

Eutopic and ectopic stromal cells from patients with endometriosis exhibit differential invasive, adhesive, and proliferative behavior

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Objective: To study immunophenotype, differential proliferation capacity, invasiveness, adhesion, and cytokine production in ectopic and eutopic endometrial stromal cells (EESCs and EuESCs) from patients with endometriosis.

Design: In vitro study.

Setting: Academic research center.

Patient(s): Patients with ovarian endometriosis (endometrioma) and nonendometriotic controls.

Intervention(s): None.

Main Outcome Measure(s): EESCs and EuESCs from 25 patients with endometrioma and ESCs from 20 nonendometriotic controls (CESCs) were isolated, and their immunophenotype, proliferation, invasion, adhesion, and cytokine production were assessed and compared.

Result(s): Isolated ESCs from all three sources expressed markers specific for cells of mesenchymal origin but were negative for

hematopoietic markers. EESCs exhibited a significantly lower proliferation rate in fibronectin-coated plates and less invasive capacity compared with CESCs or EuESCs. Among all stromal cell groups studied, EuESCs showed the highest invasive behavior. EESCs adhered more firmly to extracellular matrix than EuESCs or CESCs in all time intervals examined. The levels of interleukin (IL)-6 and IL-8 production by EESCs were significantly higher compared with those of EuESCs or CESCs.

Conclusion(s): The results of the present study demonstrated that retrograde menstruation alone does not account for the pathogenesis of endometriosis as eutopic and ectopic counterparts of ESCs from patients with endometriosis exhibit differential invasive, adhesive, and proliferative behavior. (*Fertil Steril* 2013;100:761–9. 2013 by American Society for Reproductive Medicine.)

Key Words: Endometrioma, eutopic, invasion, adhesion, proliferation, cytokine, immunophenotype

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Endometriosis, first identified in 1860 by von Rokitansky, is a chronic inflammatory gynecological condition characterized by the

growth of endometrial glands and stroma outside the uterine cavity (1).

As the most common gynecological disorder, it affects at least 10%–25% of reproductive-aged women in the United Kingdom and United States.

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