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## Comparison Results of Pap Smear and Colposcopy and Histopathology in Women with Post-Coital Bleeding

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### ABSTRACT

This study was designed to compare results of Pap-smear and colposcopy and histopathology in women with Post Coital Bleeding (PCB) at any age. A cross-sectional study conducted on 50 women with PCB. Patients were referred to Colposcopy Clinic of Imam Khomeini Hospital (University affiliated), Ahvaz, Iran in 2013. Demographic data, cytological, colposcopic and histopathology results were recorded. Cytological results were classified into normal, inflammatory, high grade squamous, Atypical Glandular Cells (AGC), Low Grade Intraepithelial Lesions (LSIL) and Interepithelial lesions. Colposcopic findings were reported as normal, abnormal, unsatisfactory and invasive carcinoma suspicious. In all cases, Papanicolaou smears and colposcopy were performed by the same skilled gynecologist. We evaluated 50 patients with PCB. The mean age of patients was  $33.66 \pm 5.54$ . Of 50, 8(16%) patients were below than 40 years. 23 (46%) of patients did not use any contraceptive. Comparison of the mean score of age between normal and abnormal histopathological results did not show statistically significant difference ( $33.55 \pm 3.38$ ,  $33.69 \pm 6.04$  years, respectively, p value = 0.9). The PCB was never seen in nulliparous, while it had high frequency in multipara 47 (96%) patients. Normal and abnormal histopathological results showed significance difference regarding multipara risk factor (11(22%) and 36(72%), respectively, p value <0.0001). In summary, our findings mostly were consistent with previously published literature in other population groups. Especially, our results regarding invasive cancer in women with PCB alarm us to investigate such cases using colposcopy and histopathology.

**Key words:** Pap smear, colposcopy, histopathology, post coital bleeding, sensitivity, specificity

### INTRODUCTION

Post-Coital Bleeding (PCB) frequently occurs in sexually active women. The PCB is defined as non-menstrual bleeding occurred after sex. Bleeding is commonly associated with mild cervical pathology requiring no further investigations while PCB in rare cases may be the first symptom of cervical cancer and therefore early diagnosis and therapy is recommended (Dubuisson *et al.*, 2013; Meevasana *et al.*, 2014). The prevalence of the PCB is 7-9%. The most common cause for PCB is cervix cancer as its prevalence in women with cervix cancer is about 7-39%. The incidence of cervical epithelial neoplastic and cervical cancer in women with PCB is around 17 and 3%, respectively (Tehrani *et al.*, 2009). It has been shown that all symptomatic women under

65 years and with cervical cancer have PCB (Slater, 1995). Chlamydia infection is the most important cause of PCB in women under 35 years, while for those under 35 years is cervix cancer or endometriosis (Harry *et al.*, 2007). Women with suspicious cervix cancer firstly should undergo clinical examination, if there is evident appearance of tumor only Pap smear test is performed. Otherwise, colposcopy and also biopsy of cervix and endocervix is needed. After all this, if the diagnosis still remain ambitious (in cases of adenocarcinoma) cervical cone biopsy (conization) is necessary. Nevertheless, conventional Pap smear technique has approximately 10-70% false negative rate due to sampling and processing errors, which not seems to be an ideal test (Meevasana *et al.*, 2014). On the other hand, problems involved in cytology-based screening programs in developing countries include quality assurance, frequency of screening, logistics, infrastructure, educated manpower and related costs (Bhatla *et al.*, 2007; Bomfim-Hyppolito *et al.*, 2006). In the cases of abnormal cervix cytology or lower genital tract disease, colposcopy is recommended as part of patient care planning. Pap smear and colposcopy are diagnostic procedures in premalignant conditions, though the specificity and sensitivity of each is different. TruScreen is another real time method which can be used in primary care for cervical screening (Atanassova *et al.*, 2013). It has been shown that there is a possibility to use this screening method as a primary screening in addition to cytology (Zlatkov, 2009). The PCB management is currently inconsistent. In addition, colposcopy is mainly used in cervical screening plan; but several disadvantages are reported for patients with PCB undergoing colposcopy including patient's distress, unnecessary intervention and use of inappropriate colposcopy time (Ray and Kaul, 2008). We use cervical cytology routinely in our clinic to assess women with PCB and colposcopy is mostly carried out in case of abnormal cytology.

This study was designed to compare results of pap-smear and colposcopy and histopathology in women with PCB at any age.

## **MATERIALS AND METHODS**

The cross sectional study was conducted on 50 women with complaint of Post Coital Bleeding (PCB) after obtaining informed consent. The study was carried out at Gynecology and Colposcopy Clinics, Imam Khomeini Hospital (a university affiliated and tertiary hospital), Ahvaz, Iran, between March 2013 and January 2014). The study was approved by Ethical Committee of Department of Obstetrics and Gynecology Voluntary participation and confidentiality were guaranteed. Sexually active women with complaint of PCB were eligible to participate in the study. Women were excluded if they:

- Have genital malignancies
- Were pregnant
- Have bleeding at the time of examination
- Have acute infection

Demographic data, cytological, colposcopic and histopathology results were recorded. Cytological results were classified into normal, inflammatory, high grade squamous, Atypical Glandular Cells (AGC), Low Grade Intraepithelial Lesions (LSIL) and interepithelial lesions. Colposcopic findings were reported as normal, abnormal, unsatisfactory and invasive carcinoma suspicious. In all cases papanicolaou smears and colposcopy were performed by the same skilled

gynecologist. For conventional Pap-smear test, exfoliated cells were sampled from the cervix using Ayer's spatula. Endocervix specimen was obtained using an endocervical sampling brush, (Boen Health care CO., Ltd.). The obtained samples were smeared evenly on a glass slide and inserted into a bottle containing 10% formaldehyde. The samples of pap-smear were sent to the cytopathology laboratory. The colposcopy was performed using Olympus Visera OTV-S7 colposcopy (Olympus Co., Japan). The optical zoom (magnification) of 20X was used. In all 50 women, colposcopy was done according to conventional method and Modified Reids Colposcopic Index/scoring (RCI) was performed. To detect any abnormal findings, the visualization of the cervix, capillaries and surface blood vessels was done under low power. To ensure acetowhite reaction, glacial acetic acid was applied twice over the cervix. The transformation zone was referred to the squamocolumnar junction. If the squamocolumnar junction was not completely visualized and endocervical curettage was performed, then colposcopy would be considered unsatisfactory. Each quadrant of the cervix was examined in a clockwise direction. If acetowhite reaction was seen in the transformation zone; then colposcopy signs were recorded. A punch biopsy from the site with highest score was taken as part of colposcopy procedure. The biopsy specimen was placed in a contained with 10% formalin (formaldehyde).

**Statistical analysis:** The analysis was carried out with SPPSS Software 17. Continuous variables were described with mean and standard deviation and qualitative variables were expressed as number (%). Significance level (p-value) of 0.05 was deemed to indicate the statistically significant difference for all tests.

## RESULTS

We evaluated 50 patients with PCB. The mean age of patients was 33.66±5.54. Of 50, 8 (16%) patients were below than 40 years. Twenty three (46%) of patients did not use any contraceptive. Table 1 shows patients' description. Thirteen patients used oral contraceptive pill, one vasectomy patient, 5 ligated patients, 3 used condom and 5 an intra-uterine contraceptive device. Comparison of the mean score of age between normal and abnormal histopathological results did not show statistically significant difference (33.55±3.38 and 33.69±6.04 years, respectively, p-value = 0.9). The PCB was never seen in nulliparous, while it had high frequency in multipara 47 (96%) patients. Normal and abnormal histopathological results showed significance difference regarding multipara risk factor (11(22%) and 36(72%), respectively, p value <0.0001). Table 2 shows cytology (Pap smear), colposcopy and histopathology results in 50 patients with PCB. Table 3 represents sensitivity and specificity of Pap smear (cytology) versus colposcopy and histopathology.

Table 1: Patients' baseline and demographic characteristics (n = 50)

Parameters	No.	Percentage
<b>Age (years)</b>		
<30	14	28.0
31-40	28	56.0
41-50	8	16.0
>50	0	0.0
<b>Parity</b>		
Nullipara	0	0.0
Primipara	3	6.0
Multipara	47	96.0

Table 2: Cytology, colposcopy and histopathology results (n = 50)

Parameters	No.	Percentage
<b>Clinical examination</b>		
Normal	36	72.0
Ectropion	5	10.0
Polyps	9	18.0
<b>Cytology</b>		
Normal	25	50.0
Inflammatory	15	30.0
ASCUS	5	10.0
HSIL	2	4.0
LSIL	2	4.0
AGC	1	2.0
<b>Colposcopy</b>		
Normal	21	42.0
Atypical transitional zone	23	46.0
Unsatisfactory	5	10.0
Suspect invasive carcinoma	1	2.0
<b>Histopathology</b>		
Normal	12	22.0
Chronic cervicitis	18	36.0
Polyp	8	16.0
Acute cervicitis	4	8.0
Ulcerative cervicitis	2	4.0
Inadequate	1	2.0
CIN1	3	6.0
SCC	1	2.0
CIN2	1	2.0

ASCUS: Atypical squamous cells of determined significance, HSIL: High grade squamous intraepithelial lesions, LSIL: Low grade squamous intraepithelial lesions, AGC: Atypical granular cells, CIN: Cervical intraepithelial neoplasia, SCC: Squamous cell carcinoma

Table 3: Specificity and sensitivity of Pap smear and colposcopy

Parameters	Sn (%)	Sp (%)	PPV (%)	NPV (%)	Accuracy (%)
Pap smear vs HP	64.10	100.00	39.60	61.00	72
Colposcopy vs HP	66.70	72.20	47.00	53.70	68
Pap smear vs colposcopy	72.00	56	57.00	43.70	64

HP: Histopathology, Sn: Sensitivity, Sp: Specificity, PPV: Positive predictive value, NPV: Negative predictive value

## DISCUSSION

The Post-Coital Bleeding (PCB) management is inconsistent and there are no guidelines to ensure good practice. Patients with abnormal Papanicolaou test results have been referred to colposcopy examinations to determine the biopsy site for histopathological assessment (Alhaily and Ewies, 2010; Apgar *et al.*, 2013; Sonnex and Shafi, 2010). We evaluated 50 patients with PCB in our Colposcopy Clinic. We observed both malignant and non-malignant causes in subjects of our study. The mean age of patients was 33.66±5.54, which was the same as previous study by Meevasana *et al.* (2014).

In present study, PCB never seen in nulliparous which was similar to study conducted by Shalini *et al.* (1998) (2.7%), while was higher in a study by Tehranian *et al.* (2009) (7.3%).

In this study, half of patients with PCB had abnormal Pap smear, of whom 15 (30%) with inflammatory Pap smear results, 5(10%) with ASCUS, 2(4%) with HSIL, 2(4%) with HSIL and 1 (2%) with AGC. The commonest cause of PCB in cytology was inflammation; hence every effort must be made to look for specific infections and an appropriate treatment should be planned.

Colposcopy results were normal in 21 patients (42%), atypical transitional zone in 23 (46%), unsatisfactory in 5 (10%) and suspect invasive carcinoma in 1(2%) patient. Cytology has high false negative rate; it is due to sampling errors, suboptimal and inadequate samples for interpretation (Bhalerao *et al.*, 2012).

Sensitivity of cytology (Pap smear) in this study was 64.1%, higher than the results of previous studies (56, 50 and 56%) (Shalini *et al.*, 1998; Tehranian *et al.*, 2009). The sensitivity of cytology can be enhanced by taking more samples at the same setting. In other words, 36% of abnormalities were missed in cytology, while 34% were missed in colposcopy.

Our histopathological results showed that the majority of these women with PCB had benign cervical pathology (60%), including chronic cervicitis (36%), polyps (16%) and acute cervicitis (8%). This was higher than previous studies which found cervical polyps in between 5 and 12.5% of women with PCB (Rosenthal *et al.*, 2001; Sahu *et al.*, 2007), while the prevalence of chronic cervicitis was higher than previous reports (31.7%) (Tehranian *et al.*, 2009). Hospital studies reported causes of PCB including cervical polyps, endometrial polyps and cervical ectopy as diagnoses. In addition, there is an association between PCB and HIV or risk of HIV and PCB and Chlamydia infection (Shapley *et al.*, 2006).

We found invasive cancer in 2% of the patients and CIN1 and 2 in 8%. Thus, the most alarming feature of malignancy was seen in total of 10% patients. There are several studies reporting the incidence of malignancy with PCB (9.1, 3%) (Shalini *et al.*, 1998; Tehranian *et al.*, 2009). In the present study, the mean age of patients with invasive cancer was 34.8±7.8 and parity 3.1, while a previous study showed 41.3 years and parity 4.17 (Meevasana *et al.*, 2014). This findings support our hypothesis regarding the mean age of patients with invasive cancer which was 34.8 and parity 3 in our study. Hence, the cancer of cervix is more common in multiparous women in their 3rd decade of life and later.

## **CONCLUSION**

Our findings mostly were consistent with previously published literature in other population groups. Especially, our results regarding invasive cancer in women with PCB alarm us to investigate such cases using colposcopy and histopathology.

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## **REFERENCES**

- Alfhaily, F. and A.A.A. Ewies, 2010. Managing women with post-coital bleeding: A prospective observational non-comparative study. *J. Obstet. Gynaecol.*, 30: 190-194.
- Apgar, B.S., A.J. Kaufman, C. Bettcher and E. Parker-Featherstone, 2013. Gynecologic procedures: Colposcopy, treatment of cervical intraepithelial neoplasia and endometrial assessment. *Am. Fam Phys.*, 87: 836-843.
- Atanassova, D., V. Zlatkov, S. Borisov and G. Veleva, 2013. [Diagnostic value of TruScreen, cytology and colposcopy]. *Akusherstvo Ginekologiya*, 52: 7-18.
- Bhalerao, A., S. Kulkarni, S. Ghike, A. Kawthalkar and S. Joshi, 2012. Correlation of pap smear, colposcopy and histopathology in women with unhealthy cervix. *J. South Asian Feder Obst. Gynae*, 4: 97-98.
- Bhatla, N., A. Mukhopadhyay, A. Kriplani, R.M. Pandey and P.E. Gravitt *et al.*, 2007. Evaluation of adjunctive tests for cervical cancer screening in low resource settings. *Indian J. Cancer*, 44: 51-55.

- Bomfim-Hyppolito, S., E.S. Franco, R.G.D.M.M. Franco, C.M. de Albuquerque and G.C. Nunes, 2006. Cervicography as an adjunctive test to visual inspection with acetic acid in cervical cancer detection screening. *Int. J. Gynaecol. Obstet.*, 92: 58-63.
- Dubuisson, J., M. Boukrid and P. Petignat, 2013. [Management of post-coital bleeding: should all women be referred?]. *Revue Med. Suisse*, 9: 1933-1937.
- Harry, V.N., M.E. Cruickshank and D.E. Parkin, 2007. Auditing the use of colposcopy versus general gynecology clinics to investigate women with postcoital or intermenstrual bleeding: A case for a new outpatient service. *J. Lower Genital Tract Dis.*, 11: 108-111.
- Meevasana, V., K. Suwannarurk, A. Chanthasenanont, C. Tanprasertkul, K. Bhamarapratana and J. Pattaraarchachai, 2014. Is the correlation between *Papanicolaou smear* and histopathology results affected by time to colposcopy? *Asian Pac. J. Cancer Prev.*, 15: 1527-1530.
- Ray, P. and V. Kaul, 2008. Prevalence of high-grade squamous intraepithelial neoplasia (HiSIL) in symptomatic women referred to the colposcopy clinic with negative cytology. *Arch. Gynecol. Obstet.*, 277: 501-504.
- Rosenthal, A.N., T. Panoskaltsis, T. Smith and W.P. Soutter, 2001. The frequency of significant pathology in women attending a general gynaecological service for postcoital bleeding. *BJOG: Int. J. Obstet. Gynaecol.*, 108: 103-106.
- Sahu, B., R. Latheef and S.A. Magd, 2007. Prevalence of pathology in women attending colposcopy for postcoital bleeding with negative cytology. *Arch. Gynecol. Obstet.*, 276: 471-473.
- Shalini, R., S. Amita and M.A. Neera, 1998. How alarming is post-coital bleeding-A cytologic, colposcopic and histopathologic evaluation. *Gynecol. Obstet. Invest.*, 45: 205-208.
- Shapley, M., J. Jordan and P.R. Croft, 2006. A systematic review of postcoital bleeding and risk of cervical cancer. *Br. J. Gen. Pract.*, 56: 453-460.
- Slater, D.N., 1995. Multifactorial audit of invasive cervical cancer: Key lessons for the national screening programme. *J. Clin. Pathol.*, 48: 405-407.
- Sonnex, C. and M. Shafi, 2010. Post-coital bleeding in young women: The role of genitourinary medicine. *Int. J. STD AIDS*, 21: 826-828.
- Tehrani, A., N. Rezaii, M. Mohit, B. Eslami, M. Arab and Z. Asgari, 2009. Evaluation of women presenting with postcoital bleeding by cytology and colposcopy. *Int. J. Gynaecol. Obstet.*, 105: 18-20.
- Zlatkov, V., 2009. Possibilities of the TruScreen for screening of precancer and cancer of the uterine cervix. *Akusherstvo Ginekologiya*, 48: 46-50.