Appendix

Raw data: Group I (Endometriosis group):

NO	Age	Infertility		Parity	previous abortion	Menstrual phase 1=proliferative ,2=secretory	Pain Type , (1=abscent,2=present)					
		1=1ry,2 =2ry.	Duration in years				Dysmeno-rrhea	Dyspar -onia	dyschasia	low back pain	lower abdominal pain	dysurea
1	28	1	2	0	0	1	2	1	1	2	1	1
2	35	1	3	0	0	1	2	1	2	1	1	2
3	27	1	2	0	0	1	2	1	1	1	2	1
4	26	1	3	0	0	2	2	1	1	2	1	1
5	23	2	2	1	1	1	2	1	2	1	1	2
6	28	1	4	0	0	1	2	1	1	2	2	1
7	24	2	3	1	1	2	1	2	2	1	1	1
8	25	2	5	2	2	1	2	2	1	1	2	2
9	28	2	2	1	0	1	2	2	1	1	2	1
10	36	2	1	5	4	1	1	1	1	1	1	1

NO	Age	Infertility		Parity	previous abortion	Menstrual phase 1=proliferative ,2=secretory	Pain Type , (1=abscent,2=present)					
		1=1ry,2 =2ry.	Duration in years				Dysmeno-rrhea	Dyspar -onia	dyschasia	low back pain	lower abdominal pain	dysurea
11	40	1	8	0	0	2	2	1	1	2	1	1
12	25	1	2	0	0	1	2	2	1	1	2	1
13	28	2	4	1	1	1	2	2	1	2	2	2
14	30	2	3	2	2	1	2	2	2	2	1	1
15	35	2	5	4	2	1	1	2	1	1	1	1
16	26	2	5	1	1	1	1	1	1	1	1	1
17	28	1	6	0	0	1	2	2	1	2	2	1
18	31	2	4	5	4	2	1	2	1	2	2	1
19	30	2	3	2	2	1	2	1	1	1	2	1
20	33	2	5	1	1	2	1	2	1	1	2	1
21	30	2	4	3	2	1	1	1	1	1	1	1
22	31	1	7	0	0	1	2	2	1	1	2	1
23	29	1	10	0	0	1	1	2	1	1	1	2
24	40	2	3	2	2	1	1	1	2	1	1	1
25	30	1	8	0	0	1	1	2	2	2	2	2

Raw data: Group I (Endometriosis group):

pain intensity (vas)	laparscopic							Nerve fibers count /mm
	Grading 1=Minimal, 2=mild 3=moderate, 4=sever	Actual scorein r-AFS	cul de sac oblitration 1=no,2=partial, 3=complete	Tubovarian adhesions,1=abscent, 2=filmy, 3=dense	Choclate cyst 1=no,2=unilateral, 3=bilateral, 4=multiple	Size of choclate cyst.. ,1=no 2=1-3cm& deep, 3=more than 3cm |&deep	endometriotic spots in peritoneum, 1=no 2=spots~1cmsuperficial 3=spots ~1-3cmsuperficia 4=deep~1cm 5=deep~1-3cm	
5	3	18	1	3	1	1	5	8
7	3	22	1	2	2	2	5	12
6	4	59	3	2	2	2	2	10
5	1	4	1	1	1	1	2	4
6	2	8	2	2	1	1	2	3
7	3	16	2	2	1	1	4	9
7	4	48	1	1	4	2	1	5
5	1	4	1	1	1	1	2	2
5	3	18	1	1	2	2	2	3
0	1	3	1	1	1	1	2	3

pain intensity (vas)	laparscopic							Nerve fibers count /mm
	Grading 1=Minimal, 2=mild 3=moderate, 4=sever	Actual scorein r-AFS	cul de sac oblitration 1=no,2=partial, 3=complete	Tubovarian adhesions,1=abscent, 2=filmy, 3=dense	Choclate cyst 1=no,2=unilateral, 3=bilateral, 4=multiple	Size of choclate cyst.. ,1=no 2=1-3cm& deep, 3=more than 3cm |&deep	endometriotic spots in peritoneum, 1=no 2=spots~1cmsuperficial 3=spots ~1-3cmsuperficia 4=deep~1cm 5=deep~1-3cm	
3	3	22	2	2	2	2	2	3
8	4	52	2	3	3	3	1	6
6	3	18	1	2	2	2	1	5
7	4	68	3	3	2	3	1	11
3	3	32	2	2	2	3	4	3
0	2	6	2	1	1	1	2	3
9	3	20	1	1	2	3	1	3
2	2	6	2	1	1	1	2	4
2	3	24	1	2	2	3	2	13
2	4	50	3	3	1	1	2	12
0	3	40	1	1	3	3	1	3
7	4	50	3	2	1	1	2	8
4	3	10	2	1	1	1	3	5
3	2	14	2	1	1	1	3	5
5	4	48	3	2	1	1	3	4

Raw data: Group II (Control group):

NO	Age	Infertility					laparscopic findings (0=abscent,1=present)						Nerve fibers count /mm^2
		2=2ry,	duration in y	Menstrual phase 1=proliferative, 2=secretory	Parity	previous abortion	no pathological findings	tubal block	perforated IUD	fibroid	pco	serous ov.cyst	
1	21	2	1	1	1	0	0	0	0	0	1	0	0
2	25	2	4	1	1	0	1	0	0	0	0	0	0
3	28	2	3	1	1	0	0	0	0	0	1	0	0
4	23	2	3	2	2	0	0	1	0	0	0	0	0
5	24	2	2	1	1	0	1	0	0	0	0	0	0
6	28	2	2	1	1	1	0	1	0	0	0	0	0
7	31	2	1	1	1	1	0	0	0	0	1	0	0
8	30	2	3	2	1	0	0	0	0	0	0	1	0
9	22	2	2	1	2	0	1	0	0	0	0	0	0
10	35	2	5	1	1	0	0	0	0	0	1	0	0
11	28	2	4	2	1	0	0	1	0	0	0	0	0
12	23	2	2	1	0	0	1	0	0	0	0	0	0
13	34	2	1	1	2	1	0	1	0	1	0	0	0
14	35	2	2	1	1	1	0	0	0	0	1	0	0
15	32	2	0	2	2	1	0	0	1	0	0	0	0

NO	Age	Infertility					laparscopic findings (0=abscent,1=present)						Nerve fibers count /mm^2
		2=2ry,	duration in y	Menstrual phase 1=proliferative, 2=secretory	Parity	previous abortion	no pathological findings	tubal block	perforated IUD	fibroid	pco	serous ov.cyst	
16	23	2	2	1	1	0	0	0	0	0	1	0	0
17	30	2	4	2	1	0	0	0	0	0	0	1	0
18	28	2	3	2	1	0	1	0	0	0	0	0	0
19	32	2	5	1	1	0	0	0	0	0	1	0	0
20	35	2	5	1	2	1	0	0	0	1	0	0	0
21	32	2	4	1	1	0	0	0	0	0	1	0	0
22	28	2	5	1	1	0	1	0	0	0	0	0	0
23	30	2	5	1	1	0	0	1	0	0	0	0	0
24	22	2	4	1	1	0	0	0	0	0	0	1	0
25	28	2	2	1	1	1	0	0	0	0	0	0	0

Nerve Fiber Density in an Endometrial Biopsy in Cases of Endometriosis

Thesis

Submitted for Partial Fulfillment of Master Degree
In Obstetrics and Gynecology

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دراسة العلاقة بين زيادة كثافة الألياف العصبية في عينة من بطانة الرحم و وجود مرض انتباذ بطانة الرحم

توطئة للحصول علي درجة الماجستير
في أمراض النساء والتوليد

مقدمة من
الطبيبة /أمـل عبد المجيـد احمـد

بكالوريوس الطب والجراحة (٢٠٠٢)

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٢٠١٢

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Amal Abd El-Magied

Introduction

Endometriosis is a benign gynecological disease defined as the presence of endometrial like gland and stroma out side the uterine cavity, most commonly implanted over visceral and peritoneal surface within the female pelvis. It exhibits disturbances of cellular proliferation, cellular invasion and neoangiogenesis ***(Giudice et al., 1998)***.

Although the exact prevalence of endometriosis in general population is not clear the prevalence in women of reproductive age is estimated to range between 10 and 15% ***(Lebovic et al., 2001).***

Unfortunately, there is still a substantial delay in the diagnosis of the disease in most countries and the length of time from the onset of symptoms to definite diagnosis is often quite long, with an average of 6-10 years. This delay is even longer in young age patient and in sever cases, The problems may result from this delay including deterioration of patient quality of life, the impact of absence of explanation of pain and the financial burden of medical services is attributed to that. The diagnosis of endometriosis is a major stumbling block for both clinical management and research studies of this enigmatic disease ***(Hadfield et al., 1996; Ballard et al., 2006).***

There is no simple, reliable, non-invasive way to diagnose it, although there are number of studies currently underway to try and identify biomarkers of this disease. Symptoms like infertility and chronic pelvic pain such as chronic dysmenorrhea, premenstrual abdominal and pelvic pain, back pain, dysuria, dyschazia and dysparoeunia, however, The relationship between different pains and endometriosis is not well understood and there is poor correlation between the severity of pain symptoms and anatomical staging of the disease ***(Chapron et al., 2003).***

In the same context, the diagnosis of endometriosis is based on laparoscopic examination of peritoneum to confirm or exclude the disease but it is still the surgical procedure which can be associated with complications ***(Slack et al., 2007).***

The multiplicity of molecular and cellular abnormality demonstrated in the eutopic endometrium of women with endometriosis suggests that primary abnormalities in this tissue may have a role in the genesis of endometriosis and perhaps even in the genesis of symptoms .We speculated that this might include local growth factors or cytokines for nerve fibers which, if also present in the ectopic endometrial-type tissue of patients with endometriosis, could induce the growth of nerve fibers into the endometriotic foci and thus providing a mechanism for lesion-specific pain ***(Lundberg et al., 1988).***

Hence, the concept of using endometrial biopsy to detect nerve fibers is appealing and this is possible After reports of novel finding of multiple small unmyelinated sensory C nerve fiber in the functional layer of eutopic endometrium in women with endometriosis, in contrary to women with out the disease and so it has been postulated that there may be increased nerve fibers in the basal layer of endometrium in the diseased women Thus, this study will be held to demonstrate this hypothesis ***(Tokushige et al., 2006).***

Aim of Work

To study the diagnostic value of nerve fiber density in endometrial biopsy in cases of endometriosis.

Endometriosis

Endometriosis is a chronic, complex gynecological disease affecting reproductive age women, characterized by endometrial-like tissue found outside the uterine cavity. Clinical symptoms are manifested as dysmenorrhea, dysuria, dyspareunia ***(Valle and Sciarra, 2003).***

Endomertiosis varies in appearance from few minimal lesions on other wise intact pelvic organs to massive ovarian endometriotic cyst that distort tubo ovarian anatomy and extensive adhesions often involving bowel, bladder, and ureter ***(Eskenazi and Warner, 1997).***

Epidemiology:

The exact prevalence of endometriosis is unknown because invasive testing is needed to confirm the diagnosis. In addition much is still uncertain about this disease and its pathophysiology. However many women will seek treatment for pelvic pain, infertility or both. And until simple non invasive screening tests are developed, the true prevalence will remain unknown ***(Eltabbakh and Bower, 2008)***.

Current prevalence therefore depends upon identification of women who are either symptomatic or undergoing various operative procedures.

No racial differences in the incidence of the disease have been found except for Japanese women who have been reported to have twice the incidence of Caucasian women; Clinical experience based on gynecologic practice in Hawaii indicated a high incidence of endometriosis among Oriental women. To investigate this impression, a statistical analysis of gynecologic admissions and of diagnoses of endometriosis was performed by Miyazawa, on the basis of race at three hospitals, two in Hawaii and one in Japan. The result supports the impression that the Japanese female population has a high incidence of endometriosis. Approximately 10% of their gynecologic admissions were for endometriosis. The order of incidence in other racial groups was non-Japanese Oriental, white, and black ***(Miyazawa, 1976).***

Sangi and colleagues studied epidemiology of endometriosis among parous women over a 6-year period, 3384 multiparous women underwent laparoscopy for tubal sterilization. Endometriosis was detected in 126 patients, who were consequently evaluated for severity of the disease. They conducted a case-control study, 504 control patients with no evidence of endometriosis were randomly selected from the women who underwent sterilization. Most endometriosis lesions were minimal. They conclude that, factors associated with an increased risk for endometriosis included: advanced