

CHRONIC ENDOMETRITIS IN CASES WITH RECURRENT EMBRYO IMPLANTATION FAILURE

Samir Mohamed El Sayed, Tarek Mokhtar Toppozada, Eman Sheta Ali, Fahd Mohamed Mansour

Department of Obstetrics and Gynecology, Alexandria Faculty of Medicine, Alexandria University

INTRODUCTION

Recurrent implantation failure (RIF) represents a great challenge in current reproductive medicine. RIF as a term stands for the failure of implantation with repeated transfers of good quality embryos. Embryo implantation is a critical phase of in vitro fertilization (IVF) procedures. An effective interaction between a high-quality embryos and a receptive endometrium is necessary for a successful pregnancy. Chronic endometritis (CE) is considered an important cause for RIF as it has high prevalence rate among women with recurrent ICSI failure. CE is defined as a persistent inflammatory disorder affecting the endometrial lining, which is characterized by edematous change of the superficial endometrial with high stromal cell density and dissociated maturation between epithelium and stroma, in addition to infiltration of endometrial stroma by plasma cells. Hysteroscopy and endometrial biopsy for plasma cell detection are the two mainly used methods for diagnosis CE. Focal or diffuse endometrial hyperaemia, stromal edema, and micropolyps are the most recognized hysteroscopic findings used to diagnose CE. The detection of plasma cells in endometrial samples is preferred to be done with CD138 immunohistochemistry (IHC).

AIM OF THE WORK

To assess the prevalence rate of chronic endometritis in women with RIF and to determine the correlation between hysteroscopic findings and CD138 IHC of endometrial biopsy in diagnosis of chronic endometritis.

SUBJECTS AND METHODS

This prospective study was conducted on 121 infertile women with history of unexplained RIF. Our inclusion criteria were females in the reproductive period between 22–40 years of age with two or more failed ICSI despite using good quality embryos, and BMI less than 30 kg/m². We excluded those with any intracavitary defect such as fibroids, large polyps, synechiae or septum. Hysteroscopy and endometrial biopsy were performed as an outpatient procedure without any sedation.

Hysteroscopic features such as endometrial micropolyps, endometrial hyperemia, and edema were recorded. Endometrial biopsy were obtained blindly with the use of 3-mm Novac metallic curette. Hematoxylin and eosin (H&E) stained sections were done to assess histopathologic findings. Immune staining was then done by CD138 antibody. The specimens were graded as “positive” for CE if there was ≥5 plasma cells per one out of 30 high-power field (HPF).

RESULTS

Eleven cases were excluded from our study. The 110 remaining women with RIF were included; 32 cases (29%) were diagnosed as CE by hysteroscopy, while 27 cases (24.5%) were positive by CD138 immunohistochemistry (IHC), and 18 cases (16.36%) were positive for CD138 IHC with hysteroscopic features of CE. Our study revealed that the sensitivity, specificity, PPV and NPV of hysteroscopy were 66.7%, 83.1%, 56.3% and 88.5%, respectively. The diagnostic accuracy of hysteroscopy in diagnosis CE was 79.1%.

Table 1: Distribution of the studied cases according to hysteroscopic findings (n = 110)

Hysteroscopy findings	No.	%
Free	78	70.9
Focal hyperemia	10	9.1
Diffuse hyperemia	10	9.1
Miropolypi	2	1.8
Mucosal edema	3	2.7
Combined	7	6.4
➤ Focal hyperemia + Miropolypi	2	1.8
➤ Focal hyperemia + edema	1	0.9
➤ Diffuse hyperemia + edema	2	1.8
➤ Focal hyperemia + edema	1	0.9
➤ Focal hyperemia + edema + Miropolypi	1	0.9

Table 2: Agreement (sensitivity, specificity and accuracy of hysteroscopy compared to CD 138 IHC)

	CD 138 results				Sensitivity	Specificity	PPV	NPV	Accuracy
	Negative (n = 83)		Positive (n = 27)						
	No.	%	No.	%					
Hysteroscopy findings									
Negative	69	83.1	9	33.3	66.7%	83.1%	56.3%	88.5%	79.1%
Positive	14	16.9	18	66.7					
χ ² (p)	24.493* (<0.001*)								

CONCLUSION

CE has high prevalence rate among women with RIF. The presence of endometrial hyperemia, micropolyps, and mucosal edema during hysteroscopy are reliable findings of CE. Hysteroscopy should be recommended as a routine examination for women with RIF before repeating ET. Hysteroscopy should not replace histopathology in the diagnosis of CE in women with RIF and combination between the two diagnostic modalities hysteroscopy and histopathology using CD138 IHC should help in detection most of cases with CE.