



PAP SMEAR FOLLOW-UP REIMAGINED: EXPLORING CORRECTIVE MEASURES FOR BETTER OUTCOME

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ABSTRACT-

INTRODUCTION- Cervical carcinoma is one of the highly preventable cancers since it can be detected at its premalignant stage if PAP testing is performed meticulously. Inadequate samples can unnecessarily add to patient stress. Stringent follow-up is necessary in cases with suspicious diagnoses and those with inadequate smears.

AIMS AND OBJECTIVES- The study was conducted with an aim to determine the feasibility of PAP smear follow-ups and corrective measures for improved outcomes. Cases with inadequate/unsatisfactory samples and suspicious diagnoses that are lost to follow-up were evaluated.

METHODS- A cross-sectional study was done for a study duration of one year in which PAP smears reported were retrieved from the departmental records. Smears reported as unsatisfactory and suspicious for malignancy were evaluated for follow-up. Further measures that can be taken to increase follow-up were discussed in the audit meeting held regularly at our institute.

RESULTS- Out of 1200 cases reported, 220 cases (18.3%) were unsatisfactory for evaluation. Of 980 satisfactory cases, 30 cases (3%) showed epithelial cell abnormality. The follow-up rate for unsatisfactory and epithelial cell abnormality was 24.3% and 30%, respectively.

CONCLUSION- There is a dire need for mass campaigns and education regarding the benefit of regular Pap testing, especially in a developing nation like India. The root cause of decreased follow-up even after suspicious diagnosis needs to be resolved through various possible interventions at the institute level as well as the national and international level.

Keywords -Audit, PAP smear, cervical carcinoma, follow-up

Introduction- Cervical carcinoma is the fourth most common cancer globally, being one of the major causes of mortality and morbidity in Indian women.^[1,2] The cervix is lined by two types of epithelia, squamous (ectocervix) and columnar (endocervix), and the junction of the two is known as transformation zone. Metaplasia is a physiological process that occurs at the transformation zone. It has been found that persistent infection in this zone leads to cervical premalignant lesions and even carcinoma in women.^[1]

Screening methods to detect cervical cancer in premalignant stage have an important role in reducing burden of this disease. Various screening methods such as VIA (Visual inspection of cervix after application of dilute acetic acid), VIL (Visual inspection of cervix after application of Lugol's iodine, Pap smear and Human Papilloma virus testing is employed to detect cervical carcinoma at its precancerous stage. In addition to being a simple and inexpensive test, PAP smear also has high specificity when combined with HPV testing.^[3] It is a well-established fact that majority of cervical carcinoma is related to HPV 16 and 18.^[4] Unfortunately, most women who visit the hospitals are not even aware of this test and are even reluctant to get this screening test done. Thus, there is a need to increase awareness and also spread access to cancer screening programs to help prevent mortality and morbidity due to cervical cancer.^[5]

Health care professionals play a pivotal role in imparting knowledge about this screening test.^[1] Inadequate specimens can seriously compromise accuracy, cost effectiveness and also adds unnecessarily to patient stress.^[2] Moreover inadequate follow up after diagnosis of a suspicious lesion can lead to lack of desired response to treatment, increased mortality and decreased quality of life.^[6] Effective interventions and guidelines need to be prepared on a wide scale to increase awareness and follow-up after PAP testing. This study was initiated with an aim to determine the feasibility of PAP smear follow-ups and corrective measures for improved outcomes.

AIMS AND OBJECTIVES

To determine the frequency of inadequate/unsatisfactory samples reported in referred PAP smears.

To evaluate the cases with inadequate/unsatisfactory samples and suspicious diagnosis that are lost to follow up.

To assess the cases with cytohistological discrepancy, if any.

STUDY DESIGN

This was a cross-sectional study done in the Department of Pathology for a time duration of 1 year in which various cervicovaginal smears received from gynecological department and health camps conducted by the hospital were studied. Cervicovaginal specimens are prepared conventionally in our center, fixed in alcohol and sent to cytology laboratory. Pap smears reports were retrieved from department records. Pap-stained smears were examined by at least two pathologists using The Bethesda System 2014 guidelines. Number of unsatisfactory smears, atypical squamous cells of undetermined significance (ASCUS), atypical glandular cells (AGC), low and high grade squamous intraepithelial lesions (LSIL and HSIL), squamous cell carcinoma (SCC) and adenocarcinoma were compiled. Follow up histological reports were extracted from medical records. Cytohistological correlation was done for cases with abnormal findings, wherever possible. Contact numbers of patients who did not turn up for repeat testing were collected from the records section. Information regarding their current status, other investigations done and reason for their non-compliance was recorded and evaluated.

RESULTS

A total of 1200 cases were reported in the study duration of 1 year. Patients were in the age group of 25 to 81 years. Turnaround time for PAP smear reporting was 24 hours in our study in 96% cases and in remaining 4% cases it varied from 2 days to 4 days. 980 cases (81.7%) were satisfactory, while 220 cases (18.3%) were unsatisfactory or inadequate for evaluation due to reasons discussed further.

Of the 980 satisfactory smears, 30 cases (3%) showed epithelial cell abnormality. Of the 220 unsatisfactory smears, 53.5% cases were reported to be inadequate due to low cellularity while 39% cases were inadequate due to obscuration by inflammation or mucus. Of the 30 cases with positive cytology, only 9 (30.0%) cases had histological follow up at our center (Figure1). 5 cases of ASCUS, 2 cases each of HSIL and SCC had subsequent histological follow up. Of the 82 cases with unsatisfactory smear, 20 (24.3%) cases had repeat PAP smear done (Figure 2). Of the 20 unsatisfactory cases with repeat PAP done, 1 (5%) case turned out to be ASCUS on repeat cytology.

FIGURE 1(Follow up rate in cases with epithelial cell abnormality)

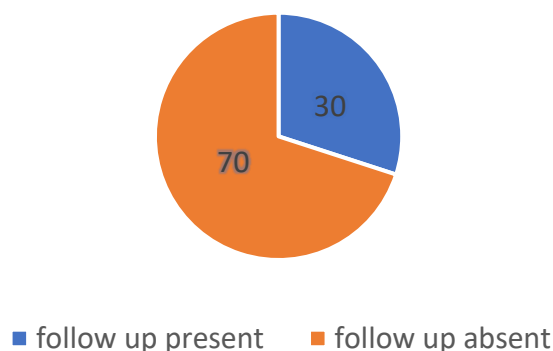


Figure 1: Follow up rates in cases with epithelial cell abnormality: blue (follow up present), orange (follow up absent)

FIGURE 2(Follow up rate in cases with unsatisfactory smear)

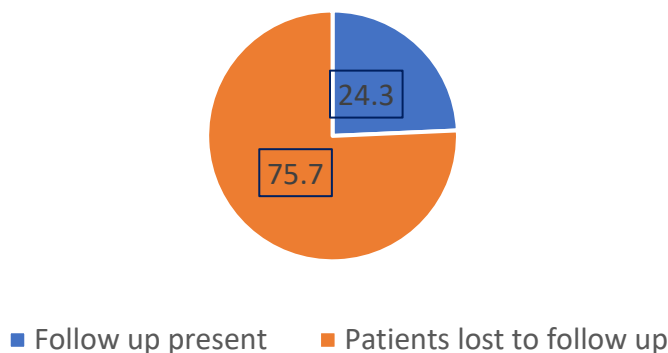


Figure 2: Follow up rates in unsatisfactory smear, blue (follow up present), orange (Patient lost to follow up)

DISCUSSION

Keeping in mind the high incidence of cervical cancer in developing countries like India and also that it is one of the preventive cancers (3-Kumar et al), our hospital has formulated a policy to offer cervical cancer screening to all patients above 21 years of age who attend gynecology clinic.^[7] In this study, the patients' age varied from 25 to 81 years with maximum patients being in the age group 40 to 50 years, similar to the study done by Digumarti et al wherein 34% females were in the age group of 41-50 years.^[8] In our study the rate of unsatisfactory smears is high being 13%. This is similar to a

study done by Narasimha et al, where 24.42% smears were reported to be unsatisfactory^[2]. However Digumarti et al reported 100 % adequacy rate and Crasta et al also reported 1.36% unsatisfactory smears. ^[8,9] Sampling error was one of the possible causes of unsatisfactory smears that was thought of since out of 220 unsatisfactory smears, 53.5% smears were of low cellularity. It was discussed in the audit meeting conducted at our institute. Monthly training of residents and staff taking sample for PAP smear and supervision by senior faculty regularly was advised. 39% cases were unsatisfactory due to dense inflammation obscuring cell details. In a study done by Bhutia K et al, 16.5% women with persistent inflammation were found to have Cervical intraepithelial lesion (CIN) on subsequent examination underscoring the need for stringent follow up in case of inflammation. ^[10] Hence delay in repeat testing or follow up in inflammatory smear might lead to delay in diagnosis of CIN. In our study, only 24.3% patients with unsatisfactory smears came for follow up. Similarly, only 30% cases with positive cytology that turned up had histological follow up. Majority of cases were lost to follow up. Most of the patients did not turn up even after repeated calling and reminder because they found themselves asymptomatic and did not feel any need for repeat testing. An audit conducted by Narasimha A et al showed that 74.8% had histological follow up at their center. ^[2] In a systemic review conducted by Gutierrez AM et al, where they explored the magnitude of inadequate follow up and also the associated factors with inadequate follow up in high income countries, it was revealed that rate of inadequate follow up ranged from 4% to 75%. ^[6] However, they did not study on low- and middle-income countries. Although the number of cases for histology and cytology correlation were comparatively less, these cases showed good correlation, similar to a study done by Dhakal R et al. ^[11]

In the audit meeting held to discuss about matters that can be corrected by interdepartmental discussion and further implementation, some measures were discussed. Routinely all PAP/LBC reports are dispatched to gynecology department/OPD, where these are dispatched to patients by staff. For cases with unsatisfactory smear or with positive cytology that require counselling for “repeat-testing”, these reports can either be held back by pathology cytology department, and patient can be counselled/motivated and then OBG consultants can further counsel patients to make them realize the importance of repeat testing or any surgical procedure, if required. In a review done by Frederikson M et al, wherein they evaluated the preference of women for management of low-grade cervical lesions reported on cytology. They found significant improvement in follow up rate if women with atypical findings were offered immediate colposcopic appointment rather than observation and further procedures, thereby reducing the anxiety period. ^[12] Monthly report of unsatisfactory and epithelial cell abnormality cases can be prepared containing the date of communication, further tests done etc. and that can be sent to gynecology department for further action (Table 1). Rafique S et al suggested that rate of follow up in females with low-income settings can be increased if self-sampling for HPV is promoted and initiatives to provide these tests free of cost are taken. ^[4]

S.No/Cytology Number	CR Number	Name of patient	Contact number	Date of receiving requisition	Unit and referring doctor	Clinical indication	Diagnosis on PAP	Further tests done	Date on which tests done to confirm PAP Diagnosis	Further advice given
1										
2										
3										
4										

Table 1: Monthly report data: Representation of report prepared of unsatisfactory and epithelial cell abnormality cases prepared under various subheadings

LIMITATIONS OF THE STUDY

Ours was a single institution study that is one of the limitations. The points discussed in the meeting are being implemented and the results after implementation are being evaluated to find any statistically significant difference in follow up and change in attitude. But this completion of audit cycle requires a long duration along with good patient and interdepartmental communication.

CONCLUSION

Clinicians and cytopathologists need to have sufficient training in PAP, and every setup should undergo routine audits to assess the follow-up rate. More widespread implementation of evidence-based follow-up improvement methods is necessary to improve cervical cancer treatment outcomes. Additionally, research is needed to examine how interventions might enhance the test's effectiveness, which would eventually boost patients' trust in it and help the WHO reach its 2030 vision objective.

Conflict of interest-None

Declarations

Ethical Approval: The study was approved by the Institutional Review Board of Rohilkhand Medical

College and Hospital, Bareilly, Uttar Pradesh, India. (IEC/RMCH/01/2025/JAN)

Informed Consent: Not required.

Conflict of Interest: The authors declare no competing interests.

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