Value of Laparoscopy in Diagnosis of Endometriosis in Unexplained Infertility

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Abstract

The presence of endometrial tissue outside of the endometrium and myometrium is referred to as pelvic endometriosis. Deep infiltrative endometriosis is the presence of endometrial implants, fibrosis, and muscle hyperplasia that extend more than 5 millimetres into the peritoneum (DIE). The most precise treatment for assessing tubal pathologic abnormalities and other hidden intra-abdominal causes of infertility is diagnostic laparoscopy, according to most experts. Diagnostic laparoscopy may be useful in the infertility work-up programme before moving on to intrauterine insemination (IUI) treatment since IUI requires ideal conditions for the ovum pick-up and its transport mechanism.

Aim of the Work : The aim of this study was to evaluate the value of laparoscopy in diagnosis of endometriosis in cases of unexplained infertility.

Methods : This observational cross section study included 24 cases of unexplained infertility diagnostic laparoscopy done for all of them.

Results: Laparoscopic findings in studied patients, 9 patients (37.5%) showed endometriosis, 8 patients (33.3%) showed adhesions and 7 patients (29.2%) showed no laparoscopic findings. endometriosis grade detected by laparoscopy in studied patients. 1 patient (11.1%) showed endometriosis grade I, 2 patients (22.2%) showed endometriosis grade II, 2 patients (22.2%) showed endometriosis grade III and 4 patients (44.4%) showed endometriosis grade IV.

Conclusion: It is concluded that endometriosis is a common diagnosis in women with unexplained infertility and chronic pelvic pain. Laparoscopy should be indicated when diagnosis is suspected, together with tissue sampling and histopathologic examination.

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Introduction

The presence of stroma and endometriotic glands outside the uterus is referred to as endometriosis. Peritoneal, ovarian, and deep infiltrating endometriosis are the three forms of endometriosis that have been histologically

identified. Deep infiltrating endometriosis is defined as penetrating the surrounding tissues by more than 5 mm(1)

In the painful abdominopelvic region, endometriosis patients also exhibit enhanced responsiveness to noxious and benign somatic stimulation (referred to as "hyperalgesia" and "allodynia," respectively), such that a significant negative correlation is seen between patient-rated abdominopelvic pain intensity (e.g., visual analogue scale) and pressure (or "force") threshold (2).

The most frequent medical intervention involves the suppression of menstruation with combined oral contraceptive tablets, progestins, and GnRH agonists, frequently in conjunction with painkillers. The need for more potent disease modifying drugs and precise noninvasive diagnostic technologies for endometriosis is acknowledged on a global scale (3).

The lack of illuminating biomarkers, the frequent onset of symptoms at a young age, and the clinical overlap with other diseases all contribute to the frequent delay in diagnosis. It has been projected that between 5 and 10 years after the onset of symptoms, definitive visual identification of lesions after surgery takes place (4).

The current gold standard for determining the presence and severity of endometriosis is operational real-time laparoscopic results utilizing uniform staging systems. According to recent guidelines, histopathologic analysis is advised for diagnostic confirmation; nevertheless, because non-standardized and unblended assessment caused bias to prior studies, its true value has not been clearly measured(5).

Aim of Work

The aim of this study was to evaluate the value of laparoscopy in diagnosis of endometriosis in cases of unexplained infertility.

Patients & Methods

This observational cross section study was conducted at the Obstetrics and Gynecology department of Benha University Hospitals from May 2023 to November 2023.

This Study was approved by the ethics committee of Benha Faculty of Medicine and The review board in OB/GYN. Department. Written Informed consent was obtained from all participants prior to commencing the study.

This study enrolled 24 patients who attended Benha University Hospitals with complaint of unexplained infertlity. All patients included in this study underwent diagnostic laparscopy at our hospital.

Inclusion criteria:

- Women age between 20 and 40 year.
- Infertility
- Normal ovulatory cycles
- Partner’s semen sample containing at least 1.5 ml for semen volume , 39 million per ejaculate for total sperm number, 15 million per ml for semen concentration , 40% for total motility , 32% for progressive motility, 58% for vitality and 4% normal form for sperm morphology according to World Health Organization criteria (2012) .
- Hystrosalpingiography (HSG) if it was performed we check it to assess uterine cavity and tubal patency.

Exclusion criteria

- Endometriosis surgery has previously been performed.
- Endometriosis treatment received in the nine months prior.
- Using a partner's sperm for intrauterine insemination or ovulatory medication therapy within the past month.
- oophorectomy or salpingectomy;
- Other medical or surgical treatment for

infertility in the previous three months.

- Previous pelvic inflammatory illness

All patients were subjected to the following:

A) Full history was taken included medical history of chronic and acute disease.

B) the patients were examined generally, abdominally and locally.

Investigations:

- Routine investigations were performed as CBC , blood group , ALT ,AST, Serum creatinine and Coagulation profile .
- Laparoscope used for diagnosis of endometriosis in unexplained infertility cases and also used for staging the grade of endometriosis also if present.

Results

The mean age of studied patients was 30.0± 6.1 years with minimum age of 20 years and maximum age of 40 years (range 20 – 40). The mean duration of infertility in studied patients was 5.79± 2.72 years with minimum duration of 1 years and maximum duration of 10 years (range 1 – 10).All studied patients (100%) had regular menstrual cycle with no cases of irregular cycles (table 1). Serum CA 125 in studied patients: The mean serum CA 125 of studied patients was 81.42± 17.41 with minimum CA 125 of 48 and maximum CA 125 of 107 (range 48 – 107) (table 2) . Laparoscopic findings in studied patients: 9 patients (37.5%) showed endometriosis, 8 patients (33.3%) showed adhesions and 7 patients (29.2%) showed no laparoscopic findings (table3). Endometriosis grade detected by laparoscope in studied patients: 1 patient (11.1%) showed endometriosis grade I, 2 patients (22.2%) showed endometriosis grade II, 2 patients (22.2%) showed endometriosis grade III and 4 patients (44.4%) showed endometriosis grade IV (table 4).

Table (1): age and Duration of infertility and menstrual cycle in studied patients.

Variables		Studied patients (N = 24)
Age (years)	Mean±SD Range	30.0±6.1 (20 – 40)
Duration of infertility (years)	Mean±SD Range	5.79±2.72 (1 – 10)
Menstrual cycle	Regular Irregular	24 (100%) 0 (0%)

Table (2): serum CA125 in studied patients.

Variables		Studied patients (N = 24)
CA 125	Mean±SD Range	81.42 ±17.41 (48 – 107)

Table (3):Description of laparoscopic findings in studied patients.

Variables		Studied patients (N = 24)
Laparoscopic findings	Endometriosis Adhesions No finding	9 (37.5%) 8 (33.3%) 7 (29.2%)

Table(4):Description of endometriosis grade detected by laparoscope in studied patients.

Variables		patients (N = 9)
Endometriosis	Grade I Grade II Grade III Grade IV	1 (11.1%) 2 (22.2%) 2 (22.2%) 4 (44.4%)

Discussion

In our study laparoscopic diagnosis of endometriosis was reported in 37.5% of cases. 1 patient (11.1%) showed endometriosis grade I , 2 patients (22.2%) showed endometriosis grade II , 3 patients (22.2%) showed endometriosis grade III and 4 patients (44.4%) showed endometriosis grade IV. Biopsy was taken from suspected patients and the diagnosis of endometriosis was confirmed by histopathological examination. Therefore, meticulous histopathological confirmation should still be the first step in laparoscopic diagnosis and treatment of suspected endometriosis. Also in our study founded by laparoscopy that 33.3% of cases suffer from adhesions and no laparoscopic findings detected in 29.2% of cases.

Positive cases of endometriosis had a statistically significant range of menstrual disturbances including dysmenorrhea, whereas there was no significance as regards menorrhagia or dyspareunia. Dysmenorrhea should direct the attention to the possibility of endometriosis. Moreover, endometriosis was more common in patients with a history of previous surgery (e.g. cesarean section, myomectomy, and ovarian cystectomy), especially when uterine cavity was opened, which may be a predisposing factor. Another explanation is that some of these operations were originally performed to treat some endometriotic lesions but patients did not have a confirmed diagnosis of endometriosis.

The most common pelvic pathology in our study was severe endometriosis by 44.4% , whereas in the study of Bhandari et al. (2019) showed that most common pelvic pathology was minimal endometriosis by 24.2%. Also in this study laparoscopic findings showed that 48.4% of cases suffer from endometriosis, 17.8% adhesions and no laparoscopic findings in 47.9% of cases and this variation may be explained by long period of infertility.(6)

In study of Gajendra et al. (2017) showed that most common pelvic pathology was minimal endometriosis by 66.44% as in the study of Bhandari et al. (2019) , Whereas in our study the most common pelvic pathology was severe endometriosis by 44.4%. Also in Gajendra et al. (2017)study laparoscopic findings showed that 44.11% of cases suffer from endometriosis and no laparoscopic findings in 55.89% of cases.(6,7)

In study of Gajendra et al. (2017) pelvic inflammatory disease was excluded which is similar to our study as in our study we excluded any history of PID , but also in this study they exclude any adhesions due to previous surgeries or infections.(7)

Endometriosis was more common in patients with a history of previous surgery (e.g. cesarean section,myomectomy, and ovarian cystectomy), especially when uterine cavity was opened, which may be a predisposing factor. Another explanation is that some of these operations were originally performed to treat some endometriotic lesions but patients did not have a confirmed diagnosis of endometriosis. In our study 66.6% of cases of endometriosis have history of cesarean section .

Laboratory findings showed marked variance

as regards CA125 between positive and negative cases, which could be considered a good noninvasive test for diagnosing endometriosis. In our study the mean serum CA 125 of studied patients was 81.42±SD 17.41, whereas in Other study mean serum CA125 was 28.3±SD 22.8.(8)

Other investigators showed that laparoscopic findings was 33% of cases suffer from endometriosis, 7% adhesions and no laboratory findings in 12% of cases.(8)

While Katke RD (2019) laparoscopic findings was 22% of cases suffer from endometriosis, 14% adhesions and no laboratory findings in 46 % of cases.(9)

While Koji RD (2017) laparoscopic findings was 51.2% of cases suffer from endometriosis, 41.5% adhesions and no laboratory findings in 7.3 % of cases.(9)

In our study endometriosis grade detected by laparoscope in studied patients. (11.1%) showed endometriosis grade I, (22.2%) showed endometriosis grade II, (22.2%) showed endometriosis grade III and (44.4%) showed endometriosis grade IV.

In other studies grades of endometriosis was : (24.2%) showed endometriosis grade I, (27.1%) showed endometriosis grade II, (3.7%) showed endometriosis grade III and (0%) showed endometriosis grade IV. (6).

In other studies grades of endometriosis was : (66.44%) showed endometriosis grade I, (21.1%) showed endometriosis grade II, (7.7%) showed endometriosis grade III and (6.66%) showed endometriosis grade IV. (7)

In other studies grades of endometriosis was : (51.2%) showed endometriosis grade I, (21.1%) showed endometriosis grade II, (0%) showed endometriosis grade III and (0%) showed endometriosis grade IV. (8)

In other studies grades of endometriosis was : (39.44%) showed endometriosis grade I, (18.1%) showed endometriosis grade II, (21.7%) showed endometriosis grade III and (21.66%) showed endometriosis grade IV. (9)

Conclusion

It is concluded that endometriosis is a common diagnosis in women with unexplained infertility and chronic pelvic pain. Laparoscopy should be indicated when diagnosis is suspected, together with tissue sampling and histopathologic examination.

References

1. Johnson NP, Hummelshoj L, Adamson GD, et al. World Endometriosis Society consensus on the classification of endometriosis. Hum Reprod 2017;32:315-324.
2. Mui J, Allaire C, Williams C, Yong PJ. Abdominal wall pain in women with chronic pelvic pain. J Obstet Gynaecol Can 2016;38:154–159.
3. Rogers PA, Adamson GD, Al-Jefout M, Becker CM, D'Hooghe TM, Dunselman GA, et al. Research Priorities for Endometriosis. Reprod Sci 2017;24:202–226.
4. Soliman AM, Fuldeore M, Snabes MC. Factors associated with time to endometriosis diagnosis in the United States. J Womens Health (Larchmt) 2017;26:788–797.
5. Dunselman GA, Vermeulen N, Becker C, Calhaz-Jorge C, D'Hooghe T, De Bie B, et al. ESHRE guideline: management of women with endometriosis. Hum Reprod. 2014;29:400-412.
6. Bhandari S, Singh A, Agrawal P, Ganguli I. Findings in diagnostic laparoscopy in patients with unexplained infertility. Fertil Sci Res 2015; 2:29–33.
7. Tomar GS, Parmar H, Gupta S. Endometriosis in infertility; prevalence, clinical profile and diagnosis. International

Journal of Medical and Health Research 2017;3:01–04.

8. Gad MS, Abdel-Gayed AM, Dawoud RM, Amer AF. Prevalence of endometriosis in unexplained infertility and chronic pelvic pain in women attending Menoufia University Hospital. Menoufia Med J 2017;30:356-60
9. Karaman Y, Uslu H. Complications and their management in endometriosis surgery. Womens Health (Lond) 2015;11:685-692.