

An Observational Assessment of the Role of Colposcopy and Paps Smear in Cervical Carcinoma Screening

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Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to evaluate screening of cervical carcinoma by paps smear and colposcopy. **Methods:** This study was conducted in Department of Obstetrics and Gynecology for the period of 6 months. The study constituted 100 women as subjects who attended the Gynecology OPD as well as ones admitted in gynecology ward at hospital fulfilling the inclusion and exclusion criteria.

Results: Among 100 patients, 19% belongs to age group of 20-30 years, 52% among 31-40 years, 15% among 41-50 years, 14% among 51-60 years age group. The maximum cases belong to 31-40 years age group with mean age 36.04 years. According to Modified Kuppu-swamy classification, 56% of women were of Upper-lower class, 24% were of Lower-middle class and 20% were of Lower class. Significant differences noted between different classifications and age at 1st coitus, therefore, premalignant lesions are commonly associated with 1st coital history at an early age of life. On colposcopy examination, most of the cases show neoplastic proliferation (58 cases, 58%). Among them, most cases were diagnosed as cervical intraepithelial neoplasia-I (CIN-I). 46 cases (46%) were non-neoplastic.

Conclusion: Colposcopy and pap smear test is widely accepted screening method. These are cost-effective non-invasive test for early detection of cervical malignancy and may be practiced in rural areas effectively. These may be highly effective to reduce the mortality and morbidity from cervical malignancy.

Keywords: colposcopy, dysplasia, cervical cancer, pap smear

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Introduction

Cervical cancer is currently projected to be the fourth most frequent disease in women globally, as well as the primary cause of cancer mortality in some of the world's poorest nations. Only approximately 20% of women in LMICs have ever been tested for cervical cancer, compared to more than 60% in high-income countries. Among 2018, 290 000 (51%) of the 570 000 new cervical cancer cases globally occurred in women living in LMICs (500 000 [88%] when includes upper-middle-income countries). [1,2] In India, every year 1, 22,844 women diagnosed with cervical cancer and 67,477 died from disease. It ranks 2nd most frequent cancer among women in India (as per ICO HPV Information Centre and NICPR). Its mortality steeply in equity with socioeconomic status i, e lower the socio-economic status, higher the mortality. [3]

The screening programmes and its implication has shown reduction in incidence and mortality of cervical cancer, though with increase in incidence affecting successive generations as a result of change in sexual behaviour with increased transmission of oncogenic HPV types. Papanicolaou (Pap) smear has been the cornerstone of organized

population-based cervical cancer screening programs demonstrating remarkable success in reducing the incidence and mortality from cervical cancer in developed nations. [4] Pap smear is considered as an ideal screening method over the period of time. Limitations with cytology-based screening programme are: [5]

- a) Need for frequent repetitive testing at short intervals for improving sensitivity.
- b) Reproduced poorly with poorly agreements even experts
- c) Needs intensive labour and cytology of high quality is expensive and not a cost-effective option as a screening test.

The major strengths of cytology-based screening have been the inherent simplicity, relatively low cost, and large knowledge base of various cytological patterns of precancerous lesions. [6] Although cytology identifies the women who are at higher risk of harboring high-grade cervical premalignant lesions or invasive cancer, a diagnostic test such as colposcopy is crucial for women with

abnormal cytology for localization of the abnormality, confirmation of diagnosis, and appropriate management. The implementation of systematic call and recall screening programs has resulted in a significant decrease in cervical cancer incidence and death. [7] This is due to the ability to diagnose and treat pervasive precursors [cervical intraepithelial neoplastic (CIN)]. [8] Cervical cancers can be avoided with HPV vaccine (primary prevention for preadolescent and young teenage females) and cervical screening (secondary prevention for women).

Colposcopy, first time described by Hinselmann from Germany (1925) is an optional method for the visualisation of lower genital tract of female under the stereoscopic vision with varying magnification of 4-40folds. It allows detection of pre-cancerous and cancerous lesions despite the normal morphological appearance of uterine cervix. Though for high grade cytology it's universally accepted but for management of low grade abnormalities its been argued upon since long. Evidence based upon clinical trials indicates testing for high risk HPV can usually triage women for immediate colposcopy or any further cytological surveillance. The cytology and colposcopy study compliments each other for complete diagnosis and treatment of cervical cancers in early stages. In upcoming times, also HPV testing might be considered but is expensive for low socioeconomic group of population in India [9] Many studies now provide evidence of the feasibility and cost-effectiveness of screening and treatment approaches for cervical cancer prevention. These can be easily adopted for various settings. A significant reduction in cervical cancer mortality was shown following a single round of screening with HPV testing or VIA screening in a randomized trial in India. [10] The cytology and colposcopy study compliments each other for complete diagnosis and treatment of cervical cancers in early stages. In upcoming times, also HPV testing might be considered but is expensive for low socioeconomic group of population in India. [11]

The aim of the present study was to evaluate screening of cervical carcinoma by paps smear and colposcopy.

Materials and Methods

This study was conducted in Department of Obstetrics and Gynecology at PMCH, Patna, Bihar, India for the period of 6 months. The study constituted 100 women as subjects who attended the Gynecology OPD as well as ones admitted in gynecology ward at PMCH, Patna, Bihar, India, fulfilling the inclusion and exclusion criteria.

Inclusion Criteria

- a) Age between 18-65years
- b) Patient with complaints of profuse white discharge, post coital bleeding, inter-menstrual bleeding and postmenopausal bleeding.
- c) On per speculum diagnosed clinically with cervical erosion or polyp, condyloma, vaginitis, cervicitis and unhealthy cervix, etc

Exclusion Criteria

- a) Patients with presence of bleeding on per speculum
- b) Patients diagnosed clinically with invasive carcinoma (ulceration, obvious growth, or eaten up cervix.
- c) Patient unwilling to give consent

Method

100 women fulfilling inclusion criteria were studied by taking detailed history followed by complete physical examination with per speculum and per vagina examination. They are then subjected to Pap smear on mandatory basis. Firstly cervix inspected under good illumination and then excess cervical mucus mopped out with saline soaked cotton wool topped applicator. 3-5% acetic acid was applied, followed by observation through colposcope and changes noted by free hand drawing method.

For all suspected lesions, punch biopsy taken and tissue sent for histo-pathological examination. All lesions were graded by Reid and Scalzi colposcopic index. The above was then subjected to statistical analysis.

Results

Table 1: Patient details

Age in years	Number of patients	%
20-30	19	19
31-40	52	52
41-50	15	15
51-60	14	14
Total	100	100
Socio-economic status		
Lower	20	20
Lower-Middle	24	24
Upper-Lower	56	56
Total	100	100

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with mean age 36.04 years. According to Modified Kuppui-swamy classification, 56% of women were of Upper-lower class, 24% were of Lower-middle class and 20% were of Lower class.

Table 2: Correlation between benign, premalignant and malignant lesions in relation to age at 1st coitus

Age at 1st coitusclassification	≤18years	≥18years	Total
Benign	30	38	68
Premalignant	15	12	27
Malignant	00	5	5
Total	45	55	100

Significant differences noted between different classifications and age at 1st coitus, therefore, premalignant lesions are commonly associated with 1st coital history at an early age of life.

Table 3: Distribution of the study patients according to colposcopy findings

Colposcopy findings	Frequency	Percentage
Non-neoplastic	42	42
CIN I	41	41
CIN II	11	11
CIN III	3	3
Malignant	2	2
Benign (polyp)	1	1
Total	100	100

On colposcopy examination, most of the cases show neoplastic proliferation (58 cases, 58%). Among them, most cases were diagnosed as cervical intraepithelial neoplasia-I (CIN-I). 46 cases (46%) were non-neoplastic.

Discussion

Cancer of cervix remains a major concern for cause of death in developing countries among the middle aged women even after prompt consideration and knowledge on prevention, screening, early diagnosis and treatment. In the 1940s this was Originating and by the 1960s recognized as the standard of gynecologic care, annual cervical cytology screening has been an integral part of the well-woman exam since long time. The estimated new cases to be diagnosed in US for 2017 are 12,820 and estimated 4,210 deaths will occur in 2017 (as per CDC). In India, every year 1, 22,844 women diagnosed with cervical cancer and 67,477 died from disease. It ranks 2nd most frequent cancer among women in India (as per ICO HPV Information Centre and NICPR). Its mortality steeply in equity with socio- economic status i, e lower the socio-economic status, higher the mortality. [12]

Among 100 patients, 19% belongs to age group of 20-30 years, 52% among 31-40 years, 15% among 41-50 years, 14% among 51-60 years age group. The maximum cases belong to 31-40 years age group with mean age 36.04 years. According to Modified Kuppui-swamy classification, 56% of women were of Upper-lower class, 24% were of Lower-middle

class and 20% were of Lower class. Patel et al in 2011 observed premalignant cervical lesion in patients with 30-50 years age group which is similar to our study. [13] Naik et al in 2015 showed that most vulnerable age group for cervical malignancy was 35-55 yrs. [14] Usha et al also observed that, majority of the cervical abnormalities (85%) in India were detected in women <40 years of age. [15] The factors associated with cervical cancer were poor personal hygiene, poor living condition, marriage with un-stability, early age at 1st intercourse.

Another multicenter study conducted in the United Kingdom, which evaluated the management of borderline or ASCUS cytology concluded that there was no clear benefit of immediate colposcopy referral as it lead to overtreatment with associated after effects in the young women. [16] Based on these studies, the current recommendation to manage the women with ASC-US smear is to perform reflex oncogenic HPV testing (from the same sample in which liquid-based cytology was done originally) or to recall the women to collect samples for HPV test. Women with ASC-US smear but negative on HR-HPV test are returned to normal recall. The HPV-positive women should be immediately referred to colposcopy. Significant differences noted between different classifications and age at 1st coitus, therefore, premalignant lesions are commonly associated with 1st coital history at an early age of life. On colposcopy examination, most of the cases show neoplastic proliferation (58 cases, 58%). Among them, most cases were diagnosed as

cervical intraepithelial neoplasia-I (CIN-I). 46 cases (46%) were non-neoplastic.

Studies have shown that with an LSIL referral, the rates of CIN2+ and CIN3+ are 17% and 12% respectively. [17,18] A multicenter study in the United Kingdom concluded that although immediate colposcopy on women referred for LSIL detected CIN2+ lesions, it lead to large number of referrals with no high-grade abnormalities. [16] In the context of low and middle income countries where colposcopy services are limited, factors like age of women and availability of a triage test are to be considered to understand who should undergo diagnostic colposcopy and who should be followed up or returned to routine screening protocol.

Conclusion

Colposcopy and pap smear test is widely accepted screening method. These are cost-effective non-invasive test for early detection of cervical malignancy and may be practiced in rural areas effectively. These may be highly effective to reduce the mortality and morbidity from cervical malignancy. Though the sensitivity is low, it may be overcome by proper training of health personal. Government and NGOs can take a prime role by health education, advertisement, campaigning and implementation of these screening programs at an early stage.

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