

Application Value of Pathological Examination in Gynecological Physical Examination

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Abstract: *Objective:* To study the application value and application path of pathological examination in gynecological physical examination. *Methods:* A total of 1200 patients undergoing gynecological physical examination in X Hospital from January 2024 to December 2024 were selected. All patients received cervical Pap smear examination, and patients with abnormal examination results underwent colposcopic biopsy and HPV infection test for cervical cancer screening. *Results:* The results of cervical Pap smear showed that a total of 780 patients among 1200 patients showed cervical abnormalities. The Pap smear combined with colposcopy was used for pathological examination to detect cervical cancer lesions in time, and biopsy and HPV infection examination were arranged for high-risk patients to provide data reference for clinical treatment. *Conclusions:* Pathological examination has a good screening effect in gynecological physical examination. It can detect lesions early and take timely intervention measures, which is helpful to reduce the incidence and mortality of the disease.

Keywords: Pathological examination; Gynecological examination; Pap smear of the cervix; Under colposcopy; Application value

Online publication: August 1, 2025

1. Introduction

Gynecological physical examination is an important cornerstone of women's health management, which can help women prevent and detect gynecological diseases in time, especially major diseases such as cervical cancer, ovarian cancer and breast cancer, and provide accurate data for clinical treatment of major gynecological diseases. Pathological examination is the technical basis of gynecological physical examination, and it is also an important basis for assessing women's health status and diagnosing gynecological diseases. Its importance is self-evident. In recent years, the number of patients with ovarian cancer in China has been increasing year by year, which seriously threatens the health of women. However, due to the lack of obvious clinical symptoms in the early stage, it is easy to be ignored by patients, resulting in many women missing the best opportunity for treatment. Therefore, the hospital should actively developing patterns of medical pathology inspection of department of gynaecology, clear

physical examination of department of gynaecology focus, strengthen the cervical cancer screening, clear cervical pap smear and biopsy under colposcope process, try to combine these two kinds of pathological examination way, improve the accuracy of cervical cancer screening, timely find the hidden risk of cervical cancer, early detection, early treatment, To save the lives of patients with cervical cancer.

2. Materials and methods

2.1. General information

A total of 1200 patients who underwent gynecological physical examination in X Hospital from January 2024 to December 2024 are selected, aged 25–55 years, with an average age of (37.85 ± 5.14) years. There were 200 cases of contact bleeding, 340 cases of vulvar pruritus or redness, and 660 cases of increased leucorrhea with strange smell. All 1200 patients are cervical abnormalities to be examined.

2.2. Methods

2.2.1. Cervical Pap smear examination

The medical laboratory physician should inform the gynecological examination patients in advance not to douche the vagina within 3 days before the examination, not to take vaginal spray drugs, and not to have sex within 24 hours before the examination. During the examination, the doctor uses a speculum to open the vulva, and rotates the cotton swab counterclockwise for 2–3 times in the cervical mouth, stays at the cervical mouth for about 10s to remove the cotton swab, and quickly puts the cotton swab into the test tube ^[1]. At the same time, the doctor also needs to clean up the secretions on the cervical surface of the patient, and then put the curette plate into the junction of the cervical scale and column, gently rotate it clockwise for about 3 times, and then place the curette plate on the slide, add 95% alcohol, after 30 minutes for Pap staining, and Pap grading according to the color. This can be used to judge whether the patient has gynecological inflammation and cervical cancer lesions, to provide data reference for clinical treatment ^[2].

2.2.2. Colposcopy

The precautions before colposcopy are the same as those for Pap smear. The gynecological patients should be informed in advance and urged to prepare before the examination ^[3]. During colposcopy, the doctor used a cotton ball stained with normal saline to wipe the secretions attached to the surface of the cervical mouth of the patient, and the enlarged image of the lens was used to observe the patient's vaginal shape and color changes, and the cervix was stained with iodine. If there was no color, it was positive, and if the patient's cervix showed punctate, white epithelium and white spots, it was negative. If the patient's cervix appears punctate, white epithelium, white spots, and so on, it is negative. Histopathological biopsy under colposcopy is required ^[4]. The doctor found the location of the patient's cervical lesions through colposcopy, and quickly extracted the relevant tissues for biopsy to determine whether the patient had cervical cancer-related lesions ^[5].

2.3. Observation indicators and judgment criteria

For cervical pap smear test results were analyzed, and the reference to pap levels 3, 4 and pap level 5 determine whether accord with standard of positive, and the colposcope pathologic examination, HPV and pathological biopsy results were analyzed, and the reference to the two standards to judge whether patients with inverted

papilloma virus infection ^[6]. One level is normal, level 2 for exist in patients with cervical inflammation, level 3 as the precancerous mild lesions; Grade 4 was precancerous severe lesions, and grade 5 was cervical cancer.

According to the cytologic diagnostic criteria, a patient is considered negative if the test sample does not show epithelial lesions or cancer. High-grade squamous intraepithelial lesions, low-grade squamous intraepithelial lesions, and atypical squamous-cell carcinoma of undetermined origin were classified as positive. According to the DNA diagnostic criteria, if the patient's sample detects abnormal cell proliferation, abnormal DNA ploidy cells, and a peak of abnormal DNA ploidy cells, it meets the criteria for positive cervical biopsy ^[7].

2.4. Statistical methods

SPSS20.0 software was used for data analysis, χ^2 test and t test are used for measurement data. Enumeration data are expressed as rate (%). $P < 0.05$ is considered statistically significant.

3. Results

3.1. The results of Pap smear in cervical cancer screening

In this paper, the Papanicolaou grading standard in cervical smear examination was analyzed to evaluate the risk and staging of cervical cancer. There were 836 cases of grade 2, 361 cases of grade 3 and 4, and 3 cases of grade 5. By cervical scraping combined with colposcopy, 886 patients were verified, 294 patients were diagnosed with precancerous lesions, and 20 patients were diagnosed with cervical cancer. There was a significant difference between the two, $P < 0.05$, which was statistically significant, as shown in **Table 1**.

Table 1. Application of cervical Pap smear in cervical cancer screening

Groups	Level 2	Grade 3 and 4	Grade 5
Pap smear of the cervix	836	361	3
Pap smear of the cervix + colposcopy	886	294	20
χ^2 value	41.092	43.723	8.136
P -value	< 0.05	< 0.05	< 0.05

3.2. Results of colposcopy in cervical cancer screening

Pure gynecological examination conducted by colposcope, and found that 845 patients with grade 1, level 2 and level 3, 327 cases of patients, 28 patients with grade 4, level 50 cases of patients. Using colposcopy combined with colposcopy, 886 cases of grade 1 patients, 294 cases of grade 2 patients, and 20 cases of grade 5 patients were found, $P < 0.05$, which was statistically significant, as shown in **Table 2**.

Table 2. Results of the colposcope examination

Group of groups	Level 1	Grade 2 and 3	Grade 4	Level 5
Colposcopy	845	327	28	0
Pap smear of the cervix + colposcopy	886	294	0	20
χ^2 value	43.723	33.723	20.092	14.072
P -value	< 0.05	< 0.05	< 0.05	< 0.05

4. Discussion

4.1. Pathological examination is of great significance for the clinical treatment of cervical cancer

In recent years, the incidence of cervical cancer is increasing, and the incidence tends to be younger, which has become an “invisible killer” threatening women’s health. Because there are no typical clinical manifestations in the early stage of cervical cancer, it is easy to be ignored by women. When women have irregular vaginal bleeding, small abdominal pain and other symptoms, cervical cancer has often developed to the middle and late stage, and the best treatment opportunity has been lost. Therefore, it is imperative to include cervical cancer screening in women’s physical examination, which is conducive to enhancing women’s health awareness and helping them to receive treatment as soon as possible. Medical and health institutions should do a good job in cervical cancer screening, it is recommended that women of childbearing age should be screened for cervical cancer every year, which is convenient for timely detection of cervical lesions, timely intervention and treatment, to improve the survival rate of cervical cancer patients, improve the radical cure rate of cervical cancer, delay the survival time of patients, and reduce the pain of patients ^[8]. Pathological examination is an important diagnostic method, which is widely used in gynecological physical examination, such as cervical Pap smear, colposcopy and other examination methods, to examine the female cervix, endometrium, ovary and other parts, so as to find out whether there are lesions in these important organs of women in time, through further accurate analysis of cell morphology and DNA molecules. Accurate identification of benign or malignant lesions and staging of cervical cancer can provide accurate data for clinical treatment, thereby helping patients to be diagnosed as soon as possible and treated in time, thereby improving the treatment effect of cervical cancer ^[9].

4.2. Cervical scraping combined with colposcopy examination

Cervical scraping is mainly to test the exfoliated cells of the cervix. By observing the cell morphology, the cell proliferation, abnormal DNA ploidy cells, and the peak of abnormal visible ploidy cells are determined, so as to determine whether the patient has cervical lesions. Once the cervical cell morphology is abnormal, the patient can be arranged for cervical lesion tissue biopsy and HPV infection examination. To further clarify the stage and risk degree of patients, to facilitate the formulation of clinical treatment plans. However, cervical smear examination is affected by human factors such as sampling, smear making, and pathological observation, which affects the accuracy of pathological examination ^[10]. Colposcopy is used to examine the internal cervix of patients through a high-definition camera, focusing on the examination of the cervix from the aspects of morphology and histology, magnifying the internal tissue morphology, accurately assessing the shape and range of cervical lesions, and providing data for clinical diagnosis of cervical cancer. Therefore, doctors can use cervical scraping combined with colposcopy examination, not only to standardize the collection of patients with cervical exfoliated cell samples, but also to use colposcopy to examine the cervical internal tissue morphology, timely find the lesion range, lesion tissue morphology, more clearly observe the changes of cervical epidermal cells, blood vessels and other changes, reduce the false negative problem of pathological examination. To improve the accuracy of pathological examination in cervical cancer screening ^[11]. The combination of cervical scraping and colposcopy, on the one hand, can quickly test the cervical exfoliated cells of patients, on the other hand, can enlarge the morphology of cervical cells through colposcopy, find the lesion area in time, arrange biopsy for high-risk patients, shorten the pathological examination cycle of cervical cancer, improve the accuracy of cervical cancer screening, so that patients can get more timely treatment.

4.3. To improve the operation ability of doctors in medical examination

Whether it is cervical smear examination, colposcopy examination and HPV virus examination, it puts forward high requirements for the professional ability of laboratory doctors, which not only requires them to standardize the operation and ensure the effectiveness of samples, but also requires them to reduce the discomfort and tension of patients during the examination, so as to make patients more cooperative with the examination and eliminate their fear of gynecological examination. First of all, the hospital should organize regular training for the medical laboratory department, and the senior doctors should conduct on-site operation demonstration, explain the common pathological examination items of gynecological examination, and focus on the operation steps of cervical scraping examination, colposcopy examination and HPV virus test, clarify the operation essentials, ensure the effectiveness of sample collection, and avoid secondary sampling due to the sample does not meet the standard. It may threaten the physical and mental health of patients ^[12]. For example, senior doctors can use an intelligent human body model to demonstrate the operation process of cervical scraping, quickly and accurately collect the patient's cervical exfoliated cell tissue, control the position of the scraping plate in the cervix, and quickly sample, to reduce the discomfort of patients during the examination and ensure the effectiveness of sample collection. Secondly, hospitals should actively organize pathological examination skills competitions for gynecological physical examination projects, set up cervical cancer screening operation projects, encourage relevant departments to actively participate, create a good learning atmosphere, enhance the awareness of life-long learning of medical laboratory personnel, urge them to practice basic skills, and improve their practical ability of pathological examination. For example, hospitals can organize gynecological pathological examination skills competition, invite industry experts as judges, comment on the contestants' cervical scraping examination, colposcopy examination and HPV virus test operation process, select outstanding representatives to reward, and encourage more medical laboratory personnel to improve their professional skills. To improve the level of hospital pathological examination, professional ability and service ability of gynecological physical examination ^[13].

4.4. Actively publicize the importance of gynecological physical examination

Hospitals should cooperate with community hospitals and centers for disease control and prevention to carry out gynecological physical examination publicity through Wechat public accounts, microblog, TikTok and other platforms, focusing on cervical cancer screening projects, so that more women can understand cervical cancer, enhance their health awareness, call on them to undergo cervical cancer screening every year, and help them understand their personal health status in time. First, hospitals can carefully record popular science videos to explain the importance of gynecological physical examination, the clinical manifestations of cervical cancer that are easy to be ignored, and the importance of cervical cancer screening, and publish the popular science videos on major new media platforms, so that more women can understand gynecological health knowledge and better protect themselves ^[14]. At the same time, hospital gynecological experts and medical laboratory doctors can interact with patients online, patiently answer them about cervical erosion, cervical cancer and other disease-related knowledge, cervical cancer screening process, etc., and call for more women to undergo cervical cancer screening every year, to help them find gynecological diseases in time and protect women's health. Second, the hospital should organize medical laboratory doctors and gynecological experts to give lectures in community hospitals, promote gynecological disease knowledge and the importance of gynecological physical examination for rural and township women, help rural women understand cervical cancer related knowledge, enhance their health awareness, and conduct basic gynecological examination for them, and urge patients who have gynecological

diseases to go to the hospital in time, to avoid delay of the disease^[15]. In addition, hospital laboratory physicians can explain cervical cancer related knowledge to community hospital medical staff, so that they can assess the health status of women of childbearing age through gynecological physical examination data, urge rural women at risk of cervical cancer to go to the hospital for cervical cancer screening, so that more rural women can undergo gynecological physical examination and cervical cancer screening every year, to promote the development of rural health.

5. Conclusion

In conclusion, the application of pathological examination in gynecological physical examination is of great significance, especially has a positive impact on cervical cancer screening. It can help women to find the situation and scope of cervical lesions in time, urge them to accept more professional colposcopy biopsy and HPV test in time, and help them to confirm the disease in time. Based on the data of cervical cancer screening, gynecologists can scientifically predict the stage, lesion location, and risk of patients, and formulate treatment plans as soon as possible, to control the patient's condition as soon as possible and prolong the survival of patients. Therefore, the hospital should actively apply on pathology in department of gynaecology, and the inclusion of cervical cancer screening in the physical examination of department of gynaecology, provide accurate data for clinical diagnosis and treatment of cervical cancer, to better protect women's health.

Disclosure statement

The authors declare no conflict of interest.

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