RESEARCH COMMUNICATION

Accuracy of Colposcopically Directed Biopsy in Diagnosis of Cervical Pathology at Srinagarind Hospital

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Abstract

 Objective: To determine the accuracy of colposcopically directed biopsy (CDB) in diagnosis of precancerous or cancerous lesion of the uterine cervix as a quality index of the institute. **Materials and Methods**: We retrospectively reviewed the medical records of the women who had colposcopic examination at the Department of Obstetrics and Gynecology, Srinagarind Hospital from January, 2005 to December, 2010. The women with satisfactory colposcopic examination who had CDB and further interventions such asloop electrosurgical excision procedure (LEEP)/conization, and/or hysterectomy were included in study. The pathological reports of the specimens from CDB were analyzed comparing with LEEP/conization or hysterectomy according to the highest degree of abnormalities. Pathological reports of HSIL (high grade squamous intraepithelial lesion) or more severe wereclassified as positive, while LSIL (low grade squamous intraepithelial lesion) or less severe were classified as negative. **Results**: There were 320 patients included, 259 having highest pathological reports of HSIL or more. The accuracy of CDB to detect HSIL or more of the uterine cervix was 87.8% with sensitivity, specificity, PPV and NPV of 84.9%, 100%, 100%, and 61%, respectively. **Conclusions**: The accuracy of CDB in diagnosis of cervical pathology in our institute was acceptable and comparable to those of others. CDB is a reliable method to obtain the pathological diagnosis in women with abnormal cervical cytologic screening.

Key words: Cervical cancer - diagnostic accuracy - CIN - CDB - LEEP conization

Introduction

Cervical cancer is the second most common gynecologic cancer worldwide, accounting for 15% of all female cancer in developing countries (Ferlay et al., 2000). In Thailand, this malignancy is the most common gynecologic cancer and the most common cause of death with the incidence rate of 20.9 in 100,000 women (Srivatanakul et al., 1999) and death rate of 10.79 in 100,000 people (Ferlay et al., 2000). The main purpose of colposcopy is to locate the source of abnormal cell detected by cervical cytology and to select site for biopsy in order to obtain histological diagnosis. Management algorithms are based on the colposcopic findings and the histology from biopsies. LSIL reflects the benign cytologic and pathologic effects of infection with HPV (Nasiell et al., 1986).

Although more than 100 HPV viral types have been identified, 30 to 40 types are known to infect the lower anogenital tract. HPV has been divided into low-risk and high-risk types based on their association with high-grade lesions and invasive cervical cancer. Fifteen high-risk types have been identified (Lorincz et al., 1992; Park et al., 1995; Munoz et al., 2003). Most LSIL which associated with low risk type HPV (most common 6, 11) are not consider precancerous and are likely to resolve spontaneously (Leung et al., 2005; Apgar et al., 2009). The most acceptable management of LSIL is conservative approach; follow-up.

Contrary to LSIL, HSIL which is associated with high risk type HPV (most common 16, 18) are precancerous and should be treated aggressively (Apgar et al, 2009). Therefore, the aim of colposcopic examination and CDB is to detect pathology of HSIL or more severe lesions. In this study, we intended to evaluate the accuracy of colposcopic examination and CDB to detect HSIL or more severe lesions in our institute, Srinagarind Hospital, Khon Kaen, Thailand.

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Materials and Methods

We retrospectively reviewed the medical records of women underwent colposcopic examinations at the Department of Obstetrics and Gynecology, Srinagarind Hospital. The inclusion criteria were: 1) had satisfactory colposcopic examination, 2) had CDB, and 3) had further intervention(s) following CDB such as; LEEP/conization and/or hysterectomy. The exclusion criteria were: 1) lost to follow-up and 2) had incomplete medical record.

The pathological reports of the CDB were analyzed comparing with LEEP/conization and/or hysterectomy specimens according to the highest degree of severity obtained from any means as a gold standard. Since our objective is to determine the accuracy of CDB in diagnosis of precancerous or cancerous lesion of uterine cervix, the pathological report as HSIL or more severe was classified as positive, while pathological report as LSIL or less severe was classified as negative. By these bases, the accuracy, sensitivity, specificity, PPV, and NPV of the CDB were calculated.

Results

From January, 2005 to December, 2010, there were 2,145 patients underwent colposcopic examination and CDB at the Department of Obstetric and Gynecology in Srinagarind Hospital. Of these 2,145 patients, 320 patients were included in the study. Most of the patients

Table 1. Characteristics of the 320 Patients

Characteristics		Number	%
Age (Years)	18-20	4	1.3
	21-30	29	9.1
	31-40	106	33.1
	41-50	131	40.9
	51-60	40	12.5
	61-70	8	2.5
	71-75	2	0.6
Province	Khon Kaen	140	43.8
	Udon Thani	10	3.1
	Kalasin	50	15.6
	Nong Kai	20	6.2
	Others	100	31.3
Parity	G0	21	6.6
	G1	43	13.4
	G2	117	36.6
	G3	78	24.4
	G4	34	10.7
	Grandmultipara	27	8.4
Menstrual status	Postmenopausal	38	88.1
	Reproductive	282	11.9
Reason for having Pap smear			
	Check-up	259	80.9
	Abnormal bleeding	23	7.2
	Abdominal mass	6	1.9
	Others	32	10
Procedure	LEEP/conization	209	65.3
	Simple hyst	93	29.1
	Radical hyst	18	5.6

hyst, hysterectomy

Table 2. Results of Cytology and Colposcopically Directed Biopsy (CDB)

Result	Cytology		CDB	
Normal and ASC-US	30	9.4	37	11.6
ASC-H	15	4.7	-	-
LSIL	42	13.1	63	19.7
HSIL	179	55.9	195	60.9
SCCA	20	6.3	19	5.9
AGC	10	3.1	-	-
AIS	3	0.9	2	0.6
Adenocarcinoma	7	2.2	4	1.3
Unknown	14	4.4	-	-

Table 3. Final Pathologic Diagnosis from CDB versus LEEP/Conization or Hysterectomy)

		Final pathology (LEEP/conization or hysterectomy)			
		Normal*	LSIL	HSIL	Higher
CDB	Normal*	15	7	11	4
	LSIL	0	39	23	1
	HSIL	0	0	172	23
	Higher	0	0	0	25

* or inflammation

were in the age of 30-50 (mean 42.2) years-old (Table 1). The reasons for Pap smear are also shown in Table 1, along with procedures undergone. The results of 320 patients in cytology and CDB was in Table 2.

From Table 3, we could calculate the correlation of CDB diagnoses to final pathologic diagnoses. If we defined the correlation in this table meaning that the CDB diagnoses were the same as final pathologic diagnoses, the correlation was then calculated as kappa agreement to be 61.5% (95%CI, 54.4-68.5). 37 patients were diagnosed as normal or inflammation by CDB, of these, 7 were found to have LSIL and 15 were found to have HSIL or higher, from LEEP/conization or hysterectomy. A patient who was diagnosed by CDB as LSIL underwent LEEP, but a final pathology was found to be microinvasive cervical cancer. There were 23 patients diagnosed by CDB as higher than HSIL, 4 of these were finally diagnosed as microinvasive cervical cancer. 2 of these 4 underwent conization and the others underwent hysterectomy.

Classifying LSIL or less as negative, and HSIL or more as positive, the accuracy, sensitivity, specificity, PPV, and NPV of CDB in detecting HSIL or more of the uterine cervix in this study were 87.8%, 84.9%, 100%, 100%, and 61%, respectively.

Discussion

Colposcopic examination with CDB has been widely used as a procedure to obtain tissue for pathological diagnosis in patients with abnormal cytology screening of the uterine cervix for many decades. At the Department of Obstetrics and Gynecology, Srinagarind Hospital, we have performed this procedure since the establishment of the Faculty of Medicine, Khon Kaen University, in

1972. The accuracy of CDB to diagnose pathology of the uterine cervix is an important key to reduce the incidence of and mortality from cervical cancer apart from the screening cytology.

Many studies from many institutes have demonstrated the high accuracy of this procedure. The studies in accuracy of CDB gave values of 83.7% to 93% (Veridiano et al., 1981; Srisomboon et al., 1996; Lü et al., 2006) Our study demonstrated the accuracy, sensitivity, specificity, PPV, and NPV of 84.9%, 100%, 100%, and 61%, respectively, comparable to those of others. Further study to explore the causes of the quite low NPV rate is then recommended.

The robust points of our study are that we have many patients diagnose HSIL and most of their records were completed. However in our study, CDB diagnosed normal or inflammation but in actual fact 22 patients were diagnosed HSIL or more than HSIL in final pathology. The several factors impact in these results may be the quality of the colposcope and biopsy instrument and level of expertise of different colposcopists. These 22 patients underwent to LEEP, conization and /or hysterectomy because of discrepancy of cytology. We can use this study to prevent going further malignancy of cervix.

In conclusion, the sensitivity, specificity, and accuracy of CDB derived by comparing with the highest severities from any means of cervical pathological diagnoses (CDB, LEEP/conization and/or hysterectomy) were 84.9%, 100%, and 87.8%, respectively, in our study. CDB is a reliable method to obtain the pathological diagnoses in women with abnormal cervical cytologic screening at our institute.

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