CONVENTIONAL PAP V/S COLPOSCOPIC SCRAPE CYTOLOGY AS SCREENING TOOL IN EARLY CERVICAL LESIONS

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ABSTRACT: AIMS & OBJECTIVES: The sensitivity and specificity of pap smear and colposcopic scrape cytology were compared to colposcopic punch biopsy in present study for screening cervical abnormalities. Method: 60 multiparous women of 25-55 years age group were subjected to conventional pap smear, colposcopic directed scrape cytology and colposcopic punch biopsy after VIA and both the cytology and histopathology findings were noted, sensitivity and specificity of pap cytology colposcopic cytology were compared to biopsy. Results: Sensitivity & specificity of colposcopic cytology was much higher than pap and was near to punch biopsy, sensitivity and specificity of pap is 41% & 66% respectively, sensitivity and specificity of colposcopic cytology is 66%, 83% respectively hence it was concluded that colposcopic cytology can be more effective screening than pap in centres with colposcope and colposcopist.

KEYWORDS: Pap Cytology, Colposcopic scrape Cytology, Cervix.

AIMS AND OBJECT: Evaluation of pap v/s colposcopic scrape cytology in screening cervical lesion in tertiary hospitals.

INTRODUCTION: In 1928, Dr. Papanicolaou discovered that cells in the cervix changes in appearance before they become cancerous. Hence the Pap's smear named after Dr. Papanicolaou, is used to check changes in the cervix, it is a screening tool to find out early warning signs, from this cancer develops in future, cells are collected by using Ayre's spatula from cervix & examined in laboratory for any unusual findings. If changes are found in screening, further test will be done to see whether treatment is needed. This test is not for diagnosing cancer but rather finding early changes which may become cancer.^{1,2}

Pap smear is not 100% accurate cervical cancer may be missed in small number of cases most of the times as cervical cancer grows very slowly & follow-up, smears are required to identify changes in time.^{2,3}

Sometimes a single smear in life time if appropriately timed is sufficient. If extended to high risk groups, the mortality from cancer death can be reduced to 70%.³⁻⁵

COLPOSCOPE: First introduced by Hinselmann in 1925,³ colposcope is a binocular instrument providing a magnification of 10-12 times and Colpmicroscope. 100 to 200 times. It is a complicated instrument and designed to magnify the surface epithelium of vaginal part of the cervix including entire transformation zone. Usually the low power magnification is used to visualize the cervix and vagina. (6-16 fold), green filter high magnification can also be used for visualization. Cervix is cleared of using normal saline soaked swab, now cervix is wiped by 3% Acetic acid & examination is repeated. Acetic acid causes coagulation of nuclear proteins which is increased in CIN, more long

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lasting coagulated area, more chances of malignancy risk. Coagulated proteins prevent transmission of light through the epithelium. This is called acetowhite area. Similarly Cervix can also be painted by Schiller's iodine which differentiate the darker glycogen loaded cells from pale glycogen free cells.²⁻⁴

Abnormal group to be examined are: ⁵

1. Abnormal smear.
2. Clinically suspicious cervix especially with history of contact bleeding, despite of negative smear.
3. Patients in whom Conservative treatment can be effectively done.

Colposcopic Terminology: ⁶

1. Normal findings:
 - a. Squamous epithelium
 - b. Columnar epithelium
 - c. Transformation zone
2. Abnormal Colposcopic findings
 - a. Atypical transformation zone
 - b. Punctuate area
 - c. White epithelium
 - d. Keratosis
 - e. Atypical vessels.
3. Frank invasive cancer, it is evident only colposcopically.
4. Unsatisfactory Squamo- columnar junction.
5. Condyloma & Papilloma – are also of importance.

SCRAPE CYTOLOGY: It is a simple & harmless procedure, which is a controversial technique according to its real validity in oral pathologies. Lately it has re-emerged due to its application in oral precancerous, cancerous lesions, as predictive method as well as for monitoring the patients.⁷ New diagnostic techniques have been developed, such as brush biopsy and multiple molecular studies using collected material which is examined in laboratory under microscope High Specificity and high positive and negative predictivity, value of oral scrape cytology makes it ideal screening test for early detection of oral cancer. However low sensitivity means that it can miss cases of carcinomas & should be followed up with biopsy with strong clinical suspicion, also there is statistically significant difference between Histopathology & Cytopathological diagnosis.^{7,8}

But very few studies use of colposcopy directed scrape cytology for screening and diagnosing cervical precancerous or cancerous lesions are existing at present. In view of efficacy of abnormal area scrape cytology in screening oral precancers and cancers by many researchers' sensitivity and specificity of pap & colposcopic scrape cytology were compared to conventional punch biopsy in present study in detecting cervical abnormalities above atypia.

MATERIAL AND METHOD: Sixty multiparous women of 25 to 55 age group, who reported for different gynecological problems at L.N. Medical College & J.K. Hospital outpatients department, formed the study subjects. Each patient was subjected to Pap smear, colposcopy directed scrape

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cytology from abnormal/ suspicious areas and colposcopy directed punch biopsy from abnormal/ suspicious areas after Colposcopic VIA (Visual inspection with acetic acid).

Different Criteria's of abnormal lesion on VIA:

1. Well defined lesion: Well circumscribed aceto white lesion.
2. Ill defined: Poorly, defined aceto white lesion.
3. Scattered lesion: Punctuated areas of aceto whitening usually involving the transformation zone.
4. No lesion: No aceto white lesion visible.
5. Suspicious ulcer or growth.

Sl. No.	No. of Cases	Follow up Pap's Smear	Colposcopic Scrape Cytology	Colposcopic Punch Biopsy
1	Two	CIN I	CIN II	CIN III
2	Thirteen	LSIL	Mild Dyspepsia	Dysplasia with a types
3	Five	Chronic Cervicitis	CIN I	CIN I
4	Twelve	Inflammatory Changes	Koliococytosis	Koliococytosis
5	Eight	Chronic cervicitis	Cervicitis	Normal
6	Ten	Inflammatory Changes	Dysplasia	Dysplasia
7	Ten	Inflammatory changes	Inflammatory Changes	Inflammatory changes
COMPARATIVE FINDING'S OF PAPCYTOLOGY,SCRAPE CYTOLOGY,COLPOSCOPIC PUNCH BIOPSY				

Areas observed:

1. Well defined, well circumscribed as aceto white lesions.
2. III-defined areas
3. Poorly defined areas
4. No lesions – No aceto white area seen

RESULTS: Sensitivity and Specificity of Pap's and Colposcopy directed Scrape Cytology as compared to confirmatory histopathology (punch biopsy) are as follows:

	Pap's Smear	Colposcopic Scrape Cytology
Sensitivity	41%, $r = +1$ (coefficient of linear correlation)	66%, $r = +1$
Specificity	58%, $r = +1$	83%, $r = +1$

OBSERVATION AND DISCUSSION: Pap smear is the single most widely used valid cervical screening test at present – Pap's smear is not 100% accurate cervical cancer detection technique. It may miss small number of cancer cases, most of times¹⁻⁴ as cervical cancer develops very slowly & follow up pap smear is required, to identify changes in time for treatment. Some of the well accepted screening test for cervical lesions are:^{9, 10}

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1. Pap smear
2. VIA/ VIL I
3. Colposcopic VIA/ VIL I

Bharti Jha et al observed that scrape cytology can replace punch biopsy in diagnosing oral lesions, because oropharyngeal carcinoma is one of the leading cause of mortality in Indian population, due to increased use of tobacco chewing products, mucosal biopsy is widely regarded a gold standard for detecting oral carcinomas but exfoliative cytology are increasingly used for early detection of malignancy & strict follow up to check the sensitivity, specificity and to see whether this can replace the punch biopsy for diagnosing premalignant and malignant lesions.⁷

Ramesh G. et al discussed Colposcopic evaluation of unhealthy cervix. The pap smear is a primary tool for cervical intra epithelial neoplasm (CIN) and invasive cancer of the uterine cervix. Recently the assumed accuracy of Pap's smear was found to be 80% to 95%.

Hence there is an obvious need to subject the women with colposcopy and directed biopsy.¹⁰

According to Acha A. Martinez et al, early detection of oral cancer is most important weapon in our fight against oral cancer. For this screening by scrape cytology is proved to be very useful technique survival rate in this cancer is only 40% over all but this rate increases to a greater than 80% if this is detected early.⁸

Kavita Nanda et al, concluded after analysis of twelve studies on Pap test that Pap tests are mostly biased and is only moderately accurate with sensitivity of 30-87% and specificity 86-100%.¹¹

Lieberman RW et al On comparing Colposcopic brush cytology with Colposcopic biopsy found brush cytology to be 98% sensitive and 74% specific and concluded that in absence of lesions suspicious for cancer, colposcopic cytology is safe substitute for directed biopsy in pregnancy.¹² SA, Pimpoly et al also evaluated colposcopy vs Cytology as secondary test to triage women found positive on visual inspection test and concluded that colposcopy were more sensitive & specific than cytology.¹³

Michel T et al did meta analysis of 62 studies of pap & revealed high negative correlation of sensitivity and specificity of Pap $r = -0.63$.¹⁴

Kim SJ et al in a multi institutional study of pap concluded that sensitivity & specificity of Pap is in range of 56.6 – 83.1% respectively.¹⁵

Here we have conducted this study to evaluate Colposcopic guided scrape cytology as a screening method in the present study and yielded a sensitivity of 66% & 83%, r (coefficient of linear correlation) = +1 respectively with colposcopic cytology as compared to 41% Sensitivity and 58% specificity with Pap, $r = +1$ in our study. Other workers as mentioned above evaluated Pap cytology and summed up that pap smear has varied subjective range of sensitivity/ specificity and associated with high degree of false negatives, on the other hand study of abnormal area scrape cytology in oral lesions and in one or two study of colposcopic scrape cytology in cervix resulted to high sensitivity & specificity comparable to punch biopsy.

CONCLUSION: Colposcopic scrape cytology which shows much higher sensitivity & specificity in our study as compared to pap smear can be considered as more effective screening method for cervical lesions in institutions with facilities of colposcopy and trained colposcopist.

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Sensitivity and specificity of Colposcopic Scrape cytology is comparable to punch biopsy and if appropriately done can replace punch biopsy in absence of lesions suspicious of cancer, it being associated with negligible pain, blood loss, complications and less cost.

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