KASR ALAINY

Diagnostic Values of Laparoscopy in Infertile Women with Normal Hysterosalpingography

Thesis

Submitted for Fulfillment of M.S. Degree in **Obstetrics and Gynecology**

By

Yahia Ahmad Mohammad Yahia
M.B.B.Ch., Cairo University
Resident of Obstetrics & Gynecology, Kasr Al Aini, Cairo University

Under Supervision of

Prof. Ahmad Ibrahim Ahmad Aref
Professor of Obstetrics & Gynecology
Faculty of Medicine - Cairo University

Assistant Prof. Hesham Said Alshaer
Assistant Professor of Obstetrics & Gynecology
Faculty of Medicine - Cairo University

Faculty of Medicine
Cairo University
2011

بسم الله الرحمن الرحيم

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صدق الله العظيم

سورة البقرة (آية 32)

Acknowledgement

I am grateful to all those who helped me to achieve and complete this work. ***Prof. Dr. Ahmad Ibrahim Ahmad Aref,*** *Professor of obstetrics and Gynecology, Faculty of Medicine, Cairo University,* ***Assistant Prof. Dr. Hesham Said Alshaer,*** *Assistant Professor of obstetrics and Gynecology, Faculty of Medicine, Cairo University and all the team and staff at Kasr Alaini maternity Hospital.*

ABSTRACT

Infertility is a sociomedical problem affecting about 15% of all couples and has many etiologies, however, 20% of cases of infertility are due to tubal factor. Assessment of tubal patency is very important in infertility workup. Hysterosalpingography is used for tubal patency assessment and has also therapeutic effect in cases with normal findings. Diagnostic laparoscopy is the most reliable tool to discover occult pelvic pathology that may be the cause of infertility such as pelvic adhesions, pelvic inflammatory disease and endometriosis.
Key words: infertility, hysterosalpingography, laparoscopy

CONTENTS

List of Abbreviations

ART	Assisted reproductive technology
AS	Asherman synndrome
CT	Computed tomography
FSH	Follicle stimulating hormone
HP	Hyperprolactinemia
HSC	Hysteroscopy
HSG	Hysterosalpingography
HyCoSy	Hysterosalpingo-contrast sonography
ICSI	Intracytoplasmic sperm injection
IUA	Intrauterine adhesions
IUI	Intrauterine Insemination
IVF	Invitro Fertilization
IUCD	Intrauterine contraceptive device
LH	Luteinizing hormone
LPS	Laparoscopy
MR	Magnetic resonance
PAD	Pelvic adhesive disease
PID	Pelvic inflammatory disease
PCO	Polycystic ovarian syndrome
PRL	Prolactin
SHSG	Sonohysterosalpingography
SIS	Saline infusion sonography
STDs	Sexually transmitted diseases
US	Ultrasound

List of Tables

List of Figures

INTRODUCTION

Infertility is defined as failure to conceive within 1 year despite regular sexual intercourse **(Barbieri, 1999)** or within 2 years according to the European society for human reproduction and embryology (ESHRE) without use of contraception,and is found in 10-15% of all couples (**Forti et al., 1998**)

Infertility in many couples has multiple etiologies, however, in approximately 15-17% of couples, no reason for infertility is found and infertility is defined as unexplained **(Aboulghar et al., 2001)**

Infertility is a sociomedical problem affecting about 15% of all marriages, Infertilty is usually subdivided into primary infertility and secondary infertility, primary infertility is defined as inability to conceive after one year of regular marriage without use of contraception, while secondary infertility is defined as failure to conceive 2 years after a previous pregnancy without use of contraception.

According to European society for human reproduction and embryology **(ESHRE),** standard investigations for infertile couples include laboratory assessment of normal ovulation and the luteal phase, evaluation of tubal patency and semen analysis **(Forti et al., 1998)**

Since tubal factors are believed to be responsible for 20% of infertility, evaluation of tubal dysfunction is of obvious importance in the investigations of female infertility **(Swart et al, 1995).**

Laparoscopy is currently regarded as the most reliable tool in the diagnosis of tubal causes of subfertility. Since laparoscopy visualizes morphological abnormalities of the Fallopian tubes directly, it is generally accepted as the reference standard for determination of the accuracy of other diagnostic tools for tubal pathology, such as hysterosalpingography (HSG) or Chlamydia antibody testing **(Land et al., 1998).**

A detailed clinical history together with a complete physical examination is always necessary.Special attention should be paid to lower abdominal pain or dyspareunia and any evidence of pelvic tenderness should alert a physician to the possibility of pelvic inflammatory disease.

In addition many investigators had stressed that history of upper genital tract infection may indicate the presence of tubal obstruction. These investigators also stressed on the high incidence of infection with Chlamydia trachomatis and suggested that this should always be excluded before performing hysterosalpingography **(Lavy et al., 2004).**

There is an increasing proportion of the abnormal findings with increasing time intervals between hysterosalpingography and laparoscopy**. Isao Tsuji et al., (2009)** reported that in the presence of a normal hystersalpingography, laparoscopy identified other pelvic pathology in half of patients.

Fatum and coworkers suggested that laparoscopy should be omitted after a normal HSG in couples suspected of having unexplained infertility. They evaluated the percent of patients became pregnant after a normal hysterosalpingography, 29% of them became pregnant. There was

a fourfold greater rate of pregnancy during the first three months after normal hysterosalpingography than any other three months interval up to one years. (**Fatum et al., 2002)**

AIM OF THE WORK

To determine diagnostic values of laparoscopy in infertile women with normal hysterosalpingography.

Infertility

Infertility is a common problem,which has many causes The scientific, biological, and technical improvements in the past few decades have made it possible to help the majority of couples with infertility.

The general time needed for having a pregnancy has been defined. Fecundability is the probability of achieving a pregnancy within one menstrual cycle while fecundity is the probability that single cycle will result in a live birth. The fecundability of a "normal" couple (<35 years) is approximately 25% (**Sperrof et al., 2005**).

The average chance for conception after periovulatory intercourse for a couple is about 25% in a given cycle, the probability increases to about 66% By 6 months, and after 1 year, 85% of couples trying to have a pregnancy will succeed. Infertility is diagnosed when pregnancy does not occur after 1 year of unprotected sexual intercourse. It affects about 10% to 15% of couples at reproductive age . This proportion is unlikely to decrease and even seems to increase.

Life-style factors (eg, diet, obesity, toxic habits, substance abuse, increased exposure to environmental toxins, and stress) all negatively influence the reproductive process. In addition, with increased public awareness of infertility and its treatment options, more and more couples are expected to visit infertility experts.**(Thonneau et al .,1991)** .

As fertility decreases with age, women who delay pregnancy may need some form of reproductive assistance (ie, assisted reproductive technology [ART]). ***(Rottendam ESHRE et al.,2003)***

Risk Factors

In the United States, about 10% of women between 15 – 44 years or about 6.1 million women have problems to have a pregnancy or carrying a baby to term.

1- Age

Women become less fertile as they get older. A woman's fertility peaks between the ages of 22 to 26, after which it starts to decline, with this decline being accelerated after age 35. However, the exact estimates of the chances of a woman to conceive after a certain age are not clear, with research giving different results. The chances of a couple to successfully conceive at an advanced age depend on many factors, such as the general health of a woman and the fertility of the male partner.

According to the National Institute for Health and Clinical Excellence, for women aged 35, about 94 out of every 100 who have regular unprotected sexual intercourse will get pregnant after 3 years of trying. For women aged 38, however, only 77 out of every 100 will do so. The age factor is important, as the day-specific probability of conception declines with age. **Dunson et al. (2002)** found that women's fertility begins to decline in the late 20s, with a substantial decrease by the late 30s, and that also, when other factors are corrected for, there is a decrease in male fertility from 30 years of age onwards.So some authers describe infertility as inability to conceive after unprotected intercourse following:

- 12 menstrual cycles or one year (women < 35 years)
- 6 menstrual cycles or six months (women $\geq$ 35 years)

2- Weight

Twelve percent of all infertility cases are a result of a woman either being underweight or overweight. Fat cells produce estrogen, in addition to the primary sex organs. Too much body fat causes production of too much estrogen and the body begins to react as if it is on birth control. Too little body fat causes insufficient production of estrogen and disruption of the menstrual cycle. Both under and overweight women have irregular cycles in which ovulation does not occur or is inadequate. Proper nutrition in early life is also a major factor for later fertility **(ASRM 2009)**.

Freizinger et al., (2008) indicated that approximately 20% of infertile women had a past or current eating disorder.

Obesity is also associated with polycystic ovarian syndrome (PCOS), an endocrine disorder that can cause infertility ***(Sharma et al., 2005)***.

3-Stress and Fertility

Neurotransmitters act as chemical messengers in the hypothalamus and control both reproductive and stress hormones. Very high levels of stress hormones can shut down menses. The role of stress on fertility or fertility treatments is not clear. **(Templeton et al., 2000)**

4- Smoking

Cigarette smoking has harmful effects on the ovaries and causes a decline in the number of eggs. Many studies reveal that cigarette smoking