CASE SERIES

Cervical cancer screening before hysterectomy in pelvic organ prolapse patients: Is it essential? A case series

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ABSTRACT

Objective: Pelvic organ prolapse (POP) is caused by a weakening of pelvic floor muscles. The prevalence of unanticipated premalignant and malignant pathologies after hysterectomy is varied from 0.2 to 0.8%. This report to present a case series of POP's patients undergoing vaginal hysterectomy (VH) with preoperative evaluation of abnormal cervical smear ending with higher result of histopathology.

Case Series: Case 1: A-55-year-old woman, P3A0 was diagnosed as third grade both in uterine prolapse and cystocele. The result of Pap smear revealed atypical glandular cells of undetermined significance (AGUS). Histopathological result after VH was vaginitis and metaplastic chronic cervicitis with atypia to mild dysplasia of endocervical epithelial cell/ low grade squamous intraepithelial lesion (LSIL). Case 2: A-62-year-old woman, P5A0, was diagnosed as third grade of uterine prolapse. The result of Pap smear showed atypical squamous cells of undetermined significance (ASCH). Histopathological result after VH was high grade squamous intraepithelial lesion (HSIL) up to in situ carcinoma with involvement of microinvasive gland and focus.

Conclusion: Since cervical cancer still become the second most common cause of mortality in Indonesia, it is recommended to screen preoperatively for pre-cancerous gynecological lesion and cancer.

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Highlights:

1. Higher result of cervical pre-cancer histopathology compared with cervical smear is found in POP patients undergoing vaginal hysterectomy.
2. Preoperative biopsy or ultrasound among POP patients undergoing vaginal hysterectomy cannot be a routine procedure.

INTRODUCTION

Pelvic organ prolapse (POP) is caused by a weakening of pelvic floor muscles and it becomes health issue in the world related with quality of life. The prevalence of POP is from 2% to 20%.[1] The incidence of POP is increased to the highest level among 60 and 69 years old. Therefore, hysterectomy in postmenopausal women is often due to POP.[2] Due to protrusion of uterus outside the vulva, it can lead to infection, bleeding, and rarely as cancer. The cervical carcinoma and uterine prolapses are usual in developing countries; however, the combination of both is unusual.[3]

World Health Organization (WHO) stated that cervical cancer is still the fourth rank of cancers in women with the number of new cases up to 604,000 and contributing to 342,000 deaths in 2020. The highest rates of mortality occur in low- and middle-income countries due to access to HPV vaccination, cervical screening and early treatment, also social and economic determinants.[4] Actually, cervical cancer develops slowly starting at a precancerous lesion called as dysplasia or cervical intraepithelial neoplasia (CIN). It occurs in transformation zone in relation to the squamous metaplasia. The cervical smear (Pap smear) is one simple test to detect the pre-cancerous lesions as an early diagnosis and prompt treatment in secondary prevention.[5] In POP, the direct mechanical irritation of cervix is related with chronic inflammation of minimally third-degree prolapse leading to the occurrence of cervical malignancy.[1] However, another study stated that uterine prolapse is rarely together with cervical carcinoma because the cornified cervical epithelium is resistant and less vaginal secretion, absence of infection, and free drainage as the reason of protection against carcinoma.[6] Unfortunately, this issue is still debatable.

The prevalence of unanticipated premalignant and malignant pathologies after hysterectomy is varied from 0.2 to 0.8%.[7–9] However, it becomes important concern to the surgeon for pelvic reconstructive surgery because it will affect the procedure and patient's outcome.[9] Therefore, this report would like to present a case series of POP's patients undergoing vaginal hysterectomy (VH) with preoperative evaluation of abnormal cervical smear ending with higher result of histopathology.

CASE SERIES

Case 1

A-55-year-old woman, P3A0, presented with bulging mass from vaginal birth since 2 years before admission. She had three previous cesarean section with birth-weight from 3,000 grams to 3,800 grams. She has already been in menopausal state since 4 years ago and still sexually active. On Pelvic Organ Prolapse Quantification (POP-Q) examination, she diagnosed as third grade both in uterine prolapse and cystocele. She decided to be performed VH. On the preparation of surgery, the result of Pap smear was atypical glandular cells of undetermined significance (AGUS) (Figure 1). Histopathological result after VH was vaginitis and metaplastic chronic cervicitis with atypia to mild dysplasia of endocervical epithelial cell/ low grade squamous intraepithelial lesion (LSIL) (Figure 2).

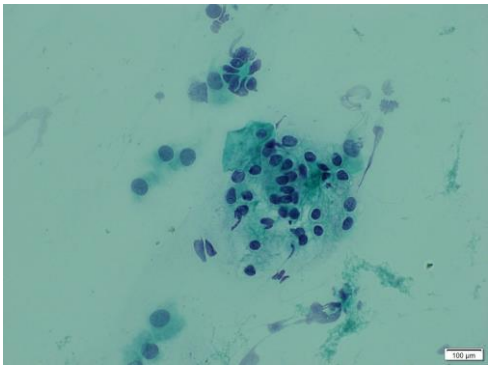

Figure 1. Pap smear of atypical glandular cells of undetermined significance (AGUS).

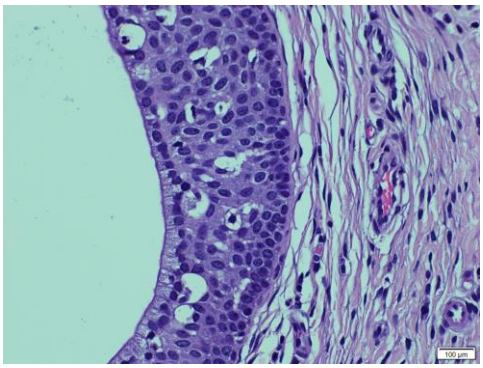

Figure 2. Histopathology of low grade squamous intraepithelial lesion (LSIL).

Case 2

A-62-year-old woman, P5A0, presented with bulging mass from vaginal birth since 5 years ago. She had five times of vaginal delivery with the biggest birthweight was 4,000 grams. She had in menopausal state since 10 years ago and not sexually active. On POP-Q examination, she diagnosed as third grade of uterine

prolapse and decided to be undergone VH continued by colpocleisis.

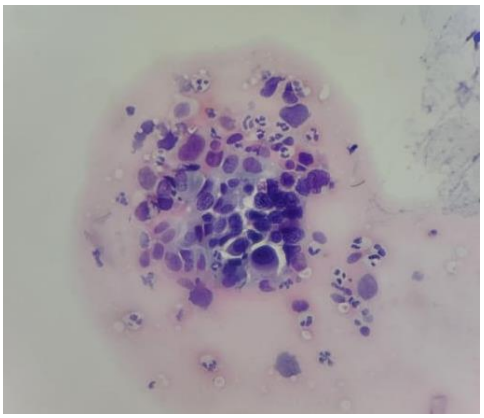

Figure 3. Pap smear of atypical squamous cells of cannot excluded HSIL (ASCH).

The result of Pap smear before surgery showed atypical squamous cells of cannot excluded HSIL (ASCH) (Figure 3). Histopathological result after VH was high grade squamous intraepithelial lesion (HSIL) up to in situ carcinoma with involvement of microinvasive gland and focus (Figure 4).

Based on the two cases, is cytology screening on the cervix in POP patient essential before performing hysterectomy?

SCOPING REVIEW

This scoping review was conducted through guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping review (PRISMA-ScR). We conducted the searching strategy through PubMed, Ebscohost, Cochrane, and Google Scholar for studies published up to August, 1st 2024 without limitation of old studies. Following keywords were "pelvic organ prolapse", "cervical cancer screening", "Papanicolaou test". In Cochrane and Pubmed, we used the MeSH terms as provided by the database. We included all types of studies starting from original articles, case report, systematic review, and meta-analysis. Studies consisting of only abstracts, editorials, conferences or meeting proceeding book, letters, no available of full text, animal studies were excluded.

Results of the scoping review

Figure 5 showed the PRISMA flowchart of the article selection process. Initially, we obtained 256 studies from database including PubMed, Ebscohost, Cochrane, and Google Scholar. Two articles duplicates were eliminated, resulting 254 studies. After screening the abstract which was appropriate to the topic, we got 6 articles assessed for eligibility. Finally, only 4 articles included in review. Table 1 displays the results of scoping review (n=4).

DISCUSSION

In aging population, POP is frequently found with varying symptoms starting from vaginal, lower urinary tract, defecatory dysfunction, to sexual dysfunction. As less invasive procedure, vaginal hysterectomy became the option for the treatment among POP patients.[10]

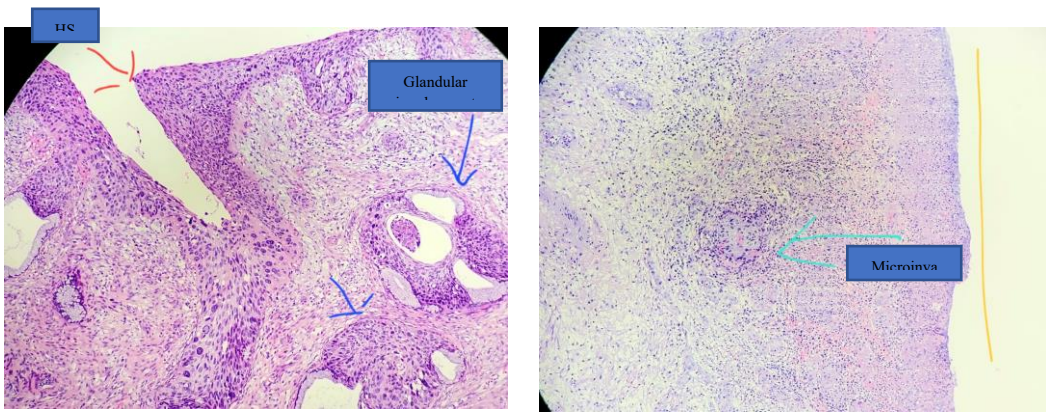

Figure 4. Histopathological result of HSIL up to in situ carcinoma

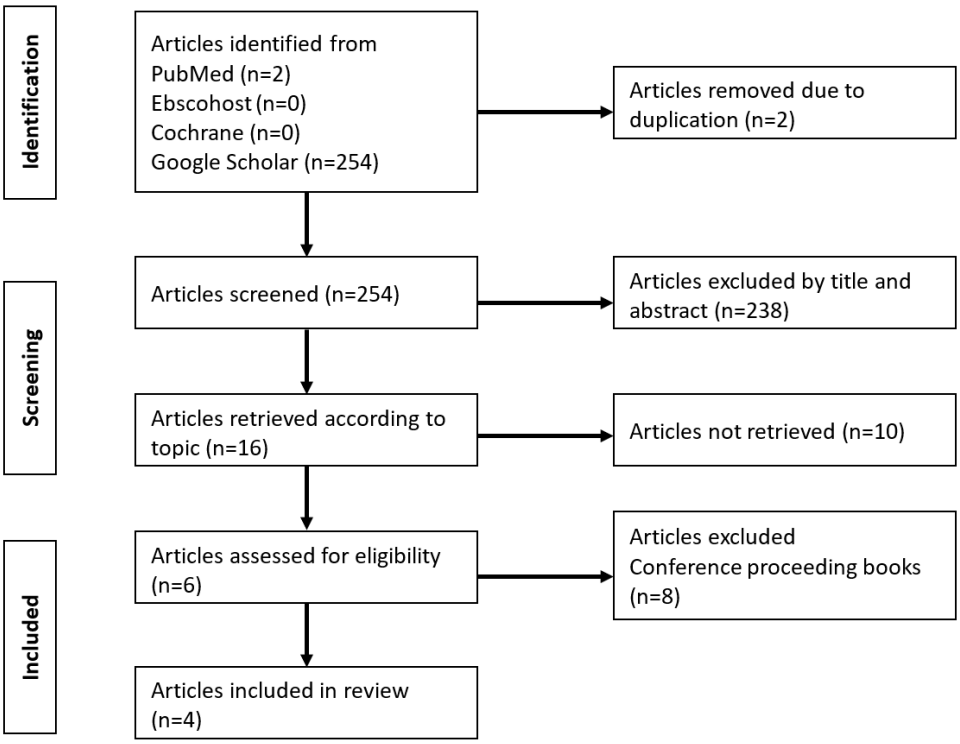

Figure 5. PRISMA flowchart of article selection process

Table 1. The results of scoping review (n=4)

References	Type of Study	Focus	Results
Tailor HJ, 2015	Retrospective cohort study	To evaluate the Pap smear finding in patients with uterine prolapse and compare it with nonprolapse cases	Of 1,427 cases, we have received only 5 cases of ASCUS in 233 uterine prolapse cases.
Grigoriadis T, 2015	Retrospective study	The incidence of malignant and premalignant gynecological histopathological findings among POP women who underwent a VH	Five out of 333 women who underwent VH consisted of 1 case of cervical cancer (0.3 %), 1 case of cervical intraepithelial neoplasia (CIN) III (0.3 %), and 3 cases of CINI (0.9 %).
Barakzai S, 2023	Retrospective study	The rates of unanticipated premalignancy and malignancy at the time of hysterectomy performed for pelvic organ prolapse in an underscreened population	For patients undergoing hysterectomy for pelvic organ prolapse in an underscreened population, the rates of cervical dysplasia or cancer were 0.42% (3/729).
Suphattanaporn O, 2023	Retrospective cohort study	Prevalence of precancerous or malignant lesions of the cervix among POP patients underwent vaginal hysterectomy	Nine of the 530 patients (1.7%) had precancerous or malignant lesions of the cervix and/ or endometrium. Precancerous cervical lesions were found in five patients (0.95%): ciN ii 0.38% and ciN iii 0.57%.

Unanticipated premalignant and malignant pathologies during hysterectomy can occur both in endometrial and cervical tissue. According to the International Federation of Gynecology and Obstetrics Working Group guidelines, preoperative biopsy or ultrasound in POP patients does not become a routine procedure before hysterectomy.[11] Guideline from American Society for Colposcopy and Cervical Pathology (ASCCP) in 2019 did not state about management of cytology abnormalities in POP patients who would be performed hysterectomy.[12] Meanwhile, several studies stated that POP women who planned for VH should have preoperative diagnostic work-up such as blood tests, cervical cancer screening, ultrasonography, and endometrial sampling especially in patients with abnormal uterine bleeding.[13,14]

Bayan M, et al.[15] conducted study in Jordan revealed that of 5,000 routine Pap smear, the rate of abnormal Pap smear was only 3.8% in general population. Meanwhile, study by Syem B, et al.[9] concluded that the incidence of unanticipated cervical premalignancy (CIN2 or higher) was 0.42% (3/729 cases) in POP patients undergoing hysterectomy. Another study by Ornthicha, et al.[14] the prevalence of CIN II and CIN III was 0.38% and 0.57%, respectively. All cases were postmenopausal and negative for Pap test with no transformation zone (TZ) revealed. The strength of cervical cancer screening should be conducted repeatedly over time due to high false negative rate of Pap test around 5% to 35%.[16,17] Actually, another co-testing screening through HPV testing can raise form two to three fold to detect CIN3 or greater lesion. Besides, co-testing also showed a high rate of negative predictive value compared with cytology alone.[18] Data published in 2023 revealed that high risk (HR)-HPV screening test had highly sensitive (98.66%) and specific (87.15%) to detect the preneoplastic lesion in real practice.[19] Although this HR-HPV screening is very sensitive, there is a possibility of false-negatrive results because there were no 100% of sensitivity rate in screening tools. Co-testing becomes the alternative strategy to increase the sensitivity to detect negative HPV in subtypes of adenocarcinoma (ADC).[20,21] Unfortunately, in Indonesia, screening with HR-HPV is not routinely performed due to expensive cost.

In Indonesia, data from 2020 showed that there were 36,633 new cases of cervical cancer and 21,003 cervical cancer related with deaths. Cervical cancer is still the second common cause of death among Indonesian women because almost 70% cases were found in late stage.[22] Therefore, early detection of cervical cancer is essential to reduce the rate of unnecessary death. Our case showed worse histopathological than cytology result. In the first case, the AGUS on cytology result ended up with mild dysplasia or LSIL on histopathology. The second case, ASCH on screening was finally HSIL up to in situ carcinoma on histopathology after VH. Guideline from ASCCP revealed that patients having undergone hysterectomy due to benign disease and the cytology and/ or HPV testing resulted high grade cytology (HSIL, Atypical squamous cells - cannot exclude high grade squamous intraepithelial lesion/ ASC-H, atypical glandular cells/ AGC) should be immediately conducted vaginal colposcopy.[12]

Although cytology is the standard primary cervical precancer screening method, in low-resource settings like in rural Indonesia, challenges to obtain cytology such as limited availability of experts, high costs, the need of multi visits become the main concern.[1] Visual inspection of acetic acid (VIA) and lugol iodine provides simple test for early detection of cervical precancerous lesions. The VIA is conducted through observation of acetowhite plaques near the squamo-columnar junction of cervix after application the acetic acid.[1] The sensitivity and specificity of VIA is in the range of 50-88.6% and 66.7-89.7%. Study by Wang S, et al.[1] in China showed that among HPV-positive women, the overall adherence by VIA was 93.9% and it could reduce the colposcopy referral rates to 18.3%. Another study in India concluded that VIA by trined female health workers was a safe, acceptable, and effective test that can detect precancer lesion in remote areas with few resources.[1]

The slow progress of developing cervical cancer and high prevalence of cervical cancer in Indonesia, it is recommended to screen preoperatively for precancerous gynecological lesion and cancer. It consists of both endometrial through transvaginal ultrasound and cervical through cytology or co-testing in asymptomatic postmenopausal women. Although the rate of unanticipated cervical pathology at the time of hysterectomy for POP is low, clinician can manage and counsel the POP undergoing VH better based on the result of cytology screening preoperatively.

The strength of these case series would like to remind the gynecologists that cytology screening in postmenopausal POP women before conducting VH could be lower than the histopathology result. Although the incidence of unanticipated cervical premalignancy was low under 1%, the gynecologist should counsel the patients performing cytology up to HPV screening before performing VH in POP patients regarding of life expectancy rate in Indonesia. Besides, the history taking about cervical and endometrial cancer screening is essential to determine the risk factors of patients. The limitation of these case series was that there were no further follow-up of these patients after VH.

CONCLUSION

There is no routine recommended guideline of pre-operative biopsy or ultrasound in POP patient. Since cervical cancer still become the second most common cause of mortality in Indonesia, it is recommended to screen preoperatively for precancerous gynecological lesion and cancer before POP surgery.

DISCLOSURES

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Conflict of interest

The author confirmed no conflict of interest in this study.

Patient consent for publication

Patients involved in this study have been signed the approval of publication to increase the development of knowledge in gynecology cases.

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Author contribution

All authors have contributed for this study starting from preparation, data collection, writing the cases, drafting, revising, and sending for publication of this manuscript.

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