

Role of Diagnostic Laparoscopy in Cases of Unexplained Infertility

Thesis

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List of Abbreviations

ART	:	Assisted Reproductive Technique
ASRM	:	American Society of Reproductive Medicine
BMI	:	Body mass index
CA125	:	Cancer Antigen-125
CBC	:	Complete blood count
COS	:	Controlled ovarian stimulation
E2	:	Estadiol
FSH	:	Follicle-stimulating hormone
GnRH-a	:	Gonadotrophin-Releasing Hormone Agonists
hCG	:	Human Chorionic Gonadotropin
ICI	:	Intracervical Insemination of Sperm
INR	:	International normalized ratio
IUI	:	Intrauterine Insemination
IVF	:	In Vitro Fertilization
LH	:	Luteinizing hormone
LNG-IUS	:	Levonorgestrel-Releasing Intrauterine System
LOD	:	Laparoscopic ovarian drilling
LUNA	:	Laparoscopic Uterosacral Nerve Ablation
MAR	:	Medically Assisted Reproduction
MCP-1	:	Monocyte Chemotactic Protein-1
MIF	:	Macrophages Migration Inhibitory Factor
NIH	:	National Institutes of Health
NSAIDs	:	Nonsteroidal Anti-Inflammatory Drugs
OCP	:	Oral Contraceptive Pill
OHSS	:	Ovarian hyperstimulation syndrome
ORC	:	Oxidized Regenerated Cellulose
OS	:	Ovarian Stimulation
PCOS	:	Polycystic ovarian syndrome
PEG	:	Polyethylene Glycol
PSN	:	Presacral Neurectomy
PT	:	Prothrombin time

List of Abbreviations (Cont.)

PTT	:	Partial thromboplastin time
RANTES	:	Regulated on Activation, Normal T Cell Expressed and Secreted
SD	:	Standard Deviation
TSH	:	Thyroid-Stimulating hormone
WHO	:	World Health Organization

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ABSTRACT

Role of Diagnostic Laparoscopy in Cases of Unexplained Infertility

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Introduction: Infertility has been defined as failure to conceive after regular unprotected sexual intercourse for 1 year. This definition reflects the prognostic approach to this condition, based on the knowledge that, in a general population, 84% of all women are expected to conceive within 1 year of regular unprotected sexual intercourse. This figure rises to 92% after 2 years, and 93% after 3 years. The term 'unexplained infertility' refers to infertile couples in whom standard investigations, including tests of ovulation, tubal patency and semen analysis, are normal. The prevalence among couples attending a fertility clinic to be 21% in women aged under 35 years, and 26% in women over 35 years. Unexplained infertility refers to the absence of a definable cause for a couple's failure to achieve pregnancy after 12 months of attempting conception despite a thorough evaluation, or after six months in women 35 years old and older. **Materials and Methods:** Study type: Cross sectional observational study that aims at determining the prevalence of abnormalities among patients with unexplained infertility as detected with laparoscopy. Study settings: The study was held at Ain Shams University Hospital Laparoscopy unit. Study timing: Start of study: July, 2016. End of study: December, 2016. Study population: Seventy five (75) infertile women with normal hormonal profile, normal semen analysis of the husband with regular marital life, normal trans-vaginal ultrasound and normal hysterosalpingogram. Sample size justification: A wide range of morbidities could be diagnosed by Laparoscopy (48-87%) A sample size of 75 patients would be enough to detect such range with 90% confidence level. **Results:** **Discussion:** Unexplained infertility usually refers to a diagnosis made in couples in whom all the standard investigations such as tests to detect ovulation, tubal patency and semen analysis are normal. Unexplained infertility is a term that has been applied to as many as 30-40% of infertile couples. The potential causes of unexplained infertility have been described as disturbances in endocrinological balance, immunology, genetic and reproductive anatomy and physiology. **Conclusion:** Unexplained infertility refers to the absence of a definable cause for a couple after 12 months of attempting conception (six months in women 35 years and older) despite a thorough evaluation. The argument in favor of performing laparoscopy to unexplained infertility cases is related to both peritubal adhesions and pelvic endometriosis.

Key words: ART: Assisted Reproductive Technique; INR: International normalized ratio; IUI: Intrauterine Insemination MCP-1; Monocyte Chemotactic Protein-1 MIF: Macrophages Migration Inhibitory Factor.

Introduction

Infertility has been defined as failure to conceive after regular unprotected sexual intercourse for 1 year (*Steril, 2008; Gurunath et al., 2011*). This definition reflects the prognostic approach to this condition, based on the knowledge that, in a general population, 84% of all women are expected to conceive within 1 year of regular unprotected sexual intercourse. This figure rises to 92% after 2 years, and 93% after 3 years (*te Velde et al., 2000*).

The term ‘unexplained infertility refers to infertile couples in whom standard investigations, including tests of ovulation, tubal patency and semen analysis, are normal. The prevalence among couples attending a fertility clinic to be 21% in women aged under 35 years, and 26% in women over 35 years (*Maheshwari et al., 2008*). Unexplained infertility refers to the absence of a definable cause for a couple's failure to achieve pregnancy after 12 months of attempting conception despite a thorough evaluation, or after six months in women 35 years old and older (*Steril, 2008*).

The gynecological laparoscopic surgery has been progressively and successfully introduced into practice as this minimally invasive surgery is associated with low morbidity, less postoperative pain, and improved cosmetics

(*Tekelioglu et al., 2013*). In the past, no work-up of an infertility problem was complete without a diagnostic laparoscopy. More recently, it has been proposed that laparoscopy has its place in certain situations: where the medical history is suggestive of endometriosis or tubal disease (prior operations, infections), when the result of tubal patency test is abnormal, or to remove hydrosalpinges and possibly large endometriomas in patients scheduled for invitro fertilization (IVF) (*De Sutter, 2006*). In addition to diagnostic indications, operative procedures at the time of laparoscopy proved to enhance both spontaneous and assisted conception rate (*Fouany & Muasher, 2010*).

In the era of assisted reproductive techniques (ART), laparoscopic reproductive surgery still has an important role in the diagnosis and treatment of infertility. Not all infertile women will need IVF, however they will still benefit from laparoscopy to either assist natural conception, direct them to IVF-ET program or enhance IVF results. It is obvious that laparoscopy is not only a clinically important diagnostic tool, but may also be important in making treatment decisions (*Siam, 2014*).

The additional value of laparoscopy over a formal HSG depends also on the contribution of laparoscopy to the treatment. Depending on the severity of the laparoscopic

findings, the initial treatment decision can be changed into laparoscopic fertility-promoting surgery or direct referral to an IVF program (*Badawy et al., 2010*).

Laparoscopy provides information regarding tubal and ovarian status, uterine normality and standard means of diagnosing various pelvic pathology e.g. pelvic inflammatory disease, endometriosis, pelvic congestion and tuberculosis (*Sajida & Majida, 2010*).

Diagnostic laparoscopy is generally accepted as the gold standard for diagnosing tubal pathology or other pelvic reproductive diseases, such as adhesions and endometriosis. Once identified, appropriate surgical treatment can be given, enhancing the chance of spontaneous conception. Furthermore, in cases with a poor prognosis, laparoscopy could accelerate the commencement of in vitro fertilization (IVF), bypassing unnecessary cycles of ovulatory stimulation with or without intra-uterine insemination(IUI) (*Moayeri et al., 2009*).

Aim of the Work

The objective of this study is to assess the value of routine diagnostic laparoscopies in women with unexplained infertility.

1) Research question:

In women with unexplained infertility, does laparoscopic examination reveal hidden pathology?

2) Research hypothesis:

Routine diagnostic laparoscopies may discover hidden causes of unexplained infertility which may help in the management of such women.

3) Possible clinical application:

The use of routine diagnostic laparoscopy in assessment of cases with unexplained infertility.