

Correlation of endoscopic interpretation of endometriosis with histological verification

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Summary

Introduction: In this study we correlate the laparoscopic findings of endometriosis with the histological confirmation of the disease over a period of two years.

Materials and Methods: One hundred and sixty-four laparoscopies performed at the Department of Gynecology & Obstetrics, University of Kiel, over a two-year period were reviewed for laparoscopic findings and histological confirmation of endometriosis.

Results: The majority of patients suspected of endometriosis at laparoscopy were confirmed by histological examination, i.e. 138 out of 164 patients (84.1%).

Conclusion: Laparoscopy is the easiest diagnostic tool for the diagnosis of endometriosis which can be confirmed by histological examination.

Key words: Endometriosis; Histology; Laparoscopy.

Introduction

Endometriosis is defined as an ectopic localization of endometrial and stromal cells [1]. Although endometriosis is thought to be a benign gynecological disorder, it is associated with significant pain and morbidity, occurring in about 10% of women of reproductive age and in up to 50% of women with infertility problems [2]. The ovary is the most common location of endometrial implants, occurring in 40-60% of cases [3].

The pathogenesis of this pathology is still uncertain but it is most probably related to retrograde menstruation. Retrograde menstruation is a phenomenon which occurs in about 90% of menstruating women [4]. Additional factors are necessary to explain why the disease occurs in some women and not in others and to understand why ectopic endometrial cells are able to implant. A lot of studies [5-7] have focussed their attention on the activation of peritoneal macrophages, local cytokines and growth factors and peritoneal neovascularisation.

Endometriosis is one of the major causes of chronic pelvic pain, dysmenorrhoea and infertility. Early diagnosis of endometriosis may help in improving the quality of life of the patient and the reproductive outcome of infertile patients.

At laparoscopy typical or atypical lesions of endometriosis can be visualized under magnification and most of the lesions can be verified histologically [8-12]. A high percentage of lesions can be confirmed histologically [9, 10, 13].

Materials and Methods

Patients: Laparoscopic data on 164 endometriosis patients recorded in the German complications register was analyzed comparing the laparoscopic findings with the histological results. The German complications register is a computerized

database established by the Institute of Natural Intelligence in Bremen compiling data from 41 German centers of endoscopic surgery. In this evaluation, however, only the data from the Department of Gynaecology & Obstetrics at the University of Kiel was evaluated. The evaluation period ranged from January 2000 to September 2002.

Laparoscopy: 164 patients with a nonsurgical diagnosis of endometriosis were operated upon and biopsies taken to compare the laparoscopic findings with the histological results.

All operations were performed under general anaesthesia and magnification was used to have a better view of the lesions and organs. Only red, black and white lesions were punched out by biopsy forceps and coagulated by endocoagulation or bipolar coagulation [14]. In cases of endometriomas the cysts were enucleated and raw surfaces were endocoagulated at 80-100°C.

Classification of endometriosis: Laparoscopically, the Endoscopic Endometriosis Classification (EEC) was applied [1]. This classification is comparable to the AFS classification [15, 16]. In our study the aim was to excise all visible red, black or white lesions, to enucleate the endometriomas and coagulate them. The histological diagnosis of endometriosis was determined by the presence of endometrial glands, stroma and hemosiderine-carrying macrophages.

Results

The majority of patients, i.e. 98 (59.8%) exhibited Stage 1 endometriosis, 14 patients (8.5%) Stage 2, 28 patients (17%) Stage 3 and 24 patients (14.6%) Stage 4 (Table 1/Figure 1). One hundred and eleven patients, i.e. 67.68% had multiple lesions and 53 patients (32.32%) single lesions (Table 2/Figure 2).

Maximum lesions were confirmed histologically in the uterosacral ligament [17] and posterior surface of the broad ligament, i.e. 83/138 (60.1%) and in the ovarian fossa, i.e. 8/12 (60.7%). One hundred percent of lesions in the area of parietal peritoneum of the pelvis were confirmed histologically. Thirty-seven of 77 patients (48.1%) were confirmed histologically with lesions on the surface of the ovary and endometriomas. Lesions on the bowel serosa were confirmed histologically in 40% of cases, i.e.

Table 1. — AFS Staging.

Stage	n	%
1	98	59.76
2	14	8.54
3	28	17.07
4	24	14.63
Total	164	100

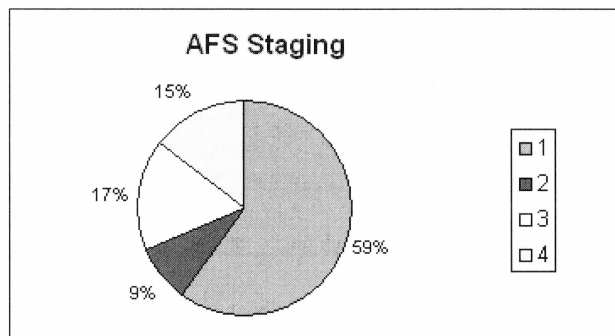


Figure 1. — AFS Staging.

Table 2. — No. of endometriotic lesions.

	n	%
Single	53	32.32
Two or more	111	67.68
Total	164	100

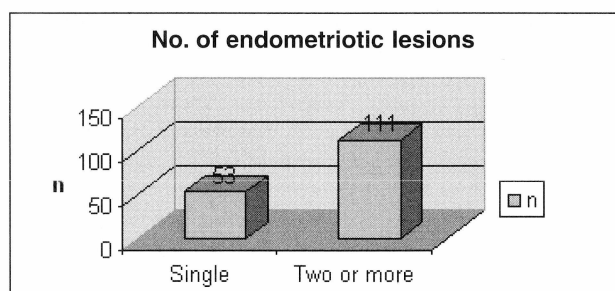


Figure 2. — No. of endometriotic lesions.

2/5. Lesions on the vasicouterine fold of the peritoneum were only confirmed histologically in 2.1% of cases, i.e. 3/23 (Table 3/Figure 3).

From a total of 164 patients, 138 were confirmed histologically as having endometriosis (84.1%) and 26 of 164 patients (15.9%) had no evidence of endometriosis (Table 4/Figure 4).

All 82 red biopsied lesions were confirmed as endometriosis (100%). In 69% of white lesions (22 patients) and in 8% of black lesions (4 patients) the suspicion of endometriosis was not confirmed histologically (Table 5/Figure 5).

Discussion

Accurate diagnosis of endometriosis is very important because endometriosis is one of the most significant causes of chronic pelvic pain [18] and infertility and early laparoscopic diagnosis is very helpful for these patients.

Table 3. — Sites of suspected endometriosis & results of biopsy [1-6].

Site	n	Confirmed	%
Uterosacral ligament and posterior surface of broad ligament [1]	138	83	60.1
Surface of ovary and endometriomas [2]	77	37	48.1
Vasicouterine fold of peritoneum [3]	23	3	2.1
Ovarian fossa [4]	12	8	66.7
Parietal peritoneum of pelvis [5]	9	9	100
Bowel serosa [6]	5	2	40

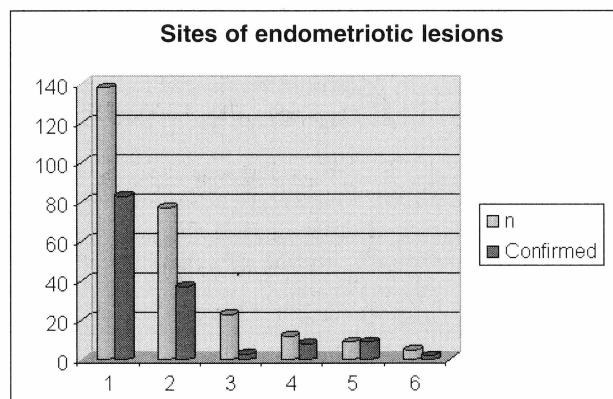


Figure 3. — Sites of endometriotic lesions.

In our study, endometriosis was not confirmed in most of the white lesions. This may be because of previous cauterization burns or tissue reaction to suture materials of previous surgery or cancer cell implants.

In our study we rarely found histological confirmation of endometriosis in white lesions but it may be present on normal looking peritoneum which can be evident after endocoagulation at 80-100°C, i.e. hemosiderine effect [14].

Similar studies have shown the same results as our study, i.e. confirmation of endometriosis in 168 of 215 patients after laparoscopy [12].

Conclusion

To improve the quality of life of patients, either socio-professional, sexual or procreative, laparoscopy is the most important tool for the diagnosis of endometriosis which can be histologically verified.

Table 4. — Histological results of operated patients and color of punctured lesions.

	Color of lesions			No. of pts.	%
	Red	White	Black		
Endometriosis (A)	30	2	24	56	34.1
Endometriosis with fibromuscular, fibrofatty and fibrovascular tissue (B)	52	8	22	82	50
Fibrous tissue with fat and smooth muscles (C)	0	22	4	26	15.9
Total	82	32	50	164	100

To improve the fertility of the patient, diagnostic laparoscopy should be performed without arguing the need of an operative procedure [19] because the diagnosis of endometriosis can be performed laparoscopically and confirmed histologically [20, 21].

fig. 4a

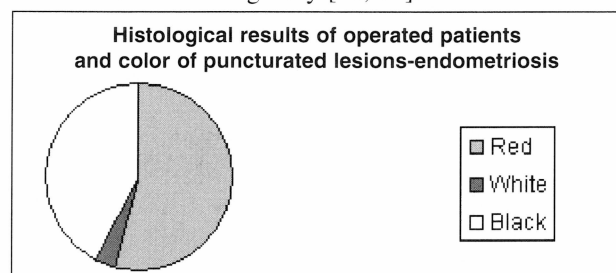


fig. 4b

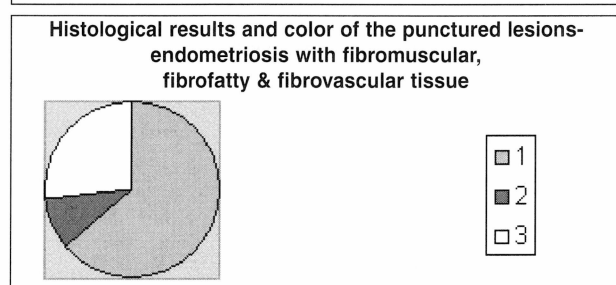


fig. 4c

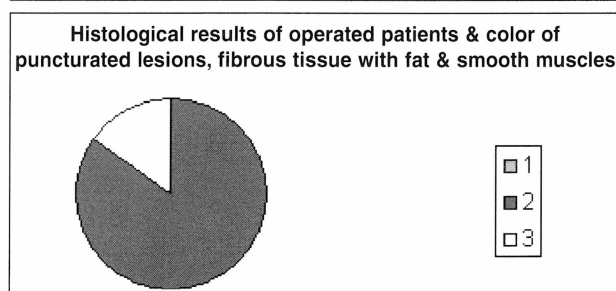


Figure 4a. — Histological results of operated patients and color of punctured lesions - endometriosis.

Figure 4b. — Histological reports and color of punctured lesions - endometriosis with fibromuscular, fibrofatty and fibrovascular tissue.

Figure 4c. — Histological reports and color of punctured lesions - fibrous tissue with fat and smooth muscles.

Table 5. — Color of lesion and histology report.

	Confirmed	Not confirmed	%
Red	82	0	100
White	10	22	31
Black	46	4	92

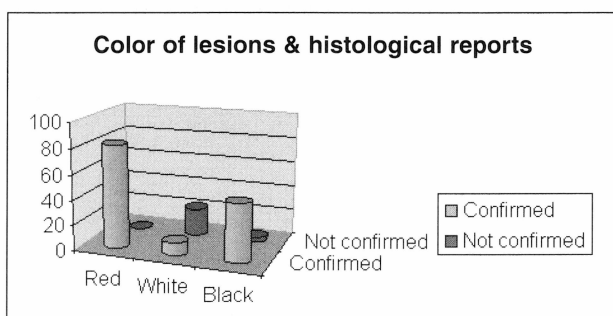


Figure 5. — Color of lesions and histological reports.

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