Section: Pathology

Original Research Article

CLINICOPATHOLOGICAL PROFILE OF CERVICAL LESIONS WITH EMPHASIS ON CERVICAL SQUAMOUS INTRA EPITHELIAL LESIONS AND CARCINOMA

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ABSTRACT

Background: Cervical lesions constitute a major gynecological health problem among women and range from inflammatory conditions to premalignant and malignant lesions. Early detection of cervical squamous intraepithelial neoplasia (SIL) and carcinoma through histopathological evaluation plays a crucial role in reducing cervical cancer-related morbidity and mortality. Aim of the study was to evaluate the clinicopathological profile of cervical lesions with special emphasis on cervical intraepithelial neoplasia and carcinoma. **Materials and Methods:** The present retrospective observational study was conducted in the Department of Pathology in ESIC medical college, Hyderabad. A total of 127 histopathologically confirmed cervical lesion cases were included in the study. Clinical details, histopathological findings, and demographic data were collected from pathology records and analyzed using descriptive statistics. **Result:** The mean age of the study population was 49.8 ± 11.6 years, with majority of patients belonging to the 41–50 years age group. Cervix biopsy specimens constituted the major sample type. Low grade Squamous intraepithelial lesion (LSIL) includes CIN1 was the most common histopathological diagnosis (26.6%), followed by High Grade Squamous intraepithelial lesion (HSIL) includes CIN II and CIN III. Squamous cell carcinoma was the predominant malignant lesion identified. A significant association was observed between clinical presentation and histopathological severity. **Conclusion:** Premalignant cervical lesions were more common than malignant lesions in the present study. Histopathological examination remains the gold standard for early diagnosis and classification of cervical lesions and is essential for timely management and prevention of cervical carcinoma.

INTRODUCTION

Cervical cancer remains one of the most common malignancies affecting women worldwide and continues to represent a major public health burden, particularly in developing countries. Despite the availability of effective screening methods and vaccination programs, cervical carcinoma contributes significantly to cancer-related morbidity and mortality among women. The World Health Organization has identified cervical cancer as the fourth most common cancer among women globally, with a disproportionately higher incidence in low- and middle-income countries due to inadequate screening and delayed diagnosis.[1] Persistent infection with high-risk human papillomavirus (HPV), especially HPV types 16 and 18, is considered the principal etiological factor in the development of cervical intraepithelial neoplasia (CIN) and invasive cervical carcinoma.[2]

Cervical intraepithelial neoplasia represents a spectrum of premalignant epithelial abnormalities characterized by dysplastic changes involving the cervical squamous epithelium. These lesions are categorized into CIN I, CIN II, and CIN III based on the extent of epithelial involvement and degree of cellular atypia. CIN I usually corresponds to low grade squamous intraepithelial lesion (LSIL), whereas CIN II and CIN III are regarded as high-grade squamous intraepithelial lesions (HSIL) with greater malignant potential. If untreated, high-grade lesions may progress to invasive squamous cell carcinoma over several years. However, regression of low-grade lesions may also occur, particularly in younger women with effective immune responses. Loopik et al. demonstrated that a significant

proportion of CIN I and CIN II lesions regress spontaneously within 24 months, while persistent HPV infection increases the likelihood of progression to malignancy.[3] Similarly, Lycke et al. reported that untreated CIN II lesions were associated with an increased long-term risk of cervical cancer progression.[4]

Histopathological examination remains the gold standard for diagnosing cervical lesions and assessing the severity of dysplasia and invasive disease. Cervical biopsy, loop electrosurgical excision procedure (LEEP), cone biopsy, and hysterectomy specimens provide valuable information regarding epithelial abnormalities, stromal invasion, keratinization, tumor differentiation, and associated inflammatory changes.[5] Histopathology also plays a crucial role in identifying different variants of squamous cell carcinoma, including keratinizing, non-keratinizing, papillary, and poorly differentiated carcinomas, which have important prognostic implications. Khieu and Butler emphasized the importance of histopathological grading in the management and prognosis of high-grade squamous intraepithelial lesions.[6]

The introduction of cervical cytology screening programs and HPV DNA testing has significantly reduced the incidence of invasive cervical cancer in developed nations. Nevertheless, many women in resource-limited settings continue to present with advanced disease due to poor awareness, social stigma, inadequate healthcare access, and lack of organized screening programs. Several recent studies have emphasized the importance of early detection of premalignant lesions through histopathological evaluation and colposcopic-guided biopsies. Zhang et al. demonstrated that persistent HPV infection after conization remains a major predictor for recurrence and progression of cervical lesions.[7] Rotar et al. further highlighted the emerging role of medical therapies and conservative management strategies in cervical intraepithelial neoplasia.[8]

Recent advances in molecular pathology and biomarker studies have improved the understanding of cervical carcinogenesis. Liu et al. described the molecular pathways associated with HPV-mediated oncogenesis and emphasized the diagnostic role of biomarkers in cervical cancer progression.[2] Karimi et al. also explored the pathogenesis of CIN III lesions and their progression toward invasive carcinoma, emphasizing the importance of histopathological confirmation and timely intervention.[9] Chen et al. analyzed follow-up outcomes in patients with low-grade squamous intraepithelial lesions and observed that careful surveillance and histopathological assessment are essential for early diagnosis and prevention of malignant transformation.[10]

Although several studies have evaluated cervical lesions, variations in the prevalence of premalignant and malignant lesions across different populations continue to exist. Differences in socioeconomic status, reproductive behavior, parity, sexual practices, smoking, immunosuppression, and HPV prevalence significantly influence the clinicopathological profile of cervical lesions. Furthermore, there remains limited data from many tertiary care centers regarding the comprehensive clinicopathological spectrum of cervical lesions and their correlation with histopathological findings, particularly in the Indian population. Hence, there exists a need for further studies evaluating the clinical presentation and histopathological patterns of cervical lesions in women attending tertiary care hospitals.

The present study was therefore undertaken to evaluate the clinicopathological profile of cervical lesions with special emphasis on cervical intraepithelial neoplasia and carcinoma. The study aims to analyze the demographic characteristics, clinical presentation, histopathological spectrum, and frequency of premalignant and malignant cervical lesions in women attending a tertiary care hospital. The findings of this study may contribute to better understanding of disease patterns, facilitate early diagnosis, and strengthen screening and preventive strategies for cervical cancer.

MATERIALS AND METHODS

The present study was a hospital-based retrospective observational study conducted in the Department of Pathology at ESIC Medical college, Hyderabad. The study was undertaken to evaluate the clinicopathological profile of cervical lesions with special emphasis on cervical intraepithelial neoplasia and carcinoma.

The study was carried out in the Histopathology Section of the Department of Pathology, where cervical biopsy specimens, hysterectomy specimens, and cervicovaginal tissue samples received during the study period were analyzed. A total of 127 histopathologically confirmed cervical lesion cases were included in the study.

Inclusion Criteria

The following cases were included in the study:

1. All cervical biopsy specimens received in the Department of Pathology.
2. Hysterectomy specimens with cervical pathology.
3. Cases diagnosed histopathologically as premalignant, or malignant cervical lesions.
4. Women of all age groups presenting with cervical lesions during the study period.
5. Adequately preserved tissue specimens with complete histopathological details.

Exclusion Criteria

The following cases were excluded from the study:

1. Inadequate or poorly preserved tissue specimens.
2. Autolyzed biopsy samples.
3. Cases with incomplete clinical details or histopathological records.

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4. Repeat biopsy specimens from previously included cases.
5. Non-cervical gynecological lesions without cervical involvement.

Study Tool

The study tools utilized included:

1. Histopathological examination of cervical biopsy and hysterectomy specimens.
2. Hematoxylin and Eosin (H&E) stained microscopic slides.
3. Histopathology laboratory registers and pathology records.
4. Clinical data obtained from pathology requisition forms and medical records.

Data Collection

Data were collected retrospectively from departmental records and histopathology registers. The following parameters were recorded:

1. Age of the patient.
2. Clinical presentation and indication for biopsy/hysterectomy.
3. Type of specimen received.
4. Histopathological diagnosis.
5. Presence and grade of cervical intraepithelial neoplasia.
6. Presence of malignant lesions and histological variants.
7. Associated inflammatory and reactive changes.

All tissue specimens were fixed in 10% formalin, processed routinely, embedded in paraffin wax, sectioned at 4–5 µm thickness, and stained with Hematoxylin and Eosin stain. Microscopic examination was carried out by pathologists, and lesions were categorized into inflammatory, premalignant, and malignant lesions based on standard histopathological criteria.

Statistical Analysis

The collected data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) software version 23.0. Descriptive statistics such as mean, standard deviation, frequencies, and percentages were used to summarize the data. Continuous variables were expressed as mean ± standard deviation, while categorical variables were represented as frequencies and percentages. Association between clinical presentation and histopathological severity was assessed using the Chi-square test. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 127 study participants were included in the present study. The mean age of the study population was 49.8 ± 11.6 years, indicating that the majority of patients belonged to the middle-aged group. The age of the participants ranged from 27 to 78 years. Most of the cases were observed in women above 40 years of age, suggesting increased prevalence of cervical lesions in the peri-menopausal and postmenopausal age groups. All the study participants were females, accounting for 100% of the study population. The findings highlight that cervical lesions predominantly affect middle-aged and elderly women and emphasize the importance of regular cervical screening in this age group.

Table 1: Demographic Characteristics of Study Participants

Variable	Value
Total number of participants	127
Mean age (years)	49.8 ± 11.6
Minimum age (years)	27
Maximum age (years)	78
Female participants	127 (100%)

Table 2: Age-wise Distribution of Study Participants

Age Group (Years)	Number of Cases (n)	Percentage (%)
20–30	8	6.2
31–40	25	19.6
41–50	41	33
51–60	35	31.5
>60	18	14.1
Total	**127**	**100.0**

The age-wise distribution of the study participants showed that the majority of cases belonged to the 41–50 years age group, accounting for 41 cases (31.4%), followed by the 51–60 years age group with 35 cases (27.5%). Participants aged 31–40 years constituted 25 cases (19.6%), while patients above 60 years accounted for 18 cases (14.1%). The least number of cases were observed in the 20–30 years age group with 8 cases (6.2%). The findings indicate that cervical lesions were more commonly encountered among middle-aged and older women, particularly in the fourth and fifth decades of life.

Table 3: Distribution of Clinical Presentations / Indications among Study Participants (n = 127)

Clinical Presentation / Indication	Number of Cases (n)	Percentage (%)
Cervix biopsy	87	68.5
Hysterectomy and associated specimens	40	31.5
Total	127	100

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Postmenopausal bleeding	11	8.6
Abnormal uterine bleeding (AUB)	5	3.9
Cervix mass clinically	13	10.2
Prolapse	3	2.3
Other associated conditions	95	74.8
Total	**127**	**100.0**

The distribution of clinical presentations and indications revealed that cervical lesion/cervix biopsy was the most common indication, accounting for 87 cases (68.5%). Hysterectomy-related specimens, including TAH, BSO, and radical hysterectomy specimens, constituted 40 cases (31.5%). Postmenopausal bleeding/status was observed in 11 cases (8.6%), while abnormal uterine bleeding and clinical carcinoma cervix each accounted for 5(3.9%) and 13(10.2%) cases respectively. Other associated clinical conditions such as cervical hypertrophy, prolapse, erosions, past history breast carcinoma (1case) and suspected lesions constituted 95 cases (74.8%). The findings indicate that cervical lesions and suspicious cervical growths were the predominant reasons for histopathological evaluation in the present study.

Table 4: Distribution of Histopathological Diagnoses among Study Participants (n = 124)

Histopathological Diagnosis	Number of Cases (n)	Percentage (%)
CIN I	30	23.6
CIN II	5	3.9
CIN III	16	12.5
Well differentiated squamous cell carcinoma	32	25.1
Moderately differentiated squamous cell carcinoma	33	25.9
Poorly differentiated squamous cell carcinoma	5	3.9
Other carcinomas	6	4.7
Total	**127**	**100.0**

The histopathological distribution of cervical lesions showed that CIN I was the most common diagnosis, observed in 30 cases (23.6%), followed by CIN II in 5 cases 3.9% and CIN III observed in 16 cases (12.5%). Well differentiated squamous cell carcinoma accounted for cases Moderately differentiated and poorly differentiated squamous cell carcinoma each constituted 33 cases 5 cases respectively. CIN associated with cervicitis/proliferative changes was noted in 3 cases (2.4%), Other carcinomas 5 cases (4.7%). The findings indicate that premalignant cervical lesions were more common than malignant lesions in the present study, highlighting the importance of early detection and histopathological screening.

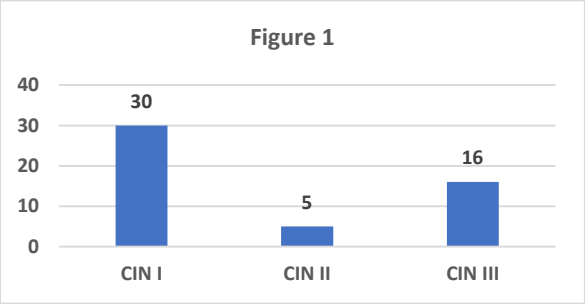

Figure 1: Distribution of Cervical Intraepithelial Neoplasia (CIN) Grades among Study Participants (n = 51)

The figure 1 representation demonstrates the distribution of various grades of cervical intraepithelial neoplasia (CIN) among the study participants. Among the premalignant lesions, CIN I was the most common finding with 30 cases (23.6%), followed by CIN III in 16 cases (12.5%) and CIN II in 5 cases (3.9%). The graph clearly indicates that low-grade cervical lesions were more prevalent than high-grade lesions in the present study. These findings emphasize the importance of early cervical screening and histopathological evaluation for timely detection and prevention of progression to invasive cervical carcinoma.

Table 5: Distribution of Squamous Cell Carcinoma and other Variants among Study Participants (n = 76)

Histopathological Variant	Number of Cases (n)	Percentage (%)
Well differentiated squamous cell carcinoma	32	42.6
Moderately differentiated squamous cell carcinoma	33	44
Poorly differentiated squamous cell carcinoma	5	6.6
Adenosquamous carcinoma	1	1.3
Endocervical adenocarcinoma	5	6.6
Total	76	**100.0**

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The distribution of histopathological variants showed that conventional squamous cell carcinoma (SCC) was the most common malignant lesion, accounting for 70 cases (93 %). Well differentiated SCC and moderately differentiated SCC were observed in 32 cases (42.6%) and 33 cases (44%) respectively, while poorly differentiated SCC constituted 5 cases (6.6%). Out of total SCC cases, Papillary SCC in 6 cases (8.5%). Non-keratinizing SCC in 5 Cases. Adenosquamous carcinoma in 1 case. The findings indicate that squamous cell carcinoma and its histological variants formed the major malignant component among cervical lesions in the present study, emphasizing the importance of histopathological grading and subtype identification for appropriate management and prognostication.

Table 6: Correlation between Clinical Presentation and Histopathological Severity (n = 127)

Clinical Presentation	Premalignant Lesions n (%)	Malignant Lesions n (%)	Total
Cervical lesion / biopsy	26 (29.8)	61 (70.1)	87
Hysterectomy specimens	25 (62.5)	15 (37.5)	40
Total	**51 (40.1)**	**76 (59.8)**	**127**

The correlation between clinical presentation and histopathological severity revealed that malignant lesions were the most common category, accounting for 61 cases (70.1%), and premalignant lesions in 26 cases (29.8%). Postmenopausal bleeding showed a relatively higher proportion of malignant lesions, accounting for 4 cases (3.2%), highlighting its importance as a significant clinical warning symptom. Hysterectomy specimens demonstrated a distribution of premalignant lesions predominantly than malignant lesions. The findings indicate a significant association between clinical presentation and histopathological severity, emphasizing the role of clinical symptoms in predicting underlying cervical pathology and the importance of early histopathological evaluation.

DISCUSSION

Cervical lesions continue to represent a major gynecological health problem among women, particularly in developing countries where organized cervical cancer screening programs remain inadequate. Histopathological evaluation plays a pivotal role in the diagnosis and classification of inflammatory, premalignant, and malignant cervical lesions. The present study was undertaken to analyze the clinicopathological profile of cervical lesions with special emphasis on cervical intraepithelial neoplasia (CIN) and carcinoma in a tertiary care hospital setting.

In the present study, the mean age of the study population was 49.8 ± 11.6 years, with the majority of patients belonging to the 41–50 years age group (31.5%), followed by the 51–60 years age group (28.2%). These findings indicate that cervical lesions are more commonly encountered in middle-aged and elderly women. Similar findings were reported by Vijayakumar et al.[11], who observed that the majority of cervical lesions occurred in women between 40 and 60 years of age. Likewise, Jadhav et al.[12] reported peak incidence of cervical lesions in the fifth decade of life. The increased prevalence in this age group may be attributed to prolonged exposure to high-risk HPV infection, multiparity, hormonal influences, and delayed healthcare-seeking behavior.

In the present study, all study participants were females, and cervical biopsy specimens constituted the major proportion of samples evaluated. Cervical lesion/biopsy-related indications accounted for 68.5% of cases, while hysterectomy specimens contributed 31.5% of cases. Postmenopausal bleeding was observed in 7.3% of patients. Hutchcraft et al.[13] emphasized that postmenopausal bleeding remains one of the important warning symptoms associated with gynecological malignancies, particularly cervical and endometrial carcinoma. The higher frequency of cervical biopsy specimens in the present study reflects the importance of histopathological confirmation in clinically suspicious cervical lesions.

The present study demonstrated that malignant lesions were more common than premalignant lesions. CIN I (LSIL)was the most common histopathological diagnosis accounting for 23.6% of cases, followed by CIN II (3.9%), and CIN III (12.5%). Combined CIN lesions constituted nearly 43.3% of the total study population. These findings are comparable to the study conducted by Loopik et al. [3], who reported that low-grade intraepithelial lesions were more frequently encountered than high-grade lesions. Similar observations were also made by Teodoro et al.[14], who emphasized the increasing detection of premalignant lesions due to improved screening and biopsy practices.

The predominance of CIN I lesions in the present study indicates the effectiveness of early detection and histopathological evaluation before progression to invasive malignancy. Persistent HPV infection is known to be the principal etiological factor responsible for the progression of CIN lesions to invasive cervical carcinoma. Zhang et al.[7] demonstrated that persistent oncogenic HPV infection significantly increases the risk of progression and recurrence of cervical lesions. The present findings therefore reinforce the importance of early screening and follow-up of low-grade cervical lesions.

Among malignant lesions, squamous cell carcinoma (SCC) was the predominant histopathological type observed in the present study. Among the cervical carcinomas Conventional Squamous cell carcinoma (SCC) constituted 93% of cases and other carcinomas

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were also observed with less prevalence. The SCC was further graded based on differentiation in to 3 types, well differentiated, moderately differentiated, poorly differentiated and undifferentiated. Similar findings were reported by Tirkaso et al.[15], who observed that squamous cell carcinoma was the most common cervical malignancy, accounting for more than 70% of malignant cervical lesions. Likewise, the study by Stolnicu et al.[16] highlighted that squamous cell carcinoma remains the predominant histological subtype of cervical cancer despite recent advances in molecular classification.

The present study also identified keratinizing SCC, papillary SCC, non-keratinizing SCC, and adenosquamous carcinoma variants. These histological variants are clinically significant because they differ in biological behavior, prognosis, and therapeutic response. Fowler et al.[17] reported that poorly differentiated and non-keratinizing variants are associated with more aggressive clinical behavior and poorer outcomes compared to well-differentiated lesions. The detection of various SCC variants in the present study emphasizes the importance of detailed histopathological examination for accurate diagnosis and prognostication.

Inflammatory lesions such as endocervicitis and cervicitis were also observed in the present study. Chronic inflammation of the cervix may predispose to epithelial dysplasia and HPV persistence. Vijayakumar et al.[11] similarly reported chronic cervicitis as one of the most common benign cervical lesions in their study population. Chronic inflammatory changes may also coexist with premalignant lesions, thereby necessitating careful histopathological evaluation.

The present study demonstrated a statistically significant association between clinical presentation and histopathological severity ($p < 0.05$). Malignant lesions constituted the largest histopathological category, while malignant lesions were more commonly associated with postmenopausal bleeding and visible cervical growths. These findings suggest that clinical symptoms may provide important clues regarding underlying histopathological severity. Burness et al.[18] highlighted the importance of colposcopy-guided biopsy and histopathological assessment in women presenting with suspicious cervical lesions and abnormal bleeding patterns.

Recent advances in digital pathology and artificial intelligence have further improved the diagnostic accuracy of cervical lesions. Cho et al.[19] demonstrated that deep learning-based histopathological image analysis could accurately classify CIN lesions with diagnostic accuracy comparable to pathologists. Such technological advances may aid in early detection and reduce interobserver variability in cervical pathology.

The present study has certain limitations. Being a retrospective single-center study, the findings may not be generalizable to the wider population. HPV testing and immunohistochemical correlation were not performed in all cases. Nevertheless, the study provides valuable insight into the clinicopathological spectrum of cervical lesions in women attending a tertiary care hospital.

CONCLUSION

The present study demonstrated that premalignant cervical lesions, particularly CIN I, were the most common histopathological findings among women presenting with cervical lesions. Squamous cell carcinoma was the predominant malignant lesion identified, with various histological subtypes observed. Middle-aged women constituted the major affected population, and cervical biopsy remained the most important diagnostic specimen. A significant association was observed between clinical presentation and histopathological severity. Histopathological examination continues to be the gold standard for diagnosis and classification of cervical lesions and plays a crucial role in early detection and prevention of cervical carcinoma. Strengthening cervical cancer screening programs, increasing awareness regarding HPV infection, and promoting early histopathological evaluation are essential for reducing the burden of cervical cancer.

REFERENCES

1. Karimi P, et al. Exploring the intricacies of cervical intraepithelial neoplasia III and its progression toward cervical cancer. Cureus. 2024;16(12):e75682.
2. Liu Y, et al. Comprehensive insights into human papillomavirus and cervical cancer pathogenesis. Front Oncol. 2024;14:1452367.
3. Mello V, Sundstrom RK. Cervical intraepithelial neoplasia. StatPearls Publishing; 2025.
4. Khieu M, Butler KA. High-grade squamous intraepithelial lesion of the cervix. StatPearls Publishing; 2023.
5. Loopik DL, et al. The natural history of cervical intraepithelial neoplasia grades 1 and 2. J Low Genit Tract Dis. 2021;25(3):221-231.
6. Zhang Y, et al. Persistent HPV infection after conization of cervical intraepithelial neoplasia: A systematic review and meta-analysis. Front Public Health. 2023;11:1126097.
7. Lycke KD, et al. Untreated cervical intraepithelial neoplasia grade 2 and subsequent risk of cervical cancer: Population based cohort study. BMJ. 2023;383:e075925.
8. Kyrgiou M, et al. British Society of Colposcopy and Cervical Pathology recommendations for management of CIN. BJOG. 2025;132(4):512-526.
9. Rotar IC, et al. The role of medical therapies in the management of cervical intraepithelial neoplasia. Medicina (Kaunas). 2025;61(2):326.
10. Chen R, et al. Analysis of follow-up outcomes in patients with cervical histologic LSIL. BMC Womens Health. 2025;25:418.
11. Vijayakumar S, et al. Histomorphological spectrum of cervical lesions in a rural tertiary care centre. J Clin Diagn Res. 2021;15(9):EC01-EC05. doi:10.7860/JCDR/2021/49863.15418.
12. Jadhav A, et al. Histopathological study of spectrum of lesions of uterine cervix. Cureus. 2023;15(10):e47567. doi:10.7759/cureus.47567.
13. Hutchcraft ML, Miller RW. Bleeding from gynecologic malignancies. Obstet Gynecol Clin North Am. 2022;49(3):607-622. doi:10.1016/j.ogc.2022.05.008.
14. Teodoro RP, et al. Negative histology in cervical specimens obtained with see-and-treat strategy. Einstein (Sao Paulo). 2021;19:eAO5940. doi:10.31744/einstein_journal/2021AO5940.

ISSN (O): 2687-5365; ISSN (P): 2753-6556

15. Tirkaso BH, et al. Histopathologic patterns and factors associated with cervical lesions. Cancer Control. 2024;31:10732748241243218. doi:10.1177/10732748241243218.
16. Stolnicu S, et al. Cervical cancer: what's new in classification, morphology, molecular findings and prognosis of glandular precursor and invasive lesions. Diagn Histopathol. 2021;27(10):425-436. doi:10.1016/j.mpdhp.2021.06.002.
17. Fowler JR, et al. Cervical cancer. StatPearls Publishing. 2023. PMID: 28613735.
18. Burness JV, Schroeder JM, Warren JB. Cervical colposcopy: indications and risk assessment. Am Fam Physician. 2020;102(1):39-48. PMID: 32603071.
19. Cho BJ, Kim JW, Park J, et al. Automated diagnosis of cervical intraepithelial neoplasia in histology images via deep learning. Diagnostics (Basel). 2022;12(2):548. doi:10.3390/diagnostics12020548.

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