A Record Based Study of 3 Years of Routine PAP smears Screening with Follow up of All Abnormal Reports with Colposcopy and Biopsy

Aarti[1*], Rashmi L[2]
Subbaiah Institute of Medical Sciences, Purle, Shivamogga-577222, Karnataka, India

Original Research Article

*Corresponding author
Rashmi L

Abstract: Cervical cancer is the most common preventable cancers. Pap smear is simple, safe, cost effective screening test for detection of precancerous, cancerous changes in cervix. Any abnormality detected in PAP smear has to be confirmed with cervical biopsy, which is the gold standard investigation. Aim and Objective: To study various types of cervical lesions detected on routine screening and classify cervical lesions into malignant & benign groups and to correlate the cytological findings with histopathological findings. This is a prospective cross sectional study done in between august 2014 and september 2017 at Subbaiah medical college and Hospital, shimoga. During the period, all PAP smear reports were analyzed cytological interpretation of smears was done according to Bethesda system, abnormal smears were subjected to colposcopic guided cervical biopsy for histopathological confirmation. Clinical data were obtained from requisition submitted along with the cytology and tissue specimens received in the department. During the study period, total 1980 pap smears were performed, total of which 130 abnormal pap smears were obtained. Among them 64 patients had colposcopic abnormalities and required cervical biopsy. Out of total 1980 number of cases, 68.50% were normal, 21.40% were inflammatory smears, 5.10% were LSIL, and 0.70% were high grade intraepithelial lesions (HSIL) 0.34% were unsatisfactory.0.55% were ASCUS, 0.15%were frank malignancy. Among patients who had cervical biopsy on histopathology, 32.8% had CINI (cervical intraepithelial neoplasia), 35.93% had CINII, and 7.81% had CINIII. 18.75% had frank malignancy. The mean age ± SD for carcinoma was 58.75±5.29. This study revealed a good correlation of cervical cytology with cervical biopsy. Pap is a cost effective screening method for early detection of premalignant and malignant cervical lesions.
Keywords: Cervical cancer, PAP smear, CINII, CINIII, HSIL.

INTRODUCTION

Cervical cancer is the most common cause of cancer related death in women, and it is the second most common cancer after the breast cancer worldwide [1]. In India women at risk for cervical cancer are 432.20 million, annual number of cervical cancer cases is 122,844, annual number of deaths is 67, 4773. It has been estimated that an average woman under 40yrs of age has 2% chance of developing cervical carcinoma [2]. Studies show that cervical carcinoma does not develop suddenly from normal epithelium but is presented by a spectrum of intraepithelial neoplasia, if these lesions were untreated; up to one third of them would develop into carcinoma. Papanicolaou (Pap) smear is a simple, safe, noninvasive.

And cost effective method for detection of precancerous, cancerous and non-cancerous changes in the cervix. Conventional cervical cytology is the most widely used cervical cancer screening test inthe world and cytology screening programmers in several developed countries have been associated with impressive reduction in cervical cancer burden[3]. Cervical carcinoma documents the remarkable effects of screening, early diagnosis, and curative therapy on the mortality rate. Death rate has declined for which the credit goes to Pap test and accessibility of cervix to colposcopy and biopsy. Though, the Pap smear is an effective screening test, yet confirmation of the diagnosis of cervical cancer or pre invasive lesions of cancer requires a biopsy of the cervix.

METHODS

This is a prospective cross-sectional study done in the Department of gynecology at Subbaiah medical college Hospital, Shimoga during the period of august 2014to september 2017. During the period, PAP smear reports of 1980 patients were analysed Clinical data were obtained from requisition submitted along with the cytology and tissue specimens received in the department. The fixed cervical smears were subjected to staining according to Papanicolaou's method

cytological interpretation of smears was done according to Bethesda system, out of which 64 patients with abnormal smears were subjected to colposcopy guided cervical biopsy for histopathological confirmation.

RESULTS

In this study, the age for screening cervical lesions by papanicolaou method ranged from 25 to 82 years. Between the age groups of 31 to 40 years, the highest numbers of Pap smear were done.

Table-1: Distributions of cervical PAP smears Annually

Time	Total number of smears taken
2014	583
2015	366
2016	544
2017	487

Out of total 1980 number of cases, 68.58% were normal, 21.46% were inflammatory smears,5.10% were LSIL, , and 0.70% were high grade intraepithelial lesions (HSIL) 0.34% were unsatisfactory.0.55% were ASCUS, 0.15%were frank malignancy which is shown in table2

Table-2: Cervical cytological findings

Cytology finding	Number	Percentage
Normal cytology	1358	68.58%
inflammatory smear	425	21.46%
LSIL	101	5.10%
HSIL	14	0.70%
ASCUS	11	.0.55%
malignancy	3	0.15%
Unsatisfactory smear	68	3.43%
Total	1980	100%

Sixty four patients underwent cervical biopsy in view of abnormal pap smear. Maximum number of cases on biopsy had CINII (moderate dysplasia) which comprised of 23(35.9%). CINI was found in 21 cases (32.8%) CINIII in 5 cases (7.81%). The frank malignancy on biopsy was squamous cell carcinoma and adenocarcinoma, which comprised of 12(18.75%) and (Table-3). The mean age $\pm$ SD for carcinoma was 52.75$\pm$6.29.

Table-3: Histopathological findings of cervical biopsies

Cervical biopsy finding	Number	Percentage (%)
Chronic cervicitis	3	4.6
CINI	21	32.8
CINII	23	35.9
CINIII	5	7.81
SCC	11	17.18
Adenocarcinoma	1	1.5
Total	64	100

The calculation of sensitivity, specificity, positive predictive value and negative predictive value of a test depends on the definition of the 'disease state' that separates 'positive' from 'negative'. The report of CINII, CINIII, squamous cell carcinoma and adenocarcinoma are considered as positive for the purpose of statistical analyses, the overall sensitivity, specificity, positive predictive value and negative predictive value and their values obtained were 95%, 91.66%, 95% and 91.66% respectively considering cervical biopsy as the gold standard. (Table 4)

Table-4: table of cytology and histology findings for detecting malignancy

Cytological Diagnosis	Histopathological diagnosis		Total
	Positive for Malignancy	negative for malignancy	
Positive for malignancy	38	2	40
Negative for malignancy	2	22	24
Total	40	24	64

DISCUSSION

Cancer cervix is considered to be an ideal gynecological malignancy for screening as it meets both test and disease criteria for screening. It has a long latent phase during which it can be detected as identifiable and treatable premalignant lesions which precede the invasive disease and the benefit of conducting screening for carcinoma cervix exceeds the cost involved[4]. After the introduction of the pap smear by George Papanicolaou in 1947, cervical cytology has become the main diagnostic tool for the detection of cervical pathology [5].

Various reports have mentioned the sensitivity of cytology for detecting cervical neoplasia that ranged from 50% to 98%[6]. There are different methods that are being studied to improve the accuracy of cervical screening such as colposcopy, cervicography, etc. But biopsy has been considered as the gold standard for detecting cervical cancer [7]. In this study we have compared cytological findings with cervical biopsy in the lesions of cervix. In our study, patients had the cytological diagnosis of 89.8% inflammatory/normal smears and 0.7% HSIL. This is comparable to the study of Yeoh *et al*. in which benign cases were 96% and HSIL were 0.5%[8].

In the context of histopathological findings in this study, out of 64 patients, on whom pap smear and biopsy were taken, 78.7% had, 48% had dysplasia, and 18% had malignancy. In a study done by Saha *et al*. out of 43 patients, on whom Pap smear and biopsy were taken, 55.8% had chronic cervicitis, 37.2% had dysplasia, and 6.97% had malignancy.27 The mean age of patients with cancer was 52.75 years in our study population which is similar to the study of Bodal *et al*. (51.94 years) in Indian population9

The positive predictive value of pap smear was 95% in the present study. This was comparable to the study by Anschau *et al.* and Chhabra *et al.* in which the PPV were 90.9% and 92.8% respectively[10, 11].

CONCLUSION

Pap smear is a cost-effective and simple method for early detection of premalignant and malignant cervical lesions. The present study observed that cervical cytology was more specific in diagnosing cervical neoplasia. The cytological and histopathological findings were significantly correlated in the lesions of cervix.

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