

Clinical Implications and Histopathological Correlation of Cervical Lesions Found in Cervico-Vaginal Smears

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Abstract

Papanicolaou (PAP) smear is a cyto-diagnostic technique, which is a simple, safe, non-invasive and effective method for detection of pre-cancerous and non-cancerous changes in cervix as well as vagina. Clinical follow up of reported abnormal cases was done by revisiting the records or by following it up with histopathological specimens of the same patient received in our department and cytology-histopathological correlation was done. A total of 2624 PAP smears were analysed during the study period. 51 smears had abnormal PAP findings, out of which 44 cases had histopathology correlation. The present study encountered that cervical cytology is more sensitive in diagnosing glandular malignancy than squamous cell abnormalities.

Key words: Papanicolaou smear, malignancy of cervix, squamous cell carcinoma, atypical glandular cells, endometroid carcinoma, cervical cytology.

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INTRODUCTION

Cervical cancer is the second most common cancer worldwide next to breast cancer [1]. According to global report of WHO 2014, almost 2,66,000 women died in the year 2012 from cervical cancer [2]. Cervical cytology is a widely used screening tool for cervical cancer [3]. The main goal of cancer screening is to diagnose and treat in the pre-invasive stage make the disease ideal for screening procedure [4].

Papanicolaou (PAP) test is a cyto-diagnostic technique, named after George Papanicolaou, who introduced it as cancer screening tool in the year 1943. It is the simple, safe, non-invasive and effective method for detection of pre-cancerous and non-cancerous changes in cervix as well as vagina [5]. The mortality and morbidity associated with carcinoma cervix can be controlled to a greater extent by this method [6, 7].

The aim of this study was to find correlation of cytology of PAP smear and histopathology in detecting the premalignant/ malignant lesion of the cervix.

MATERIALS AND METHODS

This study was done on all abnormal PAP smears received in department of cytology in the given time period. Initial parameters like age and clinical presentation if available were noted. These cases were further classified into squamous cell and glandular cell abnormalities based on the Bethesda system of reporting cervical cytology. Clinical follow of reported abnormal cases was done by revisiting the records or by following it up with histopathological specimens of the same patient received in our department and cyto-histo correlation was done.

RESULTS

A total of 2624 PAP smears were received in the department of cytology during the study period. Total 51 smears had abnormal PAP findings, out of which 44 cases had histopathology correlation.

Age distribution

The mean age of the patient was 51.36±10.01 years (range 29 to 74 years). Highest number of abnormal PAP smears was between 41-50 years (43.18%).

Clinical presentation

Most common presentation in patients with abnormal findings was post menopausal bleeding

31.8% (n= 14). Table 1 shows various clinical presentations.

Table-1: Clinical presentation of cases

Clinical presentation	Number of cases
Post menopausal bleeding	14 (31.8%)
Menstrual abnormalities (menorrhagia/ polymenorrhoea/ dysfunctional uterine bleeding)	8
Non specific symptoms (pain abdomen/ mass per abdomen)	7
Routine screening	5
White discharge per vagina	5
Cervical growth	2
Follow up in cases of carcinoma cervix / endometrium	2
Post coital bleeding	1

Distribution of cases

Out of 2624 cases received, 94.9% (n=2492) were negative for intraepithelial lesions / Malignancy (NILM), 3.8% (n=81) were unsatisfactory and 1.9% (n=51) had abnormal findings (Table 2).

Table-2: Distribution of cases

Findings of cytology	Number of cases
NILM	94.9% (n=2492)
Unsatisfactory	3.8% (n=81)
Abnormal findings	1.9% (n=51)
Total	2624

Out of 51 cases with abnormal cytology findings, 44 cases had histopathological follow up. In histopathology 30 cases were reported as squamous abnormalities and 14 cases as glandular abnormalities.

Squamous lesions in cytology

Out of 30 cases of squamous cells abnormalities, majority were atypical squamous cells of undetermined significance (ASCUS) followed by squamous cell carcinoma (SCC), High grade squamous intraepithelial lesion (HSIL) and atypical squamous cell- cannot exclude HSIL (ASC-H). (Table 3)

Table-3: Squamous cell abnormalities in cytology

Cytology diagnosis	Number of cases
Atypical squamous cell of undetermined significance	40% (n=12)
Squamous cell carcinoma	26.6% (n=8)
Atypical squamous cell- cannot exclude HSIL	16.6 % (n=5)
High grade squamous intraepithelial lesion	16.6 % (n=5)
Total	30

Cytology- Histopathology Correlation in Squamous cell abnormalities

All 30cases were available for histopathological correlation (Table 4). All the cases

reported in cytology as ASCUS showed reactive changes of chronic cervicitis in histopathology and 3 cases of ASC-H also showed features of chronic cervicitis.

Table-4: Correlating cases in squamous cell lesions

Cytology diagnosis	Histopathology diagnosis	Number of correlating cases
ASC-US	Chronic cervicitis	12
ASC-H	HSIL-1, SCC-1	2
HSIL	SCC	4
SCC	SCC	8
		Total =26

PAP smears for diagnosis of squamous lesions had accuracy of 86.6%, sensitivity of 78.8% and specificity of 63.6%.

Glandular lesions

14 cases of glandular abnormalities were reported, among these majority of them were atypical glandular cells (AGC) not otherwise specified (AGC-NOS) followed by AGC favouring neoplastic and AGC of endometrial origin. (Table 5)

Table-5: Glandular cell abnormalities in cytology

Cytology diagnosis	Number of cases
AGC-NOS	64.28% (n=9)
AGC favouring neoplastic	28.57% (n=4)
AGC of endometrial origin	7.14% (n=1)
Total	14

Cytology-Histopathology correlation in glandular lesions

Out of 14 cases of glandular lesions, 7 correlated well with histopathology (Table 6).

Table-6: Correlating cases in glandular lesions

Cytological diagnosis	Cervix		Endometrium	
	Histopathology	No of cases	Histopathology	No of cases
AGC-NOS (n=9)	Adenocarcinoma	1	Endometrioid adenocarcinoma	2
AGC EM (n=1)	-		Endometrioid adenocarcinoma	1
AGC favouring neoplasm (n=4)			Endometrioid adenocarcinoma	3

In other 7 smears, 6 cases of AGC- NOS were diagnosed as chronic cervicitis and in 1 case histopathological features were of squamous cell carcinoma.

In case of glandular lesions, PAP smears had accuracy of 71.9%, sensitivity of 100% and specificity of 81.1%.

Follow- up of abnormal pap smears

Out of 12 cases of ASCUS, 66.6% (n=7) underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH+BSO) and repeat PAP smear was done in 2 cases. Cervical biopsy was taken in 3 out of 5 cases of ASC-H and in other 2 cases, TAH+ BSO was done. Majority of patients with SIL and SCC, 84.6% (n=11) underwent colposcopic guided cervical biopsy and followed by TAH+BSO. Surgical management was preferred in most of glandular lesions. 7 cases (50%) underwent TAH+ BSO, biopsy in 5 cases (35.7%). Follow up was not available in other 2 cases.

DISCUSSION

Majority of the patients were in the age group of 41- 50 years (43.18%). Ranabhat *et al.* [8] studied on 880 Pap smears and found that abnormal epithelial lesions are commonly seen above 40 years which is also seen in our study. In cytology, most of the smears were negative for malignancy (94.9%) which is similar to study done by Atla BL *et al.* [9]. Squamous cell abnormalities constituted majority of the abnormal smears (68.18%), of which ASC-US is most common. A study done by Sosis *et al.* [10] had similar findings in their study. Overall statistics analysis for epithelial cell abnormalities had accuracy of 86.6%, sensitivity of 78.8% and specificity of 63.6%. Nasreen *et al.* [11] and Jain *et al.* [12] had diagnostic accuracy of 79.09% and 73.2%.

CONCLUSION

Pap smear is simple and effective diagnostic tool for early detection of premalignant and malignant cervical lesions. The cytological and histopathological findings correlated well with histopathology in majority of cases. The present study encountered that cervical cytology is more sensitive in diagnosing glandular malignancy than squamous cell abnormalities.

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