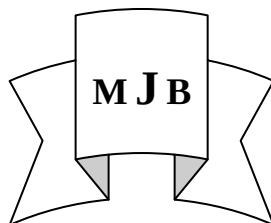


Enhance and Prove Diagnosis of Chronic Endometritis with CD-138 Immunostain

Ali Zeki Naji

College of Dentistry, University of Babylon, Hilla, Iraq.



Abstract

A retrospective study for 100 endometrial biopsies done during one year period (October 2010- October 2011), the chronic endometritis was the diagnosis in 50 cases of them while other 50 cases given another diagnoses (depending on routine hematoxylin & eosin stain). All the 100 cases stained by CD- 138 immunostain and the Immunohistochemical expression of this stain found in 52 cases out of 100 cases submitted for this stain, 44 cases out of those 52 cases were diagnosed as chronic endometritis by hematoxylin & eosin stain, while the remaining 8 cases which show CD – 138 positivity were diagnosed other than chronic endometritis by hematoxylin & eosin stain. So we can conclude that the detection of plasma cells and diagnosis of chronic endometritis become easier and more precise by using CD – 138 immunostain.

تحسين إمكانية و إثبات تشخيص التهاب بطانة الرحم المزمن باستعمال الصبغة المناعية الخاصة CD – 138

الخلاصة

تمت دراسة استرجاعية لمائة خزعة نسيجية من بطانة الرحم خلال عام واحد (تشرين الأول ٢٠١٠ – تشرين الأول ٢٠١١) والتي كان التشخيص في خمسين حالة منها هو التهاب بطانة الرحم المزمن في حين أعطيت تشخيصات أخرى للخمسين عينة المتبقية. وقد كانت الصبغة الروتينيه (هيماتوكسولين + ايبوسين) هي الصبغة المعتمدة في صبغ تلك العينات النسيجية. صبغت هذه العينات المائة بالصبغة المناعية الخاصة CD – 138 وتم مقارنة النتائج الحالية لهذه الصبغة المناعية مع نتائج الصبغة الروتينيه انفة الذكر. وقد أظهرت الدراسة إثبات تشخيص التهاب بطانة الرحم المزمن في اثنتين وخمسين من الحالات المائة وكانت اربعة واربعون من بين هذه الحالات الاثنتين والخمسون أعطيت هذا التشخيص بالاعتماد على صبغة الهيماتوكسولين + ايبوسين الروتينيه في حين ان الحالات الثمانية المتبقية والتي اعنت نتائج ايجابية لصبغة CD – 138 كانت قد اعطيت تشخيصات اخرى غير التهاب بطانة الرحم المزمن بالاعتماد على صبغة الهيماتوكسولين + الايبوسين الروتينيه. بذلك نستنتج بان الاستدلال على خلايا البلازما وبالتالي تشخيص التهاب بطانة الرحم المزمن يكون أسهل وأكثر دقة باستعمال الصبغة المناعية الخاصة CD – 138.

Introduction

Chronic endometritis seen in 3–10% of women with irregular uterine bleeding who undergo endometrial biopsy. Chronic inflammation of the endometrium occurs in patients suffering from chronic pelvic inflammatory diseases, in postpartum or post-abortion patients with retained gestational tissue, in women with intrauterine contraceptive

devices; and with specific chronic infection like in tuberculosis. In about 15% of cases no cause is obvious, yet plasma cells (which are not present in normal endometrium) are seen together with macrophages and lymphocytes. Some women with this so-called nonspecific chronic endometritis have gynecologic complaints such as abnormal bleeding, pain, discharge, and infertility [1].

The diagnosis of chronic endometritis depends on the recognition of plasma cells in endometrial tissue. Syndecan-1 (CD-138) is a cell-surface proteoglycan that is expressed on the cell surface of plasma cells and facilitate detection of those chronic inflammatory cells within examined tissue [2].

Material and Methods

One hundred cases of endometrial curettage biopsies were selected from Al – Hilla Teaching hospital and other private histopathology Lab. in Al- Hilla city, during one year duration (October 2010 – October 2011), from which 50 cases were diagnosed as chronic endometritis by H&E routine stain while the other 50 cases had another histopathologic abnormalities other than chronic endometritis.

All paraffin blocks of one hundred cases cut in 4 microns sections, and mounted on 3-aminopropyltrethoxysilane-coated slides, dried, and

deparaffinized before undergoing antigen retrieval by heat treatment in DAKO Target Retrieval solution. The endogenous peroxidase activity was quenched with 0.3% peroxidase and nonspecific binding was quenched with horse serum block. The DAKO syndecan-1 (CD138) ready to use primary antibody was used for all 100 cases. Sections were incubated with biotinylated secondary antibody for thirty minutes, and then with streptavidin alkaline phosphatase for thirty minutes. A positive and negative controls were evaluated with each run.

Results

Immunohistochemical expression of CD – 138 were found in 52 cases out of 100 cases submitted for this stain , in which 44 cases out of 52 cases were diagnosed as chronic endometritis by H&E stain while the remaining 8 cases which show CD – 138 positivity were diagnosed other than chronic endometritis on H&E stain (Fig 1&2).

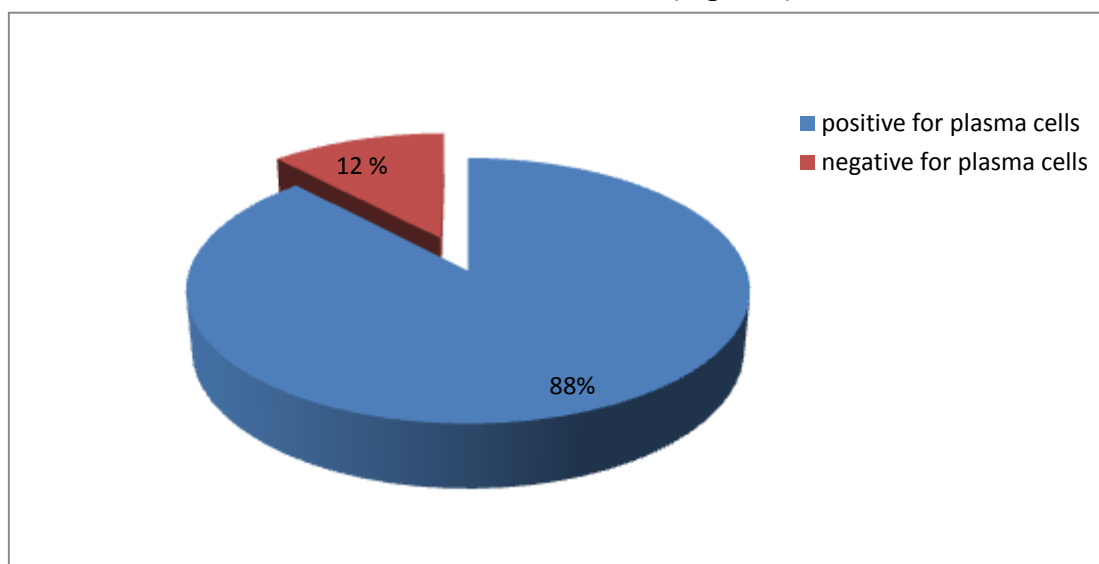


Figure 1 Results of CD -138 stain for fifty cases given the diagnosis of chronic endometritis by H&E stain.

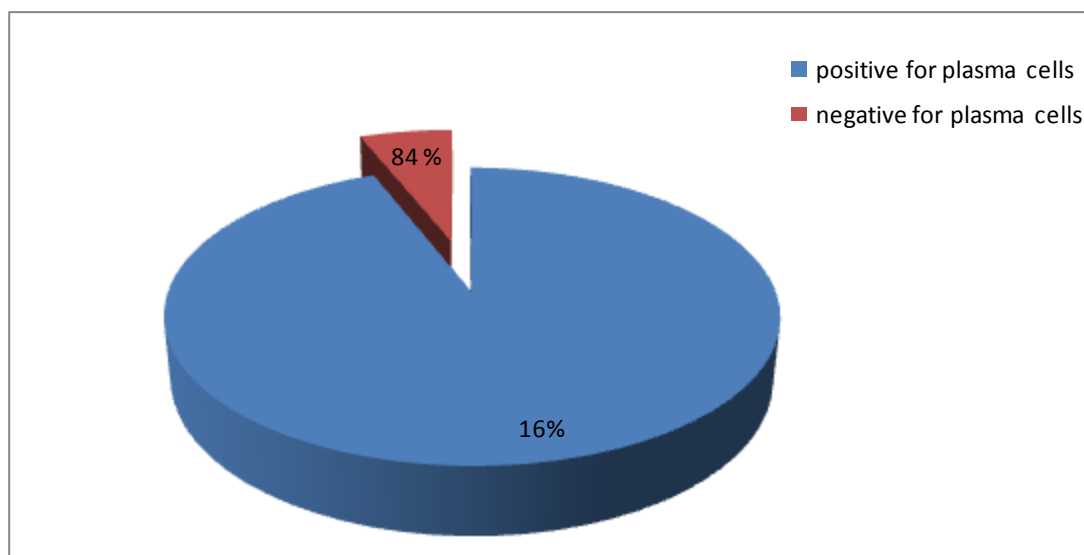
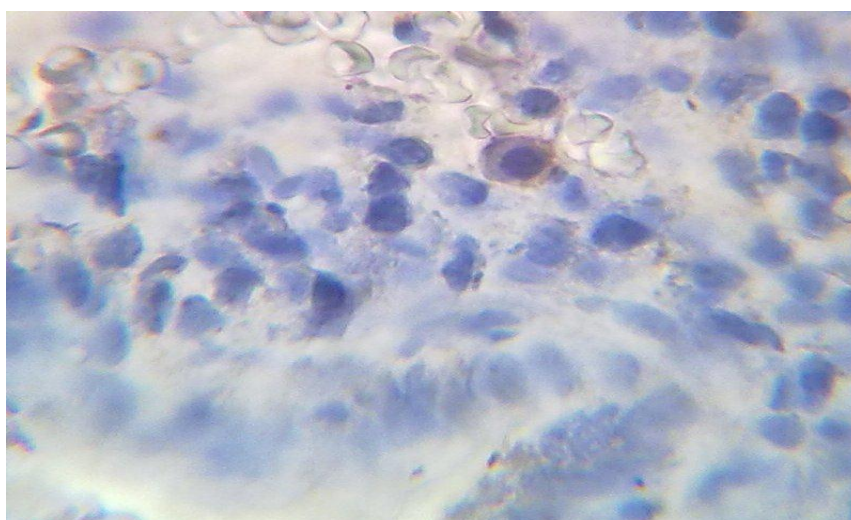


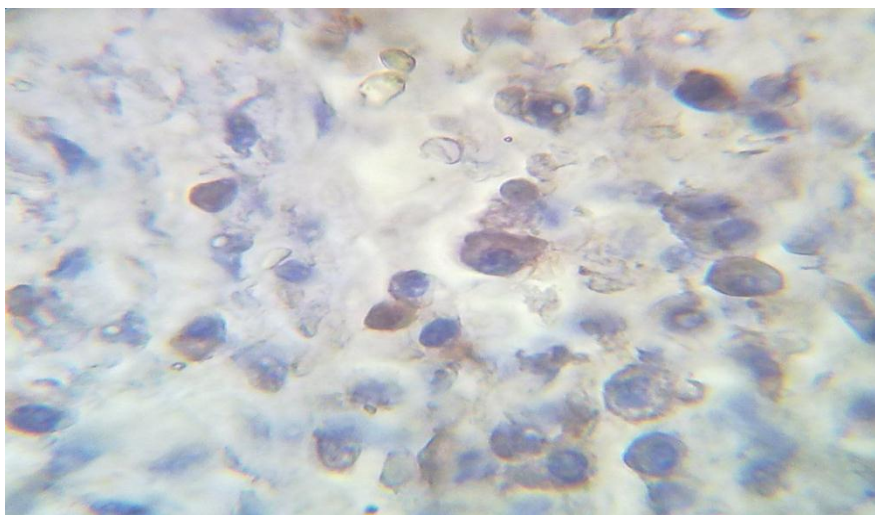
Figure 2 Results of CD -138 stain for fifty cases given diagnosis other than chronic endometritis by H&E stain.

The correlation of CD – 138 scoring to the severity of chronic endometritis:

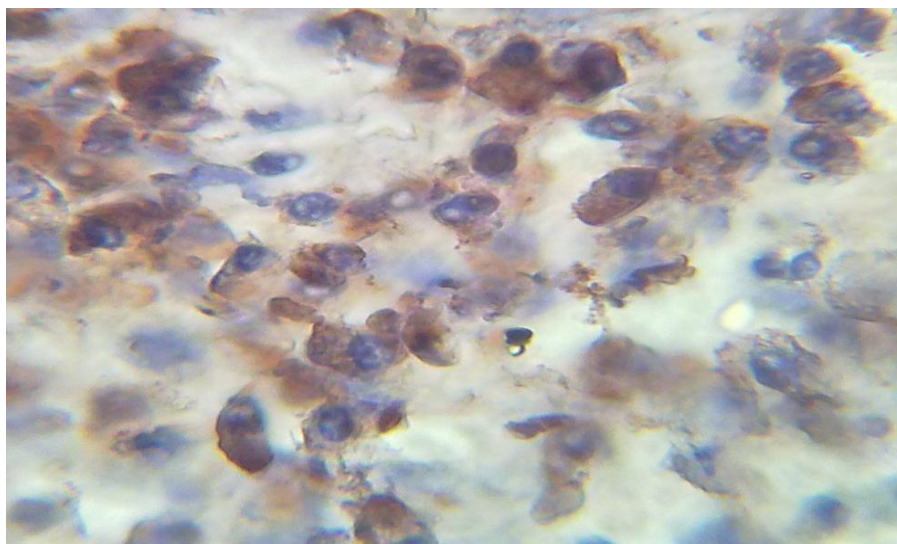
Figure 3 (a,b, and c).



a. Mild chronic endometritis



b. Moderate chronic endometritis



c. Sever chronic endometritis

Statistical analysis

CD- 138			
H & E stain	Positive for plasma cells	Negative for plasma cells	total
Positive for plasma cells	44	6	50
Negative for plasma cells	8	42	50
total	52	48	100

The sensitivity of H&E stain was (84.6%), while the specificity of this staining technique was (87.5%).

Discussion

Expression of CD-138 was examined in cases of chronic endometritis and in other cases of dysfunctional uterine bleeding. We

found 12% false detection for plasma cells by Hand E stain and gave wrong diagnosis of chronic endometritis, The error in identification of plasma cells might be due to the followings: (mononuclear cells infiltrate, plasmacytoid stromal cells, abundant stromal mitoses, a pronounced predecidual reaction in late secretory endometrium), in those conditions other cells may mimic the shape of plasma cells and might lead to false diagnosis of chronic endometritis by using H&E stain [3,4]. The importance of usage CD – 138 is proved to get rid of that wrong diagnosis since the plasmacytoid stromal cells and other mononuclear inflammatory cells like macrophages do not stain with syndecan-1, because its specifically stain only plasma cells, and can get rid of any possibility for false positive results in the diagnosis of chronic endometritis [5].

In this study, among the fifty cases that show no evidence of plasma cell infiltrate with H&E stain, we observe presence of plasma cells in 16% of those case. Immunohistochemical staining with CD – 138 enhanced the detection of plasma cells. It made the presence of classic plasma cells with the characteristic features of cart wheel nucleus and an eccentrically placed nucleus with a perinuclear halo more visible, and it gave evidence that plasma cells that lacked some of the classic features were indeed plasma cells [3,5] . A number of conditions may interfere with the search for plasma cells, like late menstrual or early proliferative endometrium and those conditions might be responsible for the false negative diagnosis of chronic endometritis at the level of H&E stain [6,7].

In many instances, search for plasma cells in order to give the diagnosis of chronic endometritis becomes a time consuming task. It is in cases that are

suspicious for chronic endometritis, in which plasma cells cannot be identified in H&E sections, the search for plasma cells, with the aid of CD – 138 enhance the sensitivity of the diagnosis by reducing the time needed for identification of plasma cells, and will also be of assistance in diagnosing those cases in which other histological findings interfere with the search for those plasma cells [8,9,10].

Conclusions

Recognition of plasma cell and then the diagnosis of chronic endometritis is easier and more precise with usage of CD – 138 rather than routine H&E Stain.

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