

Prevalence of Preoperatively Undiagnosed Cervical Intraepithelial Neoplasia in Hysterectomy Specimens

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Received: June 18, 2025; **Published:** June 30, 2025

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Abstract

Objective: To determine the prevalence of preoperatively undiagnosed cervical intraepithelial neoplasia (CIN) in hysterectomy specimens and to assess the implications for clinical practice.

Methods: A retrospective descriptive study was conducted at a teaching hospital in Colombo, Sri Lanka, involving 240 consecutive patients aged 35 - 65 years who underwent hysterectomy between 2019 and 2022. Patients with known cervical abnormalities, macroscopic cervical lesions, subtotal hysterectomy, or cervical carcinoma were excluded. Demographic and gynecological data were extracted from medical records, and histopathological reports were reviewed to identify the presence of CIN. Descriptive statistics were used to summarize the data, and the prevalence of CIN was calculated as a percentage of total hysterectomy specimens.

Results: Among the 240 patients, 2 (0.83%) had CIN identified in the hysterectomy specimens, both of which were preoperatively undiagnosed. The most common histopathological diagnoses were leiomyoma (78 cases), adenomyosis (42 cases), and endometrial hyperplasia (6 cases).

Conclusion: The prevalence of preoperatively undiagnosed CIN in hysterectomy specimens is low but non-negligible. This underscores the importance of comprehensive preoperative screening, including thorough cervical evaluation, even in patients undergoing hysterectomy for non-cervical indications.

Keywords: *Cervical Intraepithelial Neoplasia; Hysterectomy; Preoperative Screening; Histopathology; Cervical Cancer*

Introduction

Cervical intraepithelial neoplasia (CIN) is a spectrum of squamous epithelial abnormalities of the cervix, ranging from low-grade (CIN 1) to high-grade (CIN 2 and CIN 3) lesions. While CIN 1 often regresses spontaneously, high-grade lesions are associated with a significant risk of progression to invasive cervical cancer if left untreated. The primary etiological factor for CIN is persistent infection with high-risk human papillomavirus (HPV) types, which is implicated in over 95% of cervical neoplasia cases worldwide [1].

Standard diagnostic modalities for CIN include cervical cytology (Pap smear) and colposcopy. However, these methods have limitations, particularly in detecting lesions located in the endocervical canal. Consequently, some cases of CIN may remain undiagnosed preoperatively and are only identified upon histopathological examination of hysterectomy specimens. The prevalence of such undiagnosed CIN varies across studies, with some reporting rates as high as 1.3% in patients undergoing hysterectomy for pelvic organ prolapse [2].

Understanding the prevalence of preoperatively undiagnosed CIN is crucial for several reasons. First, it underscores the importance of thorough preoperative screening, especially in patients undergoing hysterectomy for non-cervical indications. Second, it highlights the need for comprehensive histopathological examination of all hysterectomy specimens to ensure that CIN is not overlooked. Lastly, identifying undiagnosed CIN can influence postoperative management and surveillance strategies, potentially impacting patient outcomes [3,4].

Aim of the Study

This study aims to determine the prevalence of preoperatively undiagnosed CIN in hysterectomy specimens, contributing to the body of knowledge that informs clinical practice and patient care.

Materials and Methods

Retrospective descriptive study was conducted in a Teaching hospital in Colombo, Sri Lanka after getting required approvals from the relevant authorities. 250 consecutive patients were selected who underwent hysterectomies between 2019 and 2022.

Inclusion criteria:

- Patients aged 35 to 65 years.
- Underwent hysterectomy for non-cervical indications.

Exclusion criteria:

- Age > 65 years.
- Known cervical smear abnormality before surgery.
- Macroscopic cervical lesions found during preoperative speculum examination.
- Subtotal hysterectomy.
- Caesarean or postpartum hysterectomy.
- Cervical carcinoma.

240 patients were selected after applying the exclusion criteria for the study.

Data collection: Demographic and gynecological data were extracted from medical records. Histopathological reports were reviewed to identify the presence of CIN.

Statistical analysis: Descriptive statistics were used to summarize demographic data. The prevalence of CIN was calculated as a percentage of total hysterectomy specimens.

Results

Demographic and clinical characteristics

A total of 240 patients who underwent hysterectomy were included in this study. The demographic and clinical characteristics are summarized in table 1.

Category	Subcategory	Number of Patients
Age (years)	<35	1
	35-39	2
	40-44	15
	45-49	45
	50-54	62
	55-59	60
	60-64	55
Ethnicity	Sinhala	204
	Muslim	32
	Tamil	3
	Other	1
Parity	0	36
	1	34
	2	32
	3	41
	4	57
	5 or more	40
Papanicolaou Smears	Never had Pap smears	112
	At least one Pap smear	87
	No details	41
Speculum Examination	Yes	213
	No	27
Imaging Before Surgery	None	0
	Ultrasound scans only	227
	Ultrasound + CT scan	11
	Ultrasound + MRI scan	2
Pre-operative Tumor Markers	None	219
	Serum tumor markers	21
Presenting Complaint	Menstrual abnormality	102
	Pelvic/abdominal pain	61
	Lump at vulva	71
	Other	6
Indication for Surgery	Menstrual disturbance	93
	Pelvic organ prolapses	71
	Fibroid uterus	34
	Endometriosis	14
	Ovarian tumours	9
	Endometrial hyperplasia/malignancy	5
	Other	14

Hysterectomy Method	Vaginal hysterectomy	68
	Laparoscopic-assisted vaginal hysterectomy	5
	Abdominal hysterectomy	141
	Total laparoscopic hysterectomy	24
	Laparoscopy converted into abdominal hysterectomy	2
Major Complications	Bladder injuries	3
	Bowel injuries	1
	Major vessel injuries	1
	Blood transfusion	5
	Re-openings	1

Table 1: Demographic and clinical characteristics of study population.

Histopathological findings

The histopathological diagnoses of the hysterectomy specimens are presented in table 2. Notably, two cases of cervical intraepithelial neoplasia (CIN) were identified, both of which were preoperatively undiagnosed.

Diagnosis	Number of Cases
Endometrial hyperplasia	6
Endometrial carcinoma	4
Leiomyoma	78
Adenomyosis	42
Ovarian carcinoma	3
Cervical carcinoma	1
CIN (Cervical Intraepithelial Neoplasia)	2
Other non-malignant diagnoses/multiple conditions	136

Table 2: Histopathological diagnoses of hysterectomy specimens.

Prevalence of preoperatively undiagnosed CIN

The prevalence of preoperatively undiagnosed CIN in this cohort was 0.83% (2 out of 240 cases). This finding underscores the importance of comprehensive preoperative screening, including thorough cervical evaluation, even in patients undergoing hysterectomy for non-cervical indications.

Discussion

This study aimed to determine the prevalence of preoperatively undiagnosed CIN in hysterectomy specimens. Our findings revealed that 0.83% (2 out of 240) of patients had CIN that was not detected prior to surgery. This is consistent with previous studies reporting similar rates of undiagnosed CIN in hysterectomy specimens [2,5,6].

The low prevalence observed in our cohort may be attributed to the routine preoperative screening practices at our institution, which include Papanicolaou (Pap) smears and colposcopy. However, the detection of CIN in hysterectomy specimens underscores the limitations of current screening methods, particularly in detecting lesions confined to the endocervical canal [2,5,6].

Our study also highlights the importance of thorough histopathological examination of all hysterectomy specimens, regardless of the indication for surgery. While the risk of undiagnosed CIN is low, the potential implications for patient management necessitate a comprehensive approach to specimen evaluation.

Conclusion

In conclusion, the prevalence of preoperatively undiagnosed CIN in hysterectomy specimens is low but non-negligible. This finding emphasizes the need for continued vigilance in cervical screening and the importance of histopathological assessment of all hysterectomy specimens. Further research is warranted to explore strategies to enhance the detection of endocervical lesions and to assess the clinical significance of incidental CIN findings in hysterectomy specimens.

Recommendations

1. **Enhanced screening protocols:** Implementing more sensitive screening methods, such as high-risk human papillomavirus (hrHPV) testing, may improve the detection of CIN, particularly in patients with negative or inconclusive Pap smear results.
2. **Comprehensive histopathological examination:** Ensuring that all hysterectomy specimens undergo thorough histopathological evaluation, including sampling of the endocervical canal, can help identify incidental CIN and other pathological findings.
3. **Training and awareness:** Providing ongoing education for clinicians and pathologists regarding the importance of detecting CIN and the potential implications for patient management can enhance the quality of care.
4. **Further research:** Conducting prospective studies to evaluate the effectiveness of enhanced screening protocols and to assess the clinical outcomes of patients with incidental CIN findings can inform evidence-based practices.

Limitations

This study has several limitations. Firstly, its retrospective design may introduce selection bias, as it relies on existing medical records. Secondly, the study was conducted at a single institution, which may limit the generalizability of the findings to other settings. Additionally, the lack of detailed information on the histopathological grading of CIN and the extent of cervical sampling may affect the interpretation of the results. Finally, the study did not assess the long-term clinical outcomes of patients with incidental CIN findings, which warrants further investigation.

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Volume 14 Issue 7 July 2025

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Citation: Walawe Nayaka S. "Prevalence of Preoperatively Undiagnosed Cervical Intraepithelial Neoplasia in Hysterectomy Specimens". *EC Gynaecology* 14.7 (2025): 01-05.