

ABNORMAL CERVICAL SMEAR; COLPOSCOPY AND OUTCOME OF CERVICAL BIOPSY

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DR. AFIFA WAHEED

MCPS, FCPS
Senior Registrar
Department of Obst. & Gynae.
Ghurki Trust Teaching Hospital, Lahore

DR. SOFIA IJAZ

House No.3
Aziz Bhatti Hospital, Bhimber Road
Gujrat

ABSTRACT... Objective: To evaluate the colposcopic findings and biopsy results in patients with abnormal cervical smear reports. **Study design:** Interventional-Quasi experimental study. **Setting:** Department of Obstetrics and Gynecology, Unit-I, Services Hospital, Lahore. **Period:** Six months (June 21, 2007 to December 20, 2007). **Material and Methods:** Fifty patients were included according to inclusion criteria. **Results:** Mean age of the patients was found to be 32.8 ± 7.3 . Maximum patients were > para 4. 44% pap smears were with grade-II dyskaryosis. 41 patients were found with acetowhite area, their biopsy findings showed 24.5% CIN-II cases. Same results were found in iodine negative areas and biopsy in mosaic pattern showed 25% cases. **Conclusions:** Cervical cancer is a cause of morbidity and mortality among gynecological malignancies, but with the help of non invasive technique like colposcopy it can be detected in its earlier stages where definitive cure is possible.

Key words: Colposcopy, Cervical intraepithelial neoplasia, Carcinoma of cervix

INTRODUCTION

Cervical carcinoma is second most common cancer in the world. In developed countries cervical cytology screening programs have been established for the last 15 years that has significantly reduced mortality rate from CA Cervix. Cervical smear and then introduction of colposcopy by Hin SIna in 1948 was a major break through which an early detection of pre invasive disease of cervix can be made, this helps because cervical intra epithelial neoplasm remains localized for 10-15 years before it becomes cervical invasive cancer. Pap smear started in 1943 by Papanicolau and Trout to detect precursor of cervical cancer. Pap test has been successful in reducing incidence of cervical cancer by 79% and the mortality by 70% since 1950 in developed countries. Pap smear has a false predictive rate ranging from 10-50%. So any technique that can better predict disease course would be an advantage to the care of women. Colposcopy is corrective for false negative cytosmear rate about 20-40% and is superior in grading dysplastic cervical smear¹.

A pre malignant condition of cervix can be treated effectively if diagnosed at an early stage². Negative smear will require repetition after 3 years unless clinical suspicion. It may be inflammatory having 6% chances of cervical intraepithelial neoplasia (CIN I), it should be repeated in 4-6 months and if 3 abnormal Pap smear, colposcopy should be done. If on smear there are border

line nuclear changes there are 20-37% chances of CIN II and III, it should also be repeated in 6 months and colposcopy after 2 abnormal smears is advisable. Cervical smear may show dysplasia in which there are 50-75% chances of CIN II and III which will require colposcopy. In severe dysplasia there is 80-90% chances of CIN II and CIN III and 5% chances of invasive disease so patient should be immediately referred for Colposcopy and biopsy³.

When there is suspicion of cervical neoplasia but Pap smear is negative, colposcopy reveals at least Grade II CIN in 5% and needs to be followed up closely or have a colposcopy and directed biopsy⁴.

These results suggest that Pap test is no longer sufficient for screening of pre cancerous lesions of the cervix and is compulsory in pre clinical stages of cervical neoplasia⁵.

Colposcopic examination require pre-acetic acid examination which is a relatively simple and painless procedure, same as colposcopy which is also performed on OPD basis, so visual inspection with acetic acid can help in describing the pre-malignant conditions of cervix⁶.

Colposcopy would be expected to detect almost all cases of high grade CIN and the cost per case detected was cheaper⁷.

Colposcopy has a reported sensitivity ranging from 87% to 99% to diagnose cervical neoplasia but its specificity is lower between 23% and 87%⁸.

Study carried out in regional hospital China shows that an integrated cytology and colposcopy programme facilitates the assessment and identification of women harboring cervical pathological condition⁹.

A study from Pakistan concluded that colposcopy is important in diagnosis of other lesions of genital tract and these lesions can be treated more accurately and confidently after colposcopy¹⁰.

Clinical practice guidelines recommend patients with abnormal glandular cells of undetermined significance (AGUS) should be evaluated with colposcopy¹¹.

The stratified squamous epithelium of vagina and ectocervix meets columnar epithelium of uterine cavity at squamocolumnar junction. In pre menopausal women this squamocolumnar junction is usually situated just inside the external cervical Os & can be readily visualized using a colposcope. Position of squamocolumnar junction tends to lie inside the canal after menopause. This is the site of origin of most pre-invasive & invasive squamous cell cervical neoplasia¹².

Biopsy of abnormal looking cervical area is the method for the definite diagnosis of the lesion. It can be simple deep punch biopsy if there is obvious lesion. If micro invasion is suspected it requires cone biopsy or may be performed with a cold knife. Colposcopy is used to identify the site, severity and extent of abnormality as well as to aid directed biopsies, plan treatment and allow use of conservative methods to treat the precursor lesions so reducing the number of hysterectomies which were performed as treatment of CIN. Thus colposcopy can be used to decrease the morbidity of patients with abnormal cervical pathology. The aim is to compare the outcome of colposcopy with cervical biopsy in women presenting with abnormal cervical smears.

OPERATIONAL DEFINITIONS

Abnormal cervical smear include:

Inflammatory having pus cells

CIN: Abnormal cell changes involving only epithelium

Pre-malignant conditions

Before start of invasion of cancer

MATERIALS AND METHODS

The study was carried out on fifty patients in the department of Obstetrics and Gynecology, Services hospital, Lahore from June, 2007 to December, 2007.

Women of 20-50 years of age with abnormal Pap smear report were included in the study. On the other hand diagnosed cases of cervical carcinoma were excluded from the study.

Fifty patients fulfilling the inclusion criteria were included after taking informed consent. Patients having abnormal Pap smear report which includes infective or dysplastic smear were evaluated and counseled about procedure of colposcopy. Cervix was examined with help of bivalve speculum. The squamocolumnar junction was identified then 5% acetic acid was applied to look for any acetowhite areas. After 30 seconds green filter findings were noted this includes punctation, mosaic pattern or new vessel formation. After that Lugols iodine 5% was applied to see if it is iodine positive or negative. After identification of the lesion, biopsy was taken and sent for histopathology. Data collection was done on proforma. Record was kept and all patients were requested to return for follow up visit.

SPSS version 11 was used for data analysis. Quantitative variables were analyzed by mean and standard deviation whereas qualitative data was analyzed by percentage and frequency.

RESULTS

Total 50 patients were included in this study fulfilling the inclusion criteria.

Maximum number of patients i.e 22 (44%) were between 25-35 years of age and minimum 3 (6%) belonged to age

group of > 45 years. Their mean age was found to be 32.82±7.3 as shown in Table-I.

Age (year)	Number	%age
<25	07	14.0
25-35	22	44.0
36-45	18	36.0
>45	03	6.0
Mean ± SD	32.82 ± 7.39	

Table-II showed distribution of cases by parity and maximum patients 26 (52%) were more than P-4 and only 4 (8%) were nulliparous.

Parity	Number	%age
Nulliparous	04	8.0
P2-P4	20	40.0
>P4	26	52.0
Total	50	100.0

Distribution of cases by Pap smear report showed 22 patients (44%) with grade-II dyskaryosis and 4 (8%) with grade-III dyskaryosis (Table-III).

Pap smear report	Number	%age
Inflammatory	06	12.0
Grade-I Dyskaryosis	18	36.0
Grade-II Dyskaryosis	22	44.0
Grade-III Dyskaryosis	04	8.0
Total	50	100.0

Table-IV showed distribution of cases according to colposcopic findings. 41 (82%) were with aceto white area, in 37 (74%) iodine negative areas were found and in 36 (72%) mosaic pattern was noted.

Colposcopic findings	Number	%age
Acetowhite area	41	82.0
Iodine negative	37	74.0
Mosaic pattern	36	72.0

Distribution of cases by biopsy results of acetowhite area showed maximum 17 (41.5%) with CIN-I and in only 4 (9.7%) atypical pattern was noted (Table-V).

Results of acetowhite area	Number	%age
Normal	04	9.75
CIN-I	17	41.5
CIN-II	10	24.5
CIN-III	06	14.6
Atypical	04	9.7
CA in situ	-	-
Total	41	100.0

Biopsy results in iodine negative areas showed maximum 17 (46%) with CIN-I and minimum 1 (2.7%) with normal pattern as shown in Table-VI.

Distribution of cases by biopsy results in patients with mosaic pattern showed maximum 18 (50%) with CIN-I and minimum 4 (11.2%) with atypical pattern (Table-VII).

Distribution of cases by biopsy in patients with abnormal pap smear showed maximum 19 (38%) with CIN-I, and minimum 4 (8%) with atypical pattern (Table-VIII).

Distribution of cases by biopsy results with normal colposcopic findings showed 11 (78.5%) with normal cytology while 1 patient each with CIN-I, II, and III (Table-IX).

Table-VI. Distribution of cases by biopsy results in iodine negative area (n=37)

Results in iodine negative area	Number	%age
Normal	01	2.7
CIN-I	17	46.0
CIN-II	09	24.3
CIN-III	06	16.2
Atypical	04	10.8
Total	37	100.0

Table-VII. Distribution of cases by biopsy results in patients with mosaic pattern (n=36)

Mosaic pattern	Number	%age
Normal	-	-
CIN-I	18	50.0
CIN-II	09	25.0
CIN-III	05	13.8
Atypical	04	11.2
CA in situ	-	-
Total	36	100.0

Table-VIII. Distribution of cases by biopsy results in patients with abnormal pap smear (1n=50)

Patients with abnormal pap smear	Number	%age
Normal	11	22.0
CIN-I	19	38.0
CIN-II	10	20.0
CIN-III	06	12.0
Atypical	04	8.0
Total	50	100.0

DISCUSSION

Current study was conducted during six months period from 21-06-2007 to 20-12-2007. Total 50 women were

Table-IX. Distribution of cases by biopsy results in patients with normal colposcopic finding (n=14)

Biopsy results in patients with normal colposcopic finding	Number	%age
Normal	11	78.5
CIN-I	01	7.14
CIN-II	01	7.14
CIN-III	01	7.14
Atypical	-	-
Total	14	100.0

included with abnormal Pap smear for detection of pre-malignant condition of cervix.

In current study, among 50 patients 22 (44%) were in the range of 25-35 years and 18 (36%) were between 36-45 years. 26 women (52%) were more than P4 and this study is comparable with the studies conducted in 2006 in Chiang Mai University, Thailand and Brazil which showed increase in invasive cancer rate with additional pregnancy and age which doubling the odds with each year of age¹³.

Out of 50 patients with abnormal pap smear 22 (44%) were with grade-II dyskaryosis, 18 (36%) with grade-I dyskaryosis, 6 (12%) with inflammatory and 4 (8%) with grade-III dyskaryosis. All of these undergone application of acetic acid, Lugol's iodine and biopsy was taken. In biopsy result 19 (38%) were with CIN-I, 10 (20%) with CIN-II, and 6 (12%) with CIN-III and 4 (8%) were with atypical cytology.

In colposcopic examination 35 patients were found to be with mosaic pattern of varying degrees, their biopsy revealed 18 (51.4%) CIN-I, 9 (25.0%) with CIN-II, 5 (13.8%) with CIN-III and 4 (11.2%) with atypical areas were found.

41 (82.0%) patients found with aceto white area their biopsy revealed also similar results to Pap smear as well to those with mosaic pattern on colposcopy. The results of biopsy with aceto white areas were similar with colposcopic guided biopsies only with slight over

diagnosis of CIN-II.

Colposcopy showed greater chances of finding CIN-II and III even in inflammatory and grade-I dyskaryotic smear. Similar results were found in a study at university in Thailand and it was concluded that in regions of high incidence of cervical cancer, women with LSIL (low grade squamous intraepithelial lesion) are at increased risk of having underlying high grade lesion and invasive cancer. So immediate referral for colposcopy should be made¹⁴.

Women expressed a clear preference for immediate colposcopy over continued surveillance which reduces their anxiety as shown in study carried out in U.K¹⁵.

But in developing countries availability of colposcopy, its cost, trained personals are lacking so rather simple, cheap and convenient method of screening is needed as shown by study results VIA (visual inspection with acetic acid) have proved its role. Similar study in Nagpur, India has comparable results¹⁶.

Results of combined Pap smear and colposcopic examination are same as proved in study in Taiwan Hospital, according to them combination of both showed high sensitivity and specificity for pre-menopause women¹⁷, while in rural areas of Taiwan visual inspection with acetic acid and immediate cryotherapy has excellent results¹⁸.

In the present study, out of 50 patients, 37 (74%) were found to be iodine negative which are actually suspicious areas. Their biopsy showed CIN-I in 17 (46%), CIN-II in 9 (24%), CIN-III in 6 (16.2%) and atypical pattern in 4 patients (10%). These results are not different from that of visual inspection with acetic acid and also to colposcopy examination. There was also a comparative study in Italy, so visual inspection with acetic acid and Lugol's iodine is a reasonable method of screening for cervical CA. Similar study in China showed that visual inspection with Lugol's iodine which is a low cost procedure can be one of primary screening tests in rural area with low resource setting if screening frequency is to be increased¹⁹.

In a study in France in which comparison of visual inspection with acetic acid and iodine test alone and in combination was made it was concluded to use single test in spite of both as it has similar efficacy and low cost compared to colposcopy²⁰.

Colposcopy can locate the site of lesion and give better chances of detecting pre-malignant lesions of cervix. Visual inspection with acetic acid and lugol's iodine serve the same purpose. Colposcopic directed biopsies will help in reducing morbidity and mortality in women from malignancies of cervix and visual inspection with acetic acid and lugol's iodine can be good alternate to colposcopy in developing countries.

CONCLUSIONS

It is concluded that colposcopy can add to Pap smear for detecting pre-malignant conditions of cervix. The results of colposcopy and visual tests with acetic acid and lugol's iodine are highly correlated. So visual inspection with acetic acid screening can be effective as an alternative to colposcopy in places where colposcope is not available.

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REFERENCES

1. Elit LM. **Pitfalls in the diagnosis of cervical intraepithelial neoplasia 1.** J Low Genit Tract Dis 2004; 8: 181-7.
2. Gichangi P, Estamble B, Bwayoj, Rogo K, Ojwang S, Opiyo A, et al. **Knowledge and practice about cervical cancer and pap smear. Kenyatta National Hospital, Nairobi, Kenya.** J Gynecol Cancer 2003; 13: 827-33.
3. Ahmed N, Mahboob R, **Cervical intraepithelial neoplasia recent trends in diagnosis and management.** Pak J Med Res 2002; 41: 43-5.
4. Soutter P. **Premalignant diseases of the lower genital tract.** In: Shaw's Gynaecology. 3rd ed New York: Livingstone, 2002. 521-40.
5. Tariq N. **Role of colposcopy in clinically abnormal cervix.** Pak Armed Forces Med J 2002; 52: 24-8.
6. Niemine P, Kallio M, Hakama M. **The effect of mass screening on incidence and mortality of squamous and adenocarcinoma of cervix uteri.** Obstet Gynecol 1995; 85: 1017-21.

7. Kitchener HC, Burns S, Nelson L. **A randomized controlled trial of cytological surveillance versus patient choice between surveillance and colposcopy in managing mildly abnormal smears.** BJOB 2004; 111: 63-70.
8. Mitchel MF, Tortolero G, Cook E. **A randomised clinical trial of cryotherapy, laser vaporization and loop electrosurgical excision for treatment of squamous intraepithelial lesions of cervix.** Obstet Gynaecol 1995; 92: 737-44.
9. Tamiolakis D, Kalloniatiou M, Lambropoulou M. **Contribution of combined colposcopy and cytology in cervical pathology.** Arch Gynecol Obstet 2005; 23: 1-4.
10. Tariq N, **Role of colposcopy in clinically abnormal cervix.** Pak Armed Forces Med J 2002; 52: 24-8.
11. Validini A Vaccoro C, Pechivsky G, Abernthy V. **Incidence and evaluation of an AGUS papanicolaou smear in primary care.** J Am Board Fam Prac 2001; 14:172-7.
12. Ferenczy A, Winkler B. **Anatomy and histology of the cervix, in pathology of the female Genital tract.** Urman R.K, editor. 3rd Ed. New York: Springer; 1987: 141-2.
13. Monteiro DL, Trajano AJ, da Silva KS, Russomano FB. **Pre-invasive cervical disease and uterine cervical cancer in Brazilian adolescents: prevalence and related factors.** Cad Saude Publica. 2006; 22:2539-48.
14. Phongnarisorn C, Srisomboon J, Siriaungkul S, Khunamornpong S, Suprasert P, Charoenkwan K. **Women in a region with high incidence of cervical cancer warrant immediate colposcopy for low-grade squamous intraepithelial lesion on cervical cytology.** Int J Gynecol Cancer 2006; 16: 1565-8.
15. Waller J, McCaffery K, Kitchener H, Nazroo J, Wardle J. **Women's experiences of repeated HPV testing in the context of cervical cancer screening: a qualitative study.** Psychooncology 2007; 16:196-204.
16. Kamal MM, Sapkal RU, Sarodey CS, Munshi MM, Alsi YD, Chande MA, et al. **Comparative study of four candidate strategies to detect cervical cancer in different health care settings.** J Obstet Gynaecol Res 2007; 33:480-9.
17. Twu NF, Chen YJ, Wang PH, Yu BK, Lai CR, Chao KC. **Improved cervical cancer screening in premenopausal women by combination of Pap smear and speculoscopy.** Eur J Obstet Gynecol Reprod Biol 2007; 133:114-8.
18. Chumworathayi B, Srisupundit S, Lumbiganon P, Limpaphayom KK. **One-year follow-up of single-visit approach to cervical cancer prevention based on visual inspection with acetic acid wash and immediate cryotherapy in rural Thailand.** Int J Gynecol Cancer 2008; 18:736-42.
19. Kietpeerakool C, Srisomboon J, Tantipalakorn C, Suprasert P, Khunamornpong S, Nimmanhaeminda K, et al. **Underlying pathology of women with "atypical squamous cells, cannot exclude high-grade squamous intraepithelial lesion" smears, in a region with a high incidence of cervical cancer.** J Obstet Gynaecol Res 2008; 34:204-9.
20. Muwonge R, Walter SD, Wesley RS, Basu P, Shastri SS, Thara S. **Assessing the gain in diagnostic performance when two visual inspection methods are combined for cervical cancer prevention.** J Med Screen 2007; 14:144-50.

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Correspondence Address:
 Dr. Afifa Waheed
 Lasani House, Manawan
 Batapur, Lahore
 draffia_waheed@hotmail.com

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