Prevalence and Management of Abnormal Pap smear in Antenatal Care Clinic at Thammasat University Hospital

Thanasak Sueblinvong, MD*,
Komsun Suwannarurk, MD*, Athita Chanthasenanont, MD*,
Chatchai Treetampinich, MD*, Densak Pongrojpaw, MD*

** Department of Obstetrics and Gynecology, Faculty of Medicine, Thammasat University*

Objective: *To investigate the prevalence of abnormal Papanicolaou smear in pregnant patients who attend the Antenatal Care Clinic at Thammasat University Hospital.*
Material and Method: *Pregnant patients who attended the antenatal care clinic at Thammasat University Hospital from August 2003 to December 2003 were recruited for Papanicolaou test. Patients who had abnormal results of equally or over "abnormal squamous/ glandular cells of undetermined significance" were assigned for colposcopy and colposcopic biopsy to confirm the result.*
Results: *From 500 Papanicolaou smear performed, there were only four patients who had abnormal Pap tests, which were: 2 ASC-US and 2 LSIL. The prevalence of abnormal Pap smear in pregnant patients who attended the antenatal clinic at Thammasat University Hospital was 0.8 percent.*
Conclusion: *The prevalence of abnormal Papanicolaou smear in pregnant patients attending antenatal care clinic at Thammasat University Hospital was quite low in compares with other literature.*

Keywords: *Prevalence, Abnormal Pap smear, Pregnancy*

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In Thailand, the most common cause of death in the year 2003 was cancer[1]. Cervical cancer is ranked as the most frequent malignancy found in women followed by breast and thyroid cancer[2]. The high prevalence is caused by lacking in public education and persuasion in high risk population to seek early detection of the disease.

Pregnancy and prenatal care offer an excellent opportunity to implement screening programs that include cervical cytology test for pre-malignant condition. Many women who may not have access to routine health maintenance and cancer screening can seek for medical attention during their pregnancy. Therefore, the application of an effective screening modality such as cervical/ vaginal cytology in this program is reasonably persuasive and crucial for these women. Unfortunately, most physicians provide the test at their postpartum visit. Since a large number of these patients return to their hometown after discharge from hospital, more than 50% fail to report at their postpartum appointment.

Since the peak age for cervical cancer is mid-40s, one would not expect many cervical cancer patients to get pregnant. Even though there are up to 5%[3] of pregnant women who are complicated by abnormal Papanicolaou smear, the trend of management has changed from aggressive approach with conization to a more conservative approach of observation.

The aim of this study was to measure the prevalence of abnormal Papanicolaou smear in pregnant women who attend the Antenatal Care Clinic at Thammasat University Hospital.

Material and Method

After receiving the approval of the Ethical Committee Clinical Research of Thammasat University Hospital, the authors performed Papanicolaou smear to all newly arrived pregnant women who attended the antenatal clinic at the hospital from August 2003 to December 2003. The authors included new women whose gestational age was under 20

Correspondence to : Sueblinvong T, Department of Obstetrics and Gynecology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Rama VI Rd, Bangkok 10400, Thailand.

weeks. All the women were recruited for the Papanicolaou test after their written informed consent form was signed.

All the Pap specimens were collected from the extocervix with a wooden spatula and from the endocervical canal using a cotton bud swab and were immediately fixed with 95% alcohol for 30 minutes. All smears were submitted to the Department of Pathology, Thammasat University Hospital, where they were read by a certified cytopathologist and confirmed by another pathologist.

Patients who had abnormal results of equally or over "abnormal squamous/ glandular cells of undetermined significance" (ASC-US or AGUS) were then assigned for colposcopy and colposcopic biopsy to confirm the result. Data were analyzed with SPSS version 11.

Results

There were 520 women recruited in the present study. The women who had inadequate smears with undetected endocervical components or loss follow-up during their ANC were excluded from the study. Of these women, there were 500 women who had an adequate smear for evaluation. The prevalence of abnormal Pap smear in pregnant women who attended the antenatal clinic at Thammasat University Hospital was 0.8 percent. There were four patients who had an abnormal Pap test, which were: labeled as 2 ASC-US (Atypical squamous cell of undetermined significance) and 2 LSIL (Low-grade squamous intraepithelial lesion), according to Bethesda's classification 2001 (Table 1). The prevalence of infected smears, in which the organism were not identified, was 9.6%.

The colposcopic biopsy was done in every case of abnormal test. Both of the ASCUS patients had pathologic diagnosis of cervicitis. Two of the LSIL patients had been diagnosed as CIN I (HPV infection). All of them had satisfactory colposcopic findings and no significant bleeding was observed.

The demographic data of the women distributed by the Pap smear result are shown in Table 2. The age of the women who received antenatal care at Thammasat University Hospital ranged from 15 to 41 years old. The mean age of the women was 25.78 years old. Most of the women were 20 to 29 years old; 70% of them completed secondary school or lower. Only 22.5% experienced Pap smear in the past. History of smoking, alcohol consumption and sexually transmitted diseases do not seem to be correlated with the abnormal result of the Pap smear.

Table 1. The result of Pap smear from 500 pregnant patients

Result	Number (%)
Normal	448 (89.6)
Infection	48 (9.6)
ASC-US	2 (0.4)
LSIL	2 (0.4)

Table 2. Demographic data of the patients attending antenatal care clinics at Thammasat University Hospital and the results of their Pap smears

Pap result	Normal (%)	ASCUS (%)	LSIL (%)	Infection (%)
Age				
15-19	81 (18.1)	1 (50)	1 (50)	8 (16.7)
20-24	119 (26.6)	1 (50)	1 (50)	14 (29.2)
25-29	116 (26.0)			13 (27.1)
30-34	88 (19.6)			8 (16.7)
35-39	37 (8.3)			4 (8.3)
≥ 40	6 (1.3)			1 (2.1)
Education				
< Primary	13 (2.9)			
Primary	101 (22.5)		1 (50)	
Secondary	218 (48.7)	2 (100)	1 (50)	11 (22.9)
Certificate	72 (16.1)			21 (43.8)
Undergraduate	42 (9.4)			10 (20.8)
Graduate	2 (0.4)			6 (12.5)
Smoking				
Never	421 (94.0)	2 (100)	2 (100)	43 (89.6)
Smoking	4 (0.9)			1 (2.1)
Smoked	9 (2.0)			
Family member smoke	14 (3.1)			4 (8.3)
Alcohol consumption				
Never	377 (84.1)	2 (100)	2 (100)	40 (83.3)
Rarely	5 (1.1)			8 (16.7)
Often	66 (14.8)			0
History of Pap smear				
Never	343 (76.5)	2 (100)	1 (50)	34 (70.8)
Normal result	102 (21.8)		1 (50)	13 (27.1)
Abnormal result	3 (0.7)			1 (2.1)
History of contact STDs				
Gonococcal	2 (0.4)	0	0	2 (0.4)
Syphilis	0	0	0	0
HSV	6 (1.2)	0	0	7 (1.4)
Chancoid	1 (0.2)	0	0	0
LGV	0	0	0	0
Condyloma	1 (0.2)	0	0	1 (0.2)
HIV	0	0	0	0

Discussion

The incidence of abnormal cytology and CIN in pregnancy vary from one study report to the other, particularly in the years of improving diagnostic techniques. According to Talebian et al[4], the incidence of

abnormal cytology during pregnancy is around 3 percent, which is similar to that of the non-pregnant women. Abitbol et al[5] reported 286 cases of abnormal cervical cytology among 13,000 screened pregnant patients (2.2%). Lurain and Gallup observed abnormal PAP smears in 1.26% of patients from their clinic[6]. In 1989, Jolles et al[7] also cited an incidence of 26 per 1000 in reproductive-age women.

From the present series of 500 pregnant women, the incidence of abnormal Pap smear was 0.8 percent, which was lower than other reported series. This can be explained by the younger age of the population in the present study. Although pregnancy does not significantly alter the rates of false-negative results in general, several common physiologic changes associated with pregnancy can cause difficulties in interpretation of a Papanicolaou smear[8]. Examples of these effects include the increasing levels of estrogen and progesterone which lead to hyperplasia of the cervical glands that creates mucus plug. This endocervical mucus becomes thick and tenacious in pregnancy coupled with an increase in vaginal secretions overall, visibility of the cervix may be hampered[9].

The question of an increase in the number of false-positive Papanicolaou smear has also been raised because many atypical cells observed during pregnancy were not found in postpartum period[10]. The common pitfall is caused by misinterpretation of deciduas cells for SIL. Decidua cells may mimic LSIL, HSIL (High-grade squamous intraepithelial lesion) and cancer cell. Decidua cells that slough off the free surface of the uterus may degenerate, acquire pyknotic nuclei and orangeophillic cytoplasm and may be mistaken for squamous cell carcinoma[11]. Moreover, endocervical glands become hyperplastic and hypertrophied, and may undergo Aria-Stella changes. These changes are often overdiagnosed as atypical glandular cells of undetermined significance[12,13]. Even years after pregnancy, involuted deciduas and trophoblasts can mimic HSIL and lead to inappropriate treatment[14].

The colposcopic finding in four of the patients were adequate for evaluation of the transformation zone and the results were cervicitis and CIN I. As reported by Baldauf et al[15] unsatisfactory colposcopy was significantly less frequent in pregnant patients (13%) than in the non-pregnant group (23%). The visualization of the transformation zone is slightly difficult due to the excess vaginal wall in two of the patients. The difficulty in evaluation of the cervix is also mentioned by Huff[9] in which visualization of the cervix is disturbed by laxation of vaginal wall during this period.

There was no HSIL or CIN III in the presented patients, despite the incidence of 1.3 per 1000 CIN III or CIS reported by Hacker et al[16]. The interpretation of the colposcope findings during this time have to be more careful. Benedet et al[17] overestimation of the severity of dysplastic lesions during pregnancy was due to hypervascularity from hormonal changes during pregnancy. Moreover, metaplasia of the transformation zone become more prominent in pregnancy resulting in unusual colposcopic appearance. Acetowhite epithelium associated with vascular patterns of mosaicism and punctuation can accentuate the colposcopist to overestimate the severity of the lesions[8].

The tissue samplings were performed without active bleeding of the cervix. Although cervical biopsy is not associated with spontaneous abortion or premature labor and may be accomplished safely, in increased vascularity circumstance, bleeding can be a risk. Applying pressure on the cervix with large cotton swabs and cauterized with silver nitrate sticks or Monsel's solution usually results in adequate hemostasis[18]. Endocervical curettage is an absolute contraindication in pregnancy because of the risk of membrane rupture[9].

Although the prevalence of abnormal Pap smear was low, there seems to be a relationship between abnormal Papanicolaou smear with the younger age of the pregnant women in the present report. On the contrary, there seems to be no demonstrable relation between smoking, history of contacting sexually transmitted disease and abnormal Papanicolaou smear. This could be explained by the reduction of immunologic response of lymphocytes produce by pregnancy and the high prevalence of human papilloma virus infection during this age[19]. It has been postulated that this decrease in cellular-mediated immunity may increase the prevalence of HPV and its sequelae during pregnancy. Despite the fact that the incidence of pre-malignant lesions of the cervix does not seem to be specifically increased secondary to pregnancy, many reports have demonstrated that the prevalence of HPV in the lower genital tract increases during pregnancy particularly in the third trimester[8].

The prevalence of infection and inflammation on Pap smear of the present study was 9.6% which was lower than the rate of 40% reported by Pairwuti[20]. BV and STDs are both risk factors for a complicated pregnancy. In this issue, Mass et al[21] demonstrated a higher incidence of chorioamnionitis and preterm

delivery in patients with coccobacilli and clue cell on their initial Pap smears when compared to a control group of similar women without these changes. Unfortunately, the authors were unable to collect the data on the outcome of pregnancy from the presented patients because half of them gave birth at other hospitals.

Conclusion

Although the lower prevalence rate of abnormal Pap smear in pregnant women was demonstrated, the women who might be lost to follow-up after parturient should be screened with a Pap smear at the antenatal clinic. This initial smear will not only establish a baseline at the first prenatal visit but may also be the only opportunity to diagnose SIL in women with poor compliance. The lower rate of abnormal Pap test in our population was due to younger age of pregnant women which coincide with the natural history of HPV infection in young women[19]. Present day, average age of pregnant women especially in urban area is increasing to meet criteria of advanced maternal age, therefore antenatal and postpartum cervical cancer screening test should be considered in these population. However, it is important to remember that the main goal of the dermatologic examination of a pregnant patient with an abnormal cytology is to rule out invasive cervical cancer, the management of an abnormal smear should be careful and conservative.

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References

1. Public Health Statistics [database on the internet]. Bangkok: Ministry of Public Health; [updated 2003 Nov 12; cited 2004 Jul 28]. Available from: http://203.157.19.191/index%20stat%2045.htm.
2. Deerasamee S, Martin N, Sontipong S, et al. Cancer in Thailand Vol. II, 1992-1994. IARC Technical Report No. 34. Lyon: International Agency for Research on Cancer, 1999.
3. Campion MJ, Sedlacek TV. Colposcopy in pregnancy. Obstet Gynecol Clin North Am 1993; 20: 153-63.
4. Talebian F, Krumholz BA, Shayan A, et al. Colposcopic evaluation of patients with abnormal cytologic smears during pregnancy. Obstet Gynecol 1976; 47: 693-6.
5. Abitbol MM, Benjamin F, Gastillo N. Management of the abnormal cervical smear and carcinoma in situ of the cervix during pregnancy. Am J Obstet Gynecol 1973; 117: 904-8.
6. Lurain JR, Gallup DG. Management of abnormal Papanicolaou smears in pregnancy. Obstet Gynecol 1979; 53: 484-8.
7. Jolles CJ. Gynecologic cancer associated with pregnancy. Semin Oncol 1989;16: 417- 24.
8. Connor JP. Noninvasive cervical cancer complicating pregnancy. Obstet Gynecol Clin North Am 1998; 25: 331-42.
9. Huff BC. Abnormal cervical cytology in pregnancy: A laboratory and clinical dermatologic perspective. J Perinat Neonatal Nurs 2000; 14: 52-62.
10. Reagan JW, Bell BA, Neuman JL, et al. Dysplasia in the uterine cervix during pregnancy: an analytical study of the cells. Acta Cytol 1961; 5: 17-29.
11. Danos M, Holmquist ND. Cytologic evaluation of deciduas cells: a report of two cases with false abnormal cytology. Acta Cytol 1967; 11: 325-30.
12. Michael CW, Esfahani FM. Pregnancy-related changes: a retrospective review of 278 cervical smears. Diagn Cytopathol 1997; 17: 99-107.
13. Benoit JL, Kini SR. "Arias-Stella reaction" - like changes in endocervical glandular epithelium in cervical smears during pregnancy and postpartum states- a potential diagnostic pitfall. Diagn Cytopathol 1996; 14: 349-55.
14. Frank TS, Bhat N, Noumoff JS, et al. Residual trophoblastic tissue as a source of highly atypical cells in the postpartum cervicovaginal smear. Acta Cytol 1991; 35: 105-8.
15. Baldauf JJ, Dreyfus M, Ritter J, et al. Colposcopy and directed biopsy reliability during pregnancy: a cohort study. Eur J Obstet Gynecol Reprod Biol 1995; 62: 31-6.
16. Hacker NF, Berek JS, Lagasse LD, et al. Carcinoma of the cervix associated with pregnancy. Obstet Gynecol 1982; 59: 735-46.
17. Benedet JL, Boyes DA, Nichols TM, et al. Colposcopic evaluation of pregnant patients with abnormal cervical smears. Br J Obstet Gynaecol 1977; 84: 517-21.
18. McGee JE. Management of cervical dysplasia in pregnancy. Nurse Pract 1987; 12: 34-42.
19. Woodman CB, Collins S, Winter H, et al. Natural history of cervical human papillomavirus infection in young women: a longitudinal cohort study. Lancet 2001; 357: 1831-6.
20. Pairwuti S. Pap smear examinations in women with near-term pregnancy. J Med Assoc Thai 1991; 74: 156-8.
21. Mass SB, Brennan JP, Silverman N, et al. Association between a shift in vaginal flora on Papanicolaou smear and acute chorioamnionitis and preterm delivery. Diagn Cytopathol 1999; 21: 7-9.

ความชุกและแนวทางการรักษาความผิดปกติของการตรวจคัดกรองมะเร็งปากมดลูกในสตรีตั้งครรภ์ที่โรงพยาบาลธรรมศาสตร์เฉลิมพระเกียรติ

ธนศักดิ์ สืบหลินวงศ์, คมสันติ์ สุวรรณฤกษ์, อธิตา จันทเสนานนท์, ฉัตรชัย ตรีธรรมพินิจ, เด่นศักดิ์ พงศ์โรจน์เผ่า

วัตถุประสงค์: *เพื่อศึกษาความชุกของความผิดปกติในผลการตรวจคัดกรองมะเร็งปากมดลูกในสตรีตั้งครรภ์ที่มารับการฝากครรภ์ที่โรงพยาบาลธรรมศาสตร์เฉลิมพระเกียรติ*

วัสดุและวิธีการ: *สตรีตั้งครรภ์ที่มารับการฝากครรภ์ในช่วงเดือนสิงหาคม ถึงเดือนธันวาคม พ.ศ. 2546 ได้ถูกคัดเลือกเพื่อรับตรวจคัดกรองมะเร็งปากมดลูก และสตรีที่มีผลการตรวจผิดปกติจะได้รับการตรวจเพิ่มเติมโดยการส่องกล้องขยายตรวจที่ปากมดลูก และตัดชิ้นเนื้อเพื่อยืนยันการวินิจฉัย*

ผลการศึกษา: *ผลการตรวจวิเคราะห์พบความผิดปกติจากการตรวจคัดกรองมะเร็งปากมดลูกในสตรีตั้งครรภ์ที่มารับการฝากครรภ์ทั้งหมด 4 ราย จากสตรีที่สามารถติดตามผลการตรวจจำนวน 500 คน คิดเป็นความผิดปกติร้อยละ 0.8 โดยแยกเป็นความผิดปกติชนิด ASC-US จำนวน 2 ราย และ LSIL จำนวน 2 ราย*

สรุป: *ความชุกของการเกิดความผิดปกติจากผลการตรวจคัดกรองมะเร็งปากมดลูกในสตรีตั้งครรภ์ที่มารับการฝากครรภ์ที่โรงพยาบาลธรรมศาสตร์เฉลิมพระเกียรติ ค่อนข้างต่ำเมื่อเปรียบเทียบกับความชุกที่ตรวจพบในการศึกษาอื่น*