used by gynaecologists for evaluation of the vulva.

Vulvar cancers account for 1-3% of all cancers reported in India every year. However, there is no organized screening program and majority of Indian women lack awareness and access to disease prevention and treatment facilities. Chronic vulvar symptoms include pruritus, pain and changes in skin colour and texture. Community-based surveys indicate that about one-fifth of women have significant vulvar symptoms. The most important step in evaluating chronic vulvar problems is a good history and careful clinical examination. Various diagnostic aids like visualization with low magnification, cytology and colposcopy have been studied and are adjuncts to biopsy in diagnosis.

Corresponding Author:- Akanksha Sharma

Address:- Scientist- C, Indian Council of Medical Research, New Delhi, India .

The aim of our study was to compare each of the diagnostic modalities for evaluation; visualization with or without magnification, cytology and colposcopy; the gold standard being vulval biopsy and histopathology.

Materials and Methods:-

Study Design: Cross-Sectional Study

Setting:

Department of Gynecology and Dermatology Vardhmaan Mahaveer Medical College and Safdarjung Hospital, New Delhi.

Method:-

Institutional Ethical Board clearance was taken and 100 sexually active women attending our gynaecology or dermatology clinic with complaints of vulvar pruritus, vulvodynia or lesion on the vulva of ≥ 3 months duration were recruited into our study after taking informed signed consent for research.

A detailed history was taken from each woman, including details of vulvar hygiene, usage of deodorants and gels on the vulva, followed by a gynecological examination. Women who were not sexually active, were symptomatic for <3 months, had generalized symptoms, or vaginal discharge were excluded from the study. The vulva was then examined using a good light first without magnification, followed by low magnification using a magnifying glass. Any lesion found was then classified as per IFCPC 2011 classification⁶.

A vulval scrape cytology was taken using a no 15 blade as described by Dennerstein et al⁴ after moistening the vulva with normal saline. The scrape was taken from the mucocutaneous junction and additionally from any lesion found on the vulva. The slides were then immediately fixed with cytospray (95% ethyl alcohol) and processed as usual for Papanicolaou smears⁷. The smears were then interpreted as per Bethesda terminology⁸.

This was followed by examination under low magnification and colposcopy after applying 5% acetic acid. Colposcopic findings were described using Coppleson & Pixley's classification⁵. Vulvar biopsy was taken from suspicious areas; histopathological findings were classified as per ISSVD Classification 2006⁹.

Statistical Methods:

The sensitivity, specificity, positive predictive value, negative predictive value and accuracy of examination with no magnification, low magnification, cytology and colposcopy was calculated taking histopathology as gold standard both for benign and malignant lesions. Mac nemar's test was used to compare various diagnostic methods.

Result:-

We had 100 women who presented with chronic vulval symptoms, the common symptoms were pruritus vulvae in 92, and vulval lesion is 20, vulvodynia in 11. Examination without magnification revealed a normal vulva in 80, a lesion was found in 20; 8 had white lesions, 7 had ulcerated lesions, 2 had warts, 2 had a growth on the vulva and 1 woman had a black pigmented lesion. The findings on low magnification, cytology and colposcopy are summarized in table 1.

Bethesda classification⁷ was used to classify the vulval smears. The histopathology was reported as per ISSVD 2006 classification, the histopathological diagnosis is as given in table 2. The sensitivity, specificity, positive and negative predictive values of all the screening tests is given in table 3 & 4.

The overall sensitivity for detecting vulvar lesions by examination without magnification was 25.97% (95% CI 16.64-37.23%) and specificity was 100% (95% CI 85.18%-100%); the sensitivity for detecting neoplastic lesions was 81.82% (95% CI 48.22-97.72%) and specificity was 100% (95% CI 85.18%-100%)

The overall sensitivity for detecting vulvar lesions by examination with low magnification was 29.87% (19.97%-41.38%) and specificity was 100% (95% CI 85.18%-100%) for detecting neoplastic lesions, the sensitivity was 81.82 (48.22%-97.72%), and specificity was 100% (85.18%-100%)

Vulval cytology had a sensitivity of 58.44% (95% CI 46.64%-69.57%) and specificity of 13.04% (95% CI 2.78-33.59%). The sensitivity for detecting neoplastic lesions by cytology was 100% (95% CI 71.51%-100%) and specificity was 13.04%(95% CI 2.78-33.59%); respectively.

Colposcopy had a sensitivity of 74.24% (95% CI 61.99%-84.22%) and specificity of 17.39% (95% CI 4.95%-38.78%) for detecting any vulvar lesion; however it was 100% sensitive with a specificity of only 17.39% (95% CI 4.95%-38.78%) for detecting neoplastic lesions.

Discussion:-

Vulvar lesions are a diagnostic enigma. Gynaecologists who are not trained in colposcopy often feel handicapped in evaluating these women as identifying the ideal diagnostic method is a challenge. Our study was carried out with an attempt to find the most practical approach to chronic vulvar problems.

In our study, examination with or without magnification had low sensitivity but were highly specific for detecting any abnormality with a Positive Predictive Value of 100%. Byrne et al¹⁰ also found a macroscopic abnormality in 58% of the women with chronic vulvar problems whom they studied.

Vulvar cytology had a 100% sensitivity for detecting neoplastic lesions, although specificity was low. However, it had a 100% negative predictive value which could be very reassuring. Jimenez A⁷ studied 563 patients and used scraping technique for obtaining vulvar smears and reported sensitivity and specificity of 97.7% and 98.87% respectively for benign lesions and 98.21% and 94.82% respectively for malignant lesions. Bae et al¹¹ on a retrospective study of 400 patients who had vulval smears collected by scraping method also found sensitivity and specificity of vulvar cytology to be 32.8% and 88.62% respectively. Smaller studies by Wendy likes¹²(n=48) and Van den Einden¹³(n=23) also reported a high correlation of 91% and sensitivity of 100%.

Colposcopic changes in vulval disease were first described by Coppleson et al in⁵. Since then, Colposcopy has been used for detection of vulvar disease. Santoso JT, Likes W¹⁴ on their study on 344 patients with vulval symptoms found the sensitivity, specificity, positive and negative predictive value of Colposcopy for detection of high-grade VIN was 97%, 40%, 37 & 98% respectively. We found an overall sensitivity of colposcopy to be 77.9% (95% CI 67.02-86.58%). Though the specificity of colposcopy is low at 17.39% but it has a high negative predictive value. Therefore, a normal colposcopy in the presence of chronic vulvar symptoms would be very reassuring.

In conclusion, careful examination of the vulva in good light can diagnose most of the neoplastic lesions. When facilities for Colposcopy are not available, examination with low magnification can be used and a scrape cytology taken which can detect any dysplastic cells.

Colposcopy & biopsy are the gold standard; their low specificity is offset by a high negative predictive value. A negative cytology and colposcopy can be very reassuring to the woman distressed with chronic vulval symptoms.

Table 1:- Findings on Low Magnification, Cytology & Colposcopy.

Distribution of Patients (n=100) on Low Magnification Findings	
Normal	77
Pigmentation	1
White lesion	8
Warts	2
Ulcer	7
Hyperkeratosis	17
Growth/Swelling	2
White lesion & hyperkeratosis	5
Warts & hyperkeratosis	2
Ulcers & hyperkeratosis	5
Hyperkeratosis & growth/swelling	2
Distribution of patients (n=100) by cytology of vulva	
Normal	39
Reactive changes	23

Benign vulvar changes- vulvitis	35
Benign vulvar changes- candidiasis	3
Distribution of patients(n=100) by colposcopy findings	
Normal	21
White Lesion	8
Acetowhite Lesions	70
Black Pigmentation	1

Table 2:- Distribution of patients by histopathology examination of vulva.

HPE of Vulva (ISSVD Classification)	No. of patients	Percent
NNED- Squamous Cell Hyperplasia	52	52.0
NNED- LSEA	6	6.0
NNED- Other- Dermatoses	6	6.0
Squamous VIN 1	3	3.0
Squamous VIN 2	1	1.0
Squamous VIN 3(Severe Dysplasia)	1	1.0
Non Squamous VIN-Pagets	1	1.0
Invasive Carcinoma -SCC	3	3.0
Melanocytic Tumours	1	1.0
Epithelial Tumours- Glandular Type	1	1.0
Soft Tissue Tumours	2	2.0
Normal	23	23.0

Table 3:- Comparison of Diagnostic Tests: Normal vs any abnormality.

	Sensitivity	Specificity	PPV	NPV
Examination with no magnification	25.97%	100.00%	100.00%	28.75%
95% CI	16.64% to 37.23 %	85.18% to 100.00 %	83.16% to 100.00 %	19.18% to 39.95 %
Examination with low magnification	29.87%	100.00%	100.00%	29.87%
95% CI	19.97% to 41.38 %	85.18% to 100.00 %	85.18% to 100.00 %	19.97% to 41.38 %
Cytology	58.44%	13.04%	69.23%	8.57%
95% CI	46.64% to 69.57 %	2.78% to 33.59% %	56.55% to 80.09 %	1.80% to 23.06% %
Colposcopy	77.92%	17.39%	75.95%	19.05%
95% CI	67.02% to 86.58 %	4.95% to 38.78% %	65.02% to 84.86 %	5.45% to 41.91% %
Toluidine blue dye test	83.12%	39.13%	82.05%	40.91%
95% CI	72.86% to 90.69 %	19.71% to 61.46 %	71.72% to 89.83 %	20.71% to 63.65 %

Table 4:- Comparison of Diagnostic Tests for Normal vs neoplastic abnormality.

	Sensitivity	Specificity	PPV	NPV
Examination with no magnification	81.82%	100.00%	100.00%	92.00%
95% CI	48.22% to 97.72 %	85.18% to 100.00 %	66.37% to 100.00 %	73.97% to 99.02 %
Examination with low magnification	81.82%	100.00%	100.00%	92.00%
95% CI	48.22% to 97.72 %	85.18% to 100.00 %	66.37% to 100.00 %	73.97% to 99.02 %
Cytology	100.00%	13.04%	35.48%	100.00%

95% CI	71.51% to 100.00 %	2.78% to 33.59%	19.23% to 54.63 %	29.24% to 100.00 %
Colposcopy	100.00%	17.39%	36.67%	100.00%
95% CI	71.51% to 100.00 %	4.95% to 38.78%	19.93% to 56.14 %	39.76% to 100.00 %
Toluidine blue dye test	100.00%	39.13%	44.00%	100.00%
95% CI	71.51% to 100.00 %	19.71% to 61.46 %	24.40% to 65.07 %	66.37% to 100.00 %

Conclusion:-

In our study, the commonest chronic vulvar symptom was pruritus, and the most common histopathological abnormality was non- neoplastic epithelial disorders- squamous cell hyperplasia. Clinical examination with low magnification had low sensitivity but was highly specific in diagnosing vulvar lesions and cytology has a high NPV. Therefore, a careful examination of the vulva in good light can diagnose most of the neoplastic lesions. When facilities for Colposcopy are not available, examination with low magnification can be used and a scrape cytology taken which can detect any dysplastic cells. Colposcopy had overall sensitivity of 77.92% and specificity of 17.39%; however, it could detect all of the malignant lesions. Colposcopy & biopsy are gold standard tests; however, their low specificity is offset by a high negative predictive value. From our study, we concluded that clinical examination with or without magnification can detect most of the neoplastic lesions. Colposcopy and cytology have high negative predictive value and provide reassurance in absence of disease.

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