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Hysteroscopy findings in cases diagnosed histopathologically with chronic endometritis

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ABSTRACT

Introduction: Chronic endometritis (CE) is a persistent inflammation of the endometrium, which can lead to various clinical conditions. Although CE can be diagnosed histopathologically, edema, focal or diffuse hyperemia, and endometrial micropolyps seen during hysteroscopy have been associated with CE. In this study, we planned to retrospectively analyze the hysteroscopic findings of our patients who were diagnosed with histopathologically CE in our clinic.

Materials and Methods: The study included cases reported as CE as a result of endometrial biopsy performed at the end of a hysteroscopy surgical procedure applied for any reason in our clinic. The hysteroscopy findings of the cases were retrospectively investigated and analyzed.

Results: In the 29 cases evaluated in the study, the most frequent hysteroscopy indication was repeated failure of implantation at the rate of 37.9%, followed by a history of repeated pregnancy loss at 34.4%. The most frequently seen hysteroscopy finding was endometrial hyperemia (27.5%) and in 9 cases, the hysteroscopy appearance was normal.

Conclusion: The visualization during hysteroscopy of the presence of lesions with central white points accompanying stromal edema, endometrial hyperemia, micropolyps, and diffuse hyperemia should suggest a diagnosis of chronic endometritis.

Keywords: Chronic endometritis; histopathology; hysteroscopy.

Introduction

Although chronic endometritis (CE) is sometimes asymptomatic, it is a persistent inflammation of the endometrium, which can usually lead to various clinical conditions. Some of the accompanying symptoms are chronic leukoria, dyspareunia, chronic pelvic pain, and irregular menstrual bleeding.[1] CE has also been associated with repeated implantation failure,[2] low pregnancy rates in *in vitro* fertilization treatments,[3] repeated abortus,[4] and poor obstetric outcomes such as premature birth.[5]

Although the diagnosis of CE is made with the histopathological presentation of plasma cell infiltration in endometrial biopsy samples taken hysteroscopically with blind or direct observation of the uterine cavity, the visualization during hysteroscopy of the presence of lesions with central white points (strawberry appearance) accompanying

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stromal edema, focal or diffuse hyperemia, micropolyps <1 mm and diffuse hyperemia has been associated with CE.[6]

Hysteroscopy is a surgical procedure increasingly used in the investigation of reasons for repeated implantation failure in IVF treatments applied to infertile patients, the etiology of repeated abortus, and irregular menstruation, and in the diagnosis and treatment of endometrial polyps, submucous myoma, and uterine symptoms. Hysteroscopy and endometrial biopsy applied according to the hysteroscopy guidelines are still accepted as the best method for the diagnosis of intrauterine pathologies.[7]

The aim of this study was to retrospectively examine the hysteroscopy findings of cases diagnosed with CE histopathologically, as a result of hysteroscopy biopsies performed for different reasons.

Table 1. Demographic characteristics of the patients

Patients enrolled	29
Median age (years)	30 (22–46)
Gravida	0 (0–5)
Parity	0 (0–4)
Abortus	1 (0–6)
History of failed (*In vitro* fertilisation (IVF) treatment (%)	12/29 (41.3%)

Data are expressed as percentage and median (min-max) values.

Table 2. Indications for hysteroscopy

All cases (n=29)	n	%
Repeated failure of implantation	11	37.9
Repeated pregnancy loss	10	34.4
Irregular menstrual bleeding	3	10.3
Suspicion of endometrial polyps	2	6.8
Uterine septum	1	3.4
Dysmorphic uterus	1	3.4
Retained intrauterine device	1	3.4

Data are expressed as number and percentage.

Materials and Methods

After obtaining ethics committee approval the study included cases reported as CE as a result of endometrial biopsy performed at the end of a hysteroscopy surgical procedure performed for any reason in the Obstetrics Clinic of the university hospital between 01.01.2015 and 01.03.2020. The demographic data of the patients, clinical characteristics, and hysteroscopy findings were retrieved from the patient record archives and the hospital automated records system.

All the operations were performed under regional or general anesthesia in the proliferation phase of the endometrium. In the hysteroscopies, a 5.5 mm diameter with a 30° optic telescope system (Storz) and 5 mm diameter (Olympus) rigid system were used. The uterine cavity was evaluated under 70–100 mm Hg pressure, which provided sufficient visualization. Normal saline solution was used as the distension medium. At the end of the hysteroscopy procedure, endometrial biopsies were taken with a metal curette or vacuum disposable curettage systems, and the samples were sent to the pathology laboratory in formaldehyde.

Table 3. Hysteroscopic findings of the cases

(n=29)	Number of cases (n)	Rate at which seen %
Endometrial hyperemia	8	27.5
Diffuse hyperemia and lesion with central white spots (strawberry appearance)	1	3.4
Endometrium with an appearance of thinning and a focal hyperemic appearance	3	10.3
Micropolyps	2	6.8
Hyperemia and micropolyps	3	10.3
Polyp	1	3.4
Endometrium with diffuse oedema	2	6.8
Normal appearance	9	31

Data are expressed as number and percentage.

Statistical Analysis

Data obtained in the study were analyzed statistically using IBM SPSS for Windows, version 22.0 software (IBM Corporation, Armonk, NY, USA). In the data analyses, the Kolmogorov-Smirnov test was used to analyze the normality of the distribution of continuous variables, and the results were stated as median (minimum–maximum) values or number (n) and percentage (%).

Results

The demographic characteristics of the 29 cases included in the study are shown in Table 1. The indications for hysteroscopy are presented in Table 2. The most frequent hysteroscopy indication was repeated failure of implantation at the rate of 37.9%, followed by a history of repeated pregnancy loss at 34.4%. The most frequently seen hysteroscopy finding was endometrial hyperemia (27.5%) and in nine cases, the hysteroscopy appearance was normal. All the histopathological findings and the rates at which they were seen are shown in Table 3.

Discussion

CE is an entity for which the clinical importance and diagnostic methods have not yet been fully understood.[8] Just as diagnosis can be made from the histopathological presence of plasma cells, hysteroscopy can also be used in diagnosis. Although there are studies recommending the use of histopathological examination as the gold standard,[9] there are also studies recommending that hysteroscopy can be used instead of histopathology.[10,11]

In a recent, retrospective extensive case series of 1189 hysteroscopy cases, Song et al.[12] determined CE in 322 cases and the hysteroscopy findings of these cases were evaluated. Similar to the current study, the most frequently seen hysteroscopy finding was reported to be endometrial hyperemia at the rate of 52.5%. In 8.4% of the cases, endometrial interstitial edema was determined, and in 3.4%, micropolyps. In the diagnosis of CE, these hysteroscopy findings were determined to have 59.3% sensitivity, 69.7% specificity, 42.1% positive predictive value (PPV), and 82.8% negative predictive value (NPV). In the presence of one or more hysteroscopic findings, the diagnostic accuracy rate was calculated as 66.9%. Therefore, as an interpretation of the hysteroscopic findings, because the diagnostic accuracy rate was not very high, it was emphasized that it is necessary to perform endometrial biopsy for histological examination and determine plasma cells with immunohistochemistry for a definitive diagnosis of CE. In a retrospective study of many cases by Cicinelli et al.,[10] when hyperemia and edema were determined hysteroscopically, diagnostic accuracy was determined as 92.7%, and when micropolyps were observed in addition to these two findings, the diagnostic accuracy rate reached 93.4%. ın the light of these results, hysteroscopy alone was concluded to be sufficient in CE diagnosis.

Zolghadri et al.[13] investigated CE etiology in unexplained recurrent spontaneous abortus (RSA) with a prospective examination of the hysteroscopic and histopathological findings of 142 RSA cases and a control group of 154 fertile women. The presence of hysteroscopic focal or diffuse hyperemia and endometrial micropolyps <1 mm were considered in the diagnosis of CE. It was concluded that the sensitivity, specificity, PPV, and NPV values of hysteroscopy were 98.4%, 56.23%, 63.5%, and 97.82%, respectively, in the diagnosis of CE. It was also determined that the rate of CE seen in the RSA cases was statistically significantly higher than in the control group both hysteroscopically (58.1% vs. 24.6%; $p<0.0001$) and pathologically (83.9% vs. 45.9%; $p<0.0001$), and thus it was concluded that CE could be in the etiology of RSA.

There were some limitations to this study, primarily the retrospective design and the lack of a control group. Therefore, as hysteroscopic findings were not observed at a significant level, it was not possible to calculate the sensitivity, specificity, and diagnostic accuracy values in the diagnosis of CE. Nevertheless, the findings of this study can be considered of value because of the increase in CE diagnosis and importance in recent years, and the relatively large number of cases with this diagnosis. Another limitation of the study was that this article could not include photographs of the hysteroscopic appearance because not all operation images are routinely recorded in our clinic.

Conclusion

The visualization during hysteroscopy of the presence of lesions with central white points accompanying stromal edema, focal or diffuse hyperemia, micropolyps, and diffuse hyperemia should suggest a diagnosis of CE. Nevertheless, the histopathological examination should be performed for a definitive diagnosis.

Disclosures

Ethichs Committee Approval: The study was approved by the Kahramanmaraş Sütçü İmam University Faculty of

Medicine Clinical Investigations Ethics Committee (date: 06/10/2020, decision no: 2020/23).

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