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ENDOMETRIOSIS AND INTERFERON-GAMMA-INDUCED PROTEIN-10 (IP-10) CONCENTRATIONS, A CHEMOKINE WITH ANTIANGIOGENIC ACTIVITY. Luigi Cobellis,^{1,3} Mario Rotondi,² Paola Romagnani,² Imperatore Alberto,³ Filiberto M Severi,³ Mario Serio,² Felice Petraglia.¹ ¹Gynecology, Obstetrics and Reproductive Science, II University of Naples, Naples, Italy; ²Clinical Pathophysiology, Endocrinology Unit, University of Florence, Florence, Italy; ³Pediatrics, Obstetrics and Reproductive Medicine, University of Siena, Siena, Italy.

OBJECTIVE: Chemokines are a large superfamily of small polypeptides which induce the chemotaxis of specific leukocyte subsets by binding to cell-surface receptors. In reproductive biology, they have been implicated in ovulation, menstruation, and embryo implantation. Endometriosis, a common disease among women of reproductive age, is characterized by the presence of endometrial-like tissue outside the uterus. Several study lines have been developed trying to assess the factors potentially involved in the pathogenesis of endometriosis. The potential role of angiogenic factors has been largely investigated, either in serum than in peritoneal fluid specimens. In order to define a possible involvement of interferon-gamma-induced protein-10 (IP-10), a chemokine that has antiangiogenic activity, in the pathogenesis of endometriosis, serum and peritoneal fluid concentrations were measured.

METHOD: A group of women (n=49) undergoing laparoscopy for pain and/or infertility were recruited. Twenty-four patients (n=24) received a diagnosis of endometriosis, whereas the remaining twenty-five (n=25) were classified as healthy controls. Serum and peritoneal fluid were collected in all patients. Concentrations of IP-10 in serum and peritoneal fluid were determined with a specific enzyme-linked immunosorbent assay.

RESULTS: All serum and peritoneal fluid samples contained detectable concentrations of IP-10. The IP-10 concentrations in serum of women with endometriosis was lower than those healthy controls (p=0.01). In endometriotic patients IP-10 concentrations in peritoneal fluid were significantly higher than in serum of the same patients (P = 0.0001). No difference was showed in different stage of disease.

CONCLUSIONS: The impressive amount of IP-10 in peritoneal fluid from women with endometriosis is indicative of a possible role of this chemokine in endometriosis pathogenesis. The impaired balance between increased angiogenesis and an inappropriate immune response might recognize in IP-10 a further mechanism in ectopic endometrium spread.

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PATHOGENESIS OF OBTURATOR NERVE ENDOMETRIOSIS.

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Objective:

Based on structural analysis, we postulate the pathogenesis of endometriosis of the obturator nerve is best explained by the theory of embryonic mullerian tissue rests.

Methods:

Redwine and Sharpe described a unique case of obturator nerve endometriosis (Redwine DB, Sharpe DR. Endometriosis of the obturator nerve. A case report. J Reprod Med 1990;35(4):434-5). Their careful description, dissection, and histologic verification permitted detailed structural analysis. Laparotomy revealed widespread pelvic endometriosis. Retroperitoneal fibrosis extending from the broad ligament peritoneum to the ilium completely surrounded the ureter and uniquely completely surrounding the obturator nerve "like a napkin ring and could slide slightly along the nerve. Each section of this surgical trail was positive for endometriosis, including the "napkin ring" lesion around the nerve." The sciatic nerve was not involved. "No pocket sign was present."

Results:

Originating as excess mullerian tissue formed as secondary mullerian grooves on the surface of the right genital ridge during embryogenesis, (Faulconer RJ. Observations on the origin of the Mullerian groove in human embryos. Contributions to Embryology. Baltimore: Carnegie Institution of Washington. 1951, No. 229:161) we postulate that multiple mullerian rests aggregated around the obturator nerve and ureter. They aligned into a column between peritoneum and periosteum as primary mullerian tissue is want to form columnar structures. This mullerian rest column formed two horizontal canals to accommodate the obturator nerve and the ureter; canalization being an inherent property of mullerian tissue. By vasculogenesis this anomalous mullerian structure derived its blood supply from peritoneum, internal iliac artery and periosteum of the ilium. The anomalous vascular system was sufficient to maintain structural integrity and functional potential of the mullerian column from birth to thelarchy when endogenous ovarian hormones stimulated withdrawal bleeding within the retroperitoneal endometriotic column. Over time fibrosis compressed the obturator nerve and increased endoneurial fluid pressure resulting in a "miniature compartment syndrome" (Lundborg G, Meyers R, Powell H. Nerve compression injury and increased endoneurial fluid pressure: a "miniature compartment syndrome". J Neurology, Neurosurgery and Psychiatry 1983; 46:119-1124). Neurologic symptoms prompted surgery.

Conclusion:

We suggest that the embryonic mullerian rest theory best explains the pathogenesis of obturator nerve endometriosis. None of the major theories explain the unique structural features of this case.

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PATHOGENESIS OF ENDOMETRIOSIS OF THE SCIATIC NERVE AND PERITONEAL "POCKET SIGN". John Yeh,¹ Ronald E Batt,¹ Philippe R Koninckx.²

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Objective:

Based on structural analysis, we postulate the pathogenesis of endometriosis of the sciatic nerve with peritoneal "pocket sign" is best explained by the theory of embryonic mullerian tissue rests. This same theory has been postulated, and supported with explanatory rigor, for the pathogenesis of endometriosis of the kidney (Marshall VF. The occurrence of endometrial tissue in the kidney. J Urol 1943; 50:652-56), pelvic peritoneal pockets (Batt RE, Smith RA. Embryologic theory of the histogenesis of endometriosis in peritoneal pockets. Obstet Gynecol Clin NA 1989; 16:15-28), and liver (Batt RE, Lela SB, Mitwally MFM, Yeh J. Pathogenesis of liver endometriosis: mullerianosis. Fertil Steril in press).

Methods:

Two cases of histologically proven symptomatic endometriosis of the sciatic nerve with peritoneal "pocket sign" operated at the Mayo Clinic met our strict criteria for structural analysis: no other endometriosis, detailed surgical descriptions and illustrations (Head HB, Welch JS, Mussey E, Epsions RE. Cyclic sciatica: Report of a case with introduction of a new surgical sign. JAMA 1962; 180:521-4; Baker GS, Parsons WR, Welch JS. Endometriosis within the sheath of the sciatic nerve: Report of two patients with progressive paralysis. J Neurosurg 1966; 25:652-55).

Results:

We postulate that, during embryogenesis, the first step in the pathogenesis of the peritoneal "pocket sign" occurred when a remnant of embryonic mullerian tissue (Faulconer RJ. Observations on the origin of the Mullerian groove in human embryos. Contributions to Embryology. Baltimore: Carnegie Institution of Washington. 1951, No. 229:161) fused a small

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