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Research Article

Clinical Diagnosis of Endometrial Polyps Using Multioperator Algorithm Combined with Hysteroscopy

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Exploring the effects of uterine imaging and hysteroscopy of endometrial polyps, this article has chosen the treatment effect of 50 cases of intrauterine polyps to observe hysteroscopy. The results showed that the diagnosis and sensitivity, specificity, positive, negative, and consistency were passed through various diagnostic methods ($P < 0.05$). The diagnostic sensitivity of antidiagnosis combination and series combination was 90.0%, 64.0%, 96.0%, 92.0%, 80.0%, 80.0%, 88.0%, and 92.0%, parallel diagnosis with high sensitivity, significantly higher than simple diagnosis ($P < 0.05$). Therefore, in the clinical treatment of endometrial polyps, hysteroscopic surgery is a safe and effective treatment, which can remove endometrial quality, improve the clinical symptoms of patients, and reduce the interference and postoperative recovery process of surgical trauma.

1. Introduction

Endometrial polyps, EPS, is an endometrial gland and a thickened endometrial interstitial area excessively growing and highlighting a benign bio-formed in the surface of the endometrium, which is a common type of uterus. Its most common clinical symptoms are abnormal vaginal bleeding, such as multivolume, periodically, and inter-period bleeding. In recent years, the detection rate of intrauterine polyps in my country has also been long; about 10–32% of infertility has been inspected to have endometrial polyps, and polyps may affect the activities of sperm in the uterine cavity and fertilized eggs. Implantation leads to infertility to women who have menopause, and the endometrial polyps also mean related to endometrial malignant. The pathogenesis of endometrial polyps is still unclear. At present, there is a major way of uterine-uterine polyp polyps, but the postoperative recurrence rate is high. The extensiveness of endometrophyllosis and its hazards has seriously affected the quality of life and fertility requirements of women, and there are no good preventive measures. Therefore, it is actively in-depth development in the research on the prevention and treatment of endometrial polyps.

EPS cases reported in different literatures were confirmed by vaginal ultrasound and colposcopy, the detection rate of EPS also increased by about 10–32% year-on-year, and the patients with EPS were found, and the polyps may affect the activity of sperm in the uterine cavity. Implantation causes infertility; for women in postmenopausal vaginal bleeding, EPS's incidence rate is about 10%–40%. EPS is also related to endometrial malignant, and studies have shown that women with endometrial malignancies over 1.5 in diameter have a higher risk of EPS.

So far, the causes and mechanisms of EPS have not been very clear. Clinical studies have shown that age, hormone replacement treatment, endometriosis, endometriosis, use of tamoxifen, obesity, diabetes, high blood pressure, etc., as the

risk factors that cause EPS. In recent years, some research on risk factors in EPS have shown that the age and EPS have exact correlation, although EPS can be seen in any age after adolescence, but the incidence of morbidity in different ages has been different. According to the survey, the incidence of EPS is about 3% in women aged less than 35 years old. It is about 23% in 35 years old. It is about 31% after menopause. The age of 50 is the high incidence age of EPS, and the disease rate of menopausal and postmenopausal women under 70 will also increase.

Research on foreign countries have shown that, after the use of hormone replacement, the EPS incidence has risen than that of unwanted drugs, and Jing has confirmed that, after menopause, women use hormone alternative treatment to promote EPS [1]. Treatment can inhibit the cell dysfunction. Tokhunts et al. found that hormones replaced the incidence of EPS, which may be related to the drug-caused estrogen and progesterone imbalance [2]. A study of 434 endometriosis has found that patients with EPS account for 63%, while the incidence of EPS in the control group is only 29%, so it is speculated that endometriosis is one of the risk factors in the disease of EPS [3]. Wang and Li PEACs were found to study serum hormones, polyps, and normal endometrial tissues of EPS patients [4]. The patient's hormone level is in a normal range, but the expression of PR in gland and intensity of polyp group is significantly lower than the inner membrane. As this speculation of EPS may be due to the normal reaction of estrogen, but due to the decrease in PR, the predecessor of the pregnancy reaction is excessively hyperplastic. Schwärzler et al. studied EPS and its adjacent normal inner membrane tissue using immunohistochemistry, and the expression of immunohistochemistry is detected by immunohistochemistry [5]. Hunter and Mcclure patients with 120 row of uterine mirrors have shown that patients with endometritis who simultaneously merge EPS are much higher than that of non-endometritis [1]. Tamoxifen's prototype effect has been widely used in the postoperative treatment of adenocarcinoma patients in recent years. It is possible to promote EPS growth by inhibiting cell fluttering due to its expression of endometrial estrogen and its receptors. Studies have also found obesity, hypertension, diabetes, and risk factors related to EPS diseases, and research have found that obesity may increase the risk of EPS cancer, but the mechanism of action remains to be studied.

1.1. Uterus Clinical Pathology Characteristics and Epidemiology. Endometric polyps is excessive growth in the endometrium of the uterus, consisting of endometrium gland, interstitial, and blood vessels; the number can be single or more, diameter is from millimeters to several cm, and they can be divided or apostable, The organizational origin is from epithelial lesions, interstitial lesions, and epithelial hybrid syndrome, more common in endometrial polyps, endometrial cancer, endometritis and growing endometritis, etc. According to different research groups, the incidence of intrauterine polymeal is 7.8% to 34.9%. Endometric polyps are one of the common diseases of gynecology, most of which are benign lesions, but there is a certain volatility probability. 1.7% of menopausal women and 5.42% have malignant risks, of which obesity, diabetes, and hypertension can increase the risk of endometrial polyps. The causes of atypical hyperplasia and endometrial cancer are unknown, but studies have shown that the incidence of uterine polyps ranges from 0.0% to 12.9%. Due to the lack of specificity of endometrial polyps, its main manifestations are uterine bleeding and irregular postmenopausal bleeding, while 44.4% of women have no clinical manifestations. There is a 10% to 40% possibility of abnormal uterine bleeding before menopause because of endometrial polyps, but the symptoms are lightweight with the quantity, diameter, and position of polyps. High risk factors of endometrial polyps include age, hypertension, obesity, and tamoxifen; age is the most important risk factor for this disease, and it gradually increases with age increasing women. And, oral tamoxifen makes its prevalence of up to 30% to 60%. There is a controversy for the pathogenesis of endometrial polyps, and the academic community has not reached a unified consensus. At present, domestic and foreign scholars believe that its pathogenesis may be related to hormone disorders, cell proliferation, cytokine expression abnormalities, and genetic factors, which may be associated with uterine fibroids, cervical polyps, and endometriosis.

2. Materials and Methods

2.1. General Information. The selected subjects were 50 cases of endometrial polyp patients admitted to our hospital from September 2018 to March 2020, all of whom met the diagnostic criteria of Obstetrics and Gynecology and all of whom met the indications for endometrial polyp surgical resection. Participating in the observation test were 50 healthy volunteers in the hospital for the physical examination. The average age of the selected health volunteers was 25 ~ and 55 years old. All patients ranged in age from 25 to 55 years old, with an average age of (38 ± 6) years, course of disease ranging from 1 to 4 years, and an average course of disease of (2.3 ± 0.4) years. All patients were married. This study was informed by the patients and their families.

2.2. Methods. Menstrual empties were confirmed for 5 to 7 days prior to all examinations. Ultrasound examination: before examination, ask the patient to urinate, take the lithotomy position, and clean vulva after confirming that there is no bleeding. The coupling agent was applied to the probe, and a sterilized condom was put on and slowly inserted into the vagina. Then, the endometrial thickness, integrity of the endometrial contour, echo, location, size, number, shape, boundary, internal echo, and base of the lesion were observed. The normal differentiation point of endometrial thickening was 5 mm. Hysteroscopy: general anesthesia was used for all patients, and propofol 2 mg/kg and sufentanil 2.5 ug were induced by slow intravenous injection. After the eyelash reflex disappeared, iodophor solution was disinfected, and the uterine cavity was

explored with probes after the towel was put on. The probe sizes were gradually increased until the largest probe size was larger than that of the hysteroscope. Hysteroscopy (mirror 5027412, diameter 4 mm, inspection mirror diameter 5.5 mm, and operating mirror diameter 6.5 mm) was placed. The uterine fundus, uterine wall, and open end of fallopian tube were checked in order, focusing on the smoothness of endometrium. If polyp or suspected polyp tissue is found, its thickness, size, quantity, position, and shape of polyp were observed, and the root of polyp was cut until it falls off. Care is taken to avoid damage to normal tissue. After further examination, no other polyps and obvious bleeding points were confirmed, the hysteroscopic equipment was withdrawn, and the intraoperative polyp specimen was sent for pathological examination.

2.3. Observation Indexes and Evaluation Criteria. The endometrial polyp score, the diagnostic efficiency of the methods, and the ROC curve analysis of various diagnostic methods were observed and recorded in 2 groups. Endometrial polyp score: 1: Definitely Yes, 2: Probably Yes, 3: Unclear, 4: Probably Not, and 5: Definitely Not.

2.4. Statistical Methods. SPSS 21.0 was used for data statistical analysis, and $P < 0.05$ was considered statistically significant.

3. Results and Discussion

3.1. Diagnostic Efficiency of Multiple Methods. The sensitivity and specificity of diagnosis were significant ($P < 0.05$). The sensitivity of simple hysteroscopy (Figure 1), ultrasound (Figure 2), parallel combination diagnosis, and series combination diagnosis were 90.0%, 64.0%, 96.0%, and 92.0%, respectively, and the specificity was 80.0%, 86.0%, 88.0%, and 92.0%, respectively. Parallel diagnosis is highly sensitive, and series combinations have high specificity, significantly higher than simple diagnosis ($P < 0.05$). See Table 1 for more details [3, 6].

3.2. Simple and Joint Diagnosis of Uterine Polyps ROC Curve Analysis. In the diagnosis of endometrum polyps, ultrasound, hysteroscopy, and series of ROC curves under the parallel combination are 0.612, 0.732, 0.827, and 0.927, and the parallel joint diagnosis ROC curve area significantly larger than series joint diagnosis ROC area ($P < 0.05$). See Figure 3 for details.

3.3. Parallel Joint Diagnosis and Pathological Examination Comparison of Intrauterine Polyps Ratings. Due to marginal homogeneity, the standard MH statistic was 1.362, and parallel joint diagnosis and pathological examination methods were not significantly different ($P > 0.05$). See Table 2 for details.

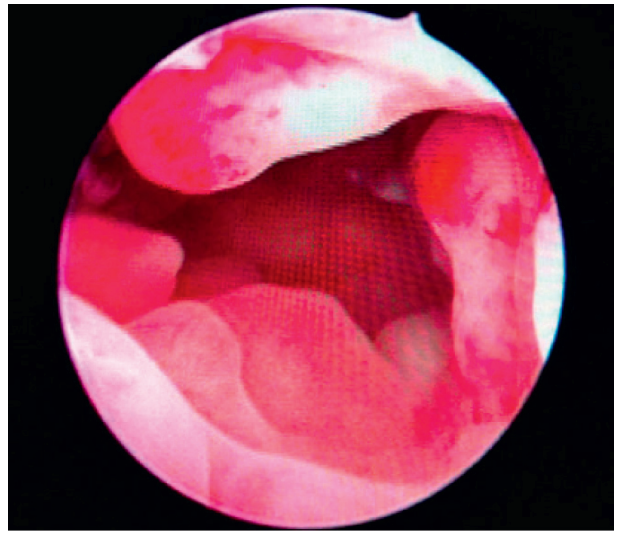

Figure 1: Performance under endometrial cellular microscope.

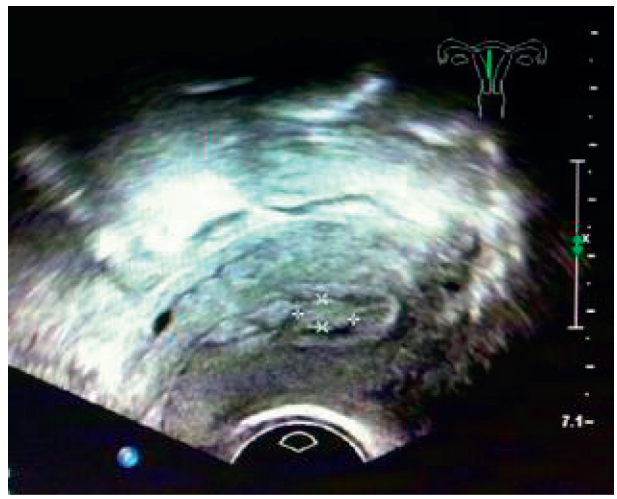

Figure 2: Endometriosis in endometrial polyps.

4. Discussion

Endometric polyps are common in gynecology, with abdominal pain, uterine irregular bleeding, and vicinity. Hysteroscopy is the main method of clinical diagnosis of intrauterine polyps, which has high accuracy, but hysteroscopy is an innovative operation and cannot be widely carried out in clinical. With the continuous development of ultrasonic instruments and technology, ultrasound plays an increasingly important role in the diagnosis and treatment of disease. In this study, we found that vaginal ultrasound combined with hysteroscopy for endometrial polyp screening can significantly increase the diagnostic sensitivity and specificity, significantly reduce the rate of missed diagnosis or misdiagnosis, and is the ideal choice for pathological screening. Through this study, endometrial polyp provides a good theoretical basis for the selection of diagnostic methods for clinical screening. In the process of clinical screening, there will be many screening methods,

Table 1: Diagnostic efficiency comparison (%).

Index	Sensibility	Specificity	Positive predictive value	Negative predictive value	Consistency
Hysteroscope	90.0 (45/50)	80.0 (40/50)	84.9 (45/53)	85.1 (40/47)	85.0 (85/100)
Ultrasound	64.0 (32/50)	86.0 (43/50)	82.1 (32/39)	70.5 (43/61)	75.0 (75/100)
Parasyndesis	96.0 (48/50)	88.0 (44/50)	83.6 (46/55)	91.1 (41/45)	87.0 (87/100)
Series of joint	92.0 (46/50)	92.0 (46/50)	94.1 (48/51)	95.9 (47/49)	95.0 (95/100)
F-value	7.43	11.52	6.72	7.31	9.83
P	0.012	0.000	0.026	0.014	0.003

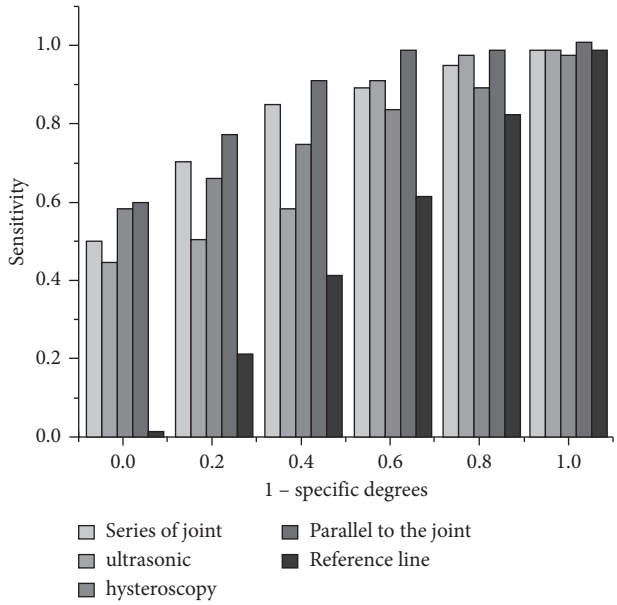

Figure 3: Joint diagnostic analysis.

Table 2: Comparison of intrauterine polyps' score in two methods (points).

Hysteroscopy combined ultrasound examination	Pathological examination					Total
	5 points	4 points	3 points	2 points	1 point	
5 points	32	4	0	4	0	36
4 points	5	20	3	0	0	24
3 points	0	3	6	0	0	9
2 points	7	0	0	13	3	21
1 point	0	0	0	0	0	0
Total	44	27	9	17	3	100

and how to combine more efficient screening diagnostic methods is a problem worthy of further research. Different screening methods have different advantages and disadvantages, different screening mechanism, how to combine to get better. Methods with high sensitivity, high specificity, low rate of missed diagnosis, and low rate of misdiagnosis are often more efficient than researching and exploring a new method with high sensitivity. For the medical profession, the reasonable choice of medical means is often more reasonable and efficient than the pursuit of innovation [7].

In this study, simple hysteroscopy, ultrasound, parallel diagnosis, and serial diagnosis were compared, and the sensitivity was 90.0%, 64.0%, 96.0%, and 92.0%, and the specificity was 80.0%, 86.0%, 88.0%, and 92.0%, respectively, and the sensitivity of parallel diagnosis was higher, and the specificity of serial combination was higher than that of simple diagnosis ($P < 0.05$). In the initial period of patients, screening by vaginal ultrasound alone is easy to make misdiagnosis so that patients cannot get the right treatment in time, which will delay the treatment of patients. While hysteroscopy was once the gold standard for endometrial polyp, the study examined its sensitivity, specificity, miss rate, and misdiagnosis rate and found that hysteroscopy alone was used as the primary screening method. The sensitivity and specificity of the diagnosis are over 80%. As for the two indexes, the initial diagnosis efficiency is high, but the missed diagnosis rate and misdiagnosis rate cannot be ignored. When the base number of patients is large, the missed diagnosis rate or misdiagnosis rate will bring harm to

many patients, cannot receive treatment in time, and increased the possibility of disease deterioration. When vaginal ultrasound and hysteroscopy were performed, the diagnostic sensitivity and specificity were over 90% in this study. So, with this study, it was found that transvaginal sonography combined with hysteroscopy for endometrial polyp screening can greatly increase the diagnostic sensitivity and specificity and significantly reduce the rate of missed diagnosis or misdiagnosis, which is an ideal choice for pathological screening.

5. Conclusions

In summary, the hysteroscopic surgery is relatively high in the treatment safety of the endometrium. During treatment, it will be adjusted by the patient's symptoms, pathological conditions, etc. Select the best surgical treatment plan, safety, and effective resection. Polyps reduce the troubles of complications, enabling patients to achieve ideal therapeutic effects.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

Dongfang Han and Dajun Wang contributed equally to this work.

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