A Paired Comparison Study of ThinPrep Pap Test and Conventional Cervical Pap Smears in Srinagarind Hospital: A Preliminary Report

Nipa Kanjanavirojkul¹, Pissamai Yuenyao², Chongrak Sripa¹
¹Department of Pathology
²Department of Obstetric Gynecology
Faculty of Medicine, Khon Kaen University, Khon Kaen, THAILAND

Objective: To compare the cytologic diagnosis of a liquid-base, Thin-layer preparation and conventional cervical smear.

Material and Method: Ninety nine cervical smears were processed conventional method and with the ThinPrep® Pap test. Cytologic diagnosis based on the Bethesda system 2001.

Results: Of the 99 pair slides of conventional and ThinPrep Pap test smears interpreted during the study period. All smears were cytologic diagnosed as negative for intraepithelial lesion or malignancy (90 conventional and 85 ThinPrep smears), atypical squamous cells of undetermined significance, ASC-US (1 conventional and 5 ThinPrep smears), low-grade squamous intraepithelial lesion, LSIL (0 conventional and 2 ThinPrep smears), high-grade squamous intraepithelial lesion, HSIL (4 conventional and 3 ThinPrep smears), Invasive cervical cancer (4 agreement by conventional and ThinPrep smears).
Introduction

The ThinPrep® Papanicolaou test (TP) (Cytye Corp, Australia) is a slide preparation method that utilized liquid fixation of the exfoliated cells. It has been shown to produce well preserved thin-layer slides and improved specimen adequacy and diagnostic yield.1 Studies from different laboratories in other countries have documented increased detection of both low and high-grade squamous intraepithelial lesions with TP methods.2-6 This method introduced to use in a few private and government laboratories in Thailand in the recent year.

The purpose of this preliminary study was to compare the cytologic diagnosis of a fluid-base, Thin-layer preparation and conventional (CV) cervical smears in Srinagarind Hospital, Faculty of Medicine, KKU.

Materials and methods

Ninety nine cervical smears were processed CV method and with TP. In the CV smears, the Arye spatula were used to collect cervical cells. Slides were fixed immediately in a 95% ethanol. The collection device used in the TP group was papetteTM (for cervical cytology utilizing the ThinPrep® Pap test). The device was rinsed immediately after use in a vial of PreservCyt Solution (Cytc), and a slide was prepared in the laboratory using the ThinPrep 2000 Processor (Cytc) according to the operator’s manual. TP and CV slides were stained with the laboratory’s routine Papanicolaou staining. Cytologic diagnosis TP slides were evaluated by an experienced cytotechnologists who had successful completed a taining program offered by Cytc and received a primary training certification. Cytological report were based on the Bethesda system 2001. This study was approved by Ethics committee of Faculty of Medicine, Khon Kaen University.

Results

A total of 99 pair slides of CV and TP smears were screened in this preliminary study. Cytologic diagnostic agreement between CV and TP smears was obtained in 93 of 99 smears using the diagnostic categories shown in Table 1. All smears were diagnosed negative for intraepithelial lesion or malignancy, NILM (90 CV, 85 TP), atypical squamous cells of undetermined significance, ASC-US (1 CV, 5 TP), low-grade squamous intraepithelial lesion, LSIL (0 CV, 2 TP), high-grade squamous intraepithelial lesion, HSIL (4 CV, 3 TP), invasive cervical cancer, ICC (4 agreement by CV, TP). Cytomorphologic features of CV and TP smears diagnosed as ASCUS, HPV infection, LSIL, HSIL and squamous cell carcinoma, (SCC) were shown in Fig. 1, 2, 3A B, 4A B, respectively.

Table 1 Agreement between CV and TP cervical cytology smears diagnoses (n=99)

<table>
<thead>
<tr>
<th></th>
<th>CV smears</th>
</tr>
</thead>
<tbody>
<tr>
<td>NILM</td>
<td>85</td>
</tr>
<tr>
<td>ASC-US</td>
<td>4</td>
</tr>
<tr>
<td>LSIL</td>
<td>1</td>
</tr>
<tr>
<td>HSIL</td>
<td>0</td>
</tr>
<tr>
<td>ICC</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
</tr>
</tbody>
</table>

Fig. 1 Cervical smear processed with The TP Pap test method diagnosed as ASC-US (Papanicolaou stain X400)

Conclusion: The ThinPrep Pap test is more sensitive method of detecting ASC-US and squamous intraepithelial lesion than the conventional Pap smear in this preliminary study.
Discussion

In the last few years, major improvements in detecting precursors of cervical cancer due to the use of liquid-based preparation technologies as compared to the CV technique have been reported.1-9 Many authors concluded that the TP Pap Test is more sensitive and specific than CV smears in detecting cervical atypia (ASC-US), LSIL, HSIL and ICC.1,5, 8, 9 Chacho et al.6 studies based on cytohistologic correlation evidence, the TP Pap test may not be more effective in detecting ICC, when compared with CV Pap smear. Chhieng DV et al.7 studied about the interobserver variability and concluded that interobserver agreement in reporting gynecologic cytology using the TP method is good for squamous intraepithelial lesion and appear to be superior to the CV method.

In this preliminary study, the TP Pap test is more sensitive method of detecting cervical abnormal diagnosis[ASC-US 4 cases, one case of HPV infection (LSIL), one case of HSIL (CIS)] than the CV Pap smear [NILM 5 cases and one case of HSIL (severe dysplasia)]. Only 99 cases in this preliminary study is not enough to conclude that the TP Pap test is significantly more effective than the CV smear. Further, prospective studies on a large numbers of samples should be compared sensitivity, specificity, accuracy and cost-effectiveness between CV and TP method in the Government Hospital.

Conclusion

The TP Pap test is more sensitive method to detecting ASC-US and squamous intraepithelial lesions than the CV cervical smear in this preliminary report.
References


