Early Endometriosis Lesion Formation

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Endometriosis is defined as the presence of functional endometrial glands and stroma outside the uterine cavity and one of the most commonly encountered benign problems in gynecology. Women with endometriosis present with characteristic signs and symptoms: dysmenorrhea, dyspareunia, chronic pelvic pain or subfertility.

Despite 70 years of theories and experimentation, the cause of endometriosis still is not clear. Given the wide range of manifestations, it is likely that more than one mechanism is at work.

Recent findings indicate that certain properties of the endometrium and the influence of the local environment, are crucial in the development of endometriosis.

If endometrial tissue is to implant in the peritoneum, it must be able to adhere to the peritoneal surface, invade the basement membrane and extracellular matrix, acquire a blood supply and survive. When the peritoneal environment cannot get rid of the endometrial tissue in time, the endometrial tissue will have opportunity to adhere to the peritoneal lining. The innate capacity of the endometrial tissue to invade and acquire a blood supply contributes to the implantation process. After implantation, local production of estrogens as a result of the expression of aromatase provides a local, continuous, ovary- independent growth stimulus.

Changes in the physiology of the endometrium, increasing amounts of retrogradely shed endometrium and/or changes in the contents of the peritoneal fluid, can disturb the defense mechanism against the endometrial tissue and promote the implantation of endometrial tissue.