RECENT ADVANCES IN DIAGNOSIS, MANIPULATIVE AND SURGICAL MANAGEMENT OF FEMALE INFERTILITY

ESSAY

Submitted in Partial Fulfilment of
Master Degree of Urology

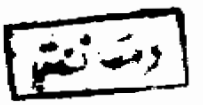
618.178
M.A

34266

By

Mohamed Ashraf Mostafa

M.B., B.Ch.



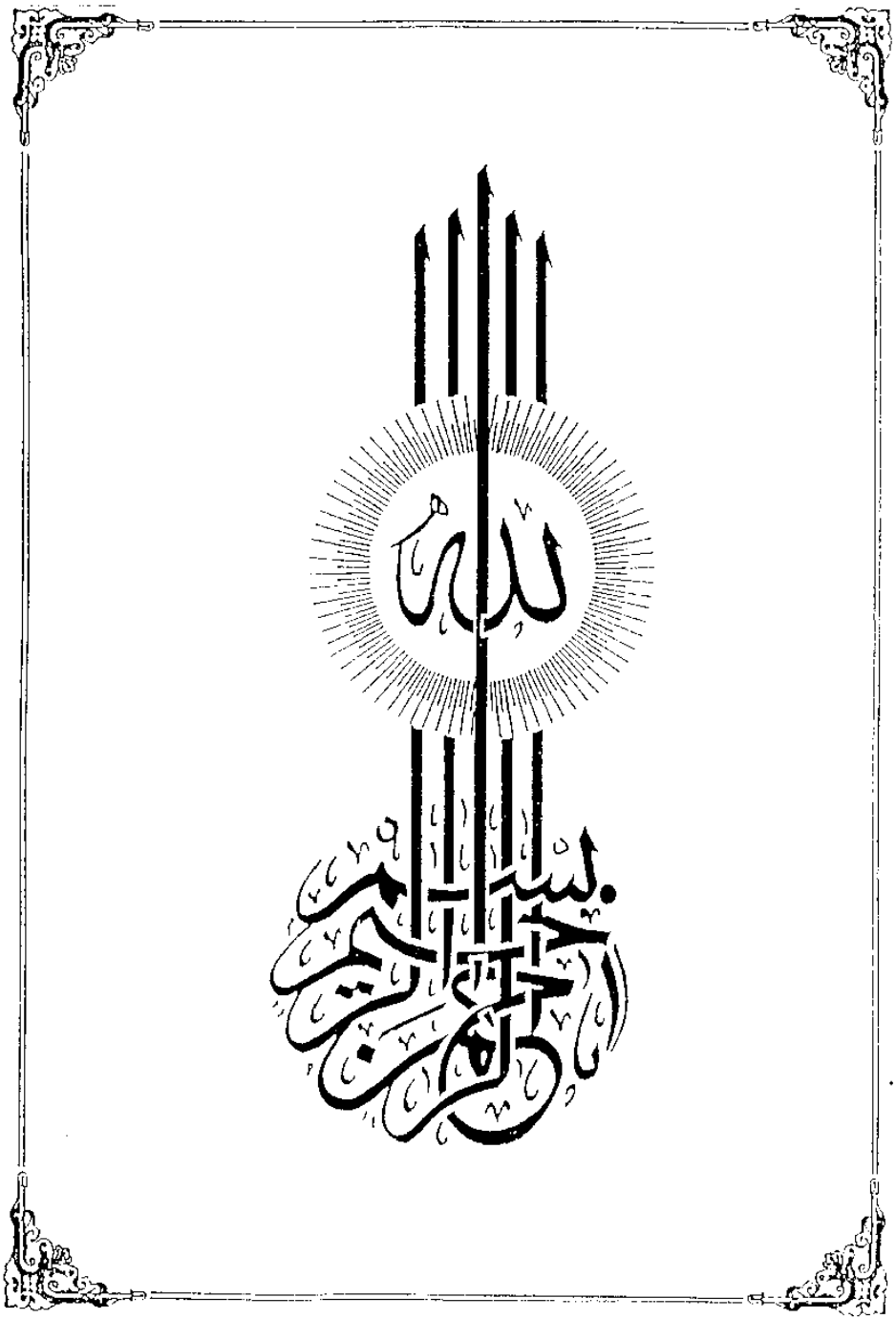
SUPERVISED BY

Dr. AWNY MOHAMED ATALLA

Professor of Urology
Faculty of Medicine , Ain Shams University

(1990)

ACKNOWLEDGMENT



Central Library - Ain Shams University

Acknowledgment

. It is a great honor for me that I take this opportunity to express my sincere appreciation and my deep respect to Dr. Awny Mohamed Atalla Professor of Urology Ain Shams University,for his supervision,encouragement and help throughout theaccomplishment of this work.His valuable advice and support are beyond acknowledgment.

Lastly my deepest gratitude and thanks to all those who contributedin any way to fulfil this achievement.

CONTENTS

Contents

Page

INTRODUCTION

Infertility is the inability to achieve pregnancy within a stipulated period of time, usually one year, or repeated failure to carry a pregnancy to term. Infertility is classified into primary and secondary subtypes. **Primary infertility** is a term used to designate those couples who have never concieved, whereas **secondary infertility** indicates that at least one conception has occurred for one or both, but that the couple is currently not able to achieve pregnancy *(Wentz , 1988)*.

Infertility affects approximately 10-15 % of couples which makes it an important components of the practices of many physicians *(Speroff et al. , 1989)*.

Progress in infertility has been dramatic during the past decade. Change occurred in virtually all aspects of infertility, providing innovative testing in the search for a diagnosis and sophisticated instrumentation for improved treatment, both leading to better pregnancy results *(Behraman and Patton , 1988)*.

Medically infertility is a unique condition in that two individuals must be considered. Because the male factors accounts for approximately 40% of infertility, the examination of the semen should be an early diagnostic step in the investigation, which if abnormal, further decisions are reached regarding the man. However, if normal, attension is directed to the woman *(Muasher , 1987)*.

CHAPTER 1

FEMALE FACTORS OF INFERTILITY

Female Factors Of Infertility

If a systemic investigation is completed, most of females will found to have a reason for infertility in one or more of the following areas :-

I- Ovulation factors :

Failure to ovulate may be the major problem in approximately 40 % of woman with infertility *(Speroff et al. ,1989)*.

The following may represent the underlying causes of anovulation :-

1- Primary cortical - hypothalamic (hypogonadotropic) dysfunction :-

This may be due to various causes such as :-

* Immature hypothalamic-pituitary-ovarian (HPO) axis.
* Stress.
* Anorexia nervosa.
* Psychiatric disorders.

2- Primary pituitary (hypogonadotropic) dysfunction :

Pituitary dysfunction may be due to the presence of a neoplasm, sheehan's syndrome or panhypopituitarism.

3- Global hypothalamic-pituitary-ovarian axis dysfunction :

A manifestation of this dysfunction is the polycystic ovary syndrome. In this case there is luteinizing hormone (LH) static secretion with absence of its normal cyslic changes. This is reflected in the ovary being cystic and ovulation is absent.

4- Hyperprolactinemia.

5- Hyperandrogenism.

6- General disorders such as uremia or liver cirrhosis.

7- Other endocrinal disorders as hypercortisolism, hyper- or hypothyroidism.

(Reiter & Buttram , 1985).

II- Tubal factors

For fertility to be achieved the fallopian tubes must be mobile, patent and with healthy mucosa. Disorders of the fallopian tubes are common contributing factors in female infertility with an incidence ranging from 25%-50%.

Tubal disease may result from the following :

1- Pelvic inflammatory disease and salpingitis which is by far the commonest cause.
2- Pelvic endometriosis.
3- Peritoneal adhesions that may result from previous pelvic surgery or previous appendectomy.
4- Intrauterine contraceptive devices.
5- Extrauterine pregnancy.
6- Neoplasms.

(Ansari , 1979).

III- Cervical factors

Adequate cervical mucus acts as a transport medium and repository for sperm. Ten percent or less of women with infertility have a cervical barrier to fertility*(Wentz, 1988)*.

Failure of the cervix to facilitate transmission of sperm may be because of :

1- **True cervical mucus hostility**, in which there is an optimal well-estrogenized mucus as well as some inherent factor in the mucus impairing sperm survival in the cervix. Many of these cases are attributable to immunological factors.
2- **Mechanical obstruction** of the cervical canal, which is usually iatrogenic following extensive cautery of the cervix or excessive core biopsy for cervical cell atypia or carcinoma in situ and following high amputation of the cervix in repair operations. Occasionally a polyp may obstruct the cervical canal.

3- **Suboptimal cervical mucus**; this may be due to poor follicular production of estrogen as a result of ovulatory dysfunction or due to failure of the cervix to respond to a normal endogenous or even augmented exogenous estrogen stimulation *(Elstein , 1981)*.

IV- Uterine or endometrial factors

The exact incidence of infertility caused by endometrial and structural uterine abnormalities is unknown, but it is thought to be about 5% to 10% *(March , 1986)*.

The following uterine disorders may account for infertility:-

1- Endometritis.

2- Intrauterine adhesions (Asherman's syndrome) which may follow dilatation and curretage, caeserian section or metroplasty.

3- The presence of local factors interfering with implantation such as endometrial polyps or submucus myomata.

4- Luteal phase inadequacy.

5- Congenital anomalies;the most important is septate uterus.

6- Diethylstilbestrol-related anomalies: women who had exposed to diethylstilbestrol (DES) while they were in utero often demonstrate a chrarcteristic uterine shadow on hysterosalpingography. Theuterus may appear T-shaped and smaller than normal with concavities along the lateral borders causing the cornua of the tube to have a bulbous appearance. This deformity may interfere with fertility *(March , 1986)*.

V- Peritoneal factors

The peritoneal factors include those physical or mechanical barrier to fertility occurring within the pelvis, most commonly due to peritubal adhesions or endometriosis *(Wentz , 1988)*.

VI- Additional factors

Additional factors that may be responsible for female infertility are :

A- Immunological factors

Antisperm antibodies have been implicated as a cause for infertility in both the male and the female and in the female may be found in the circulation as well as locally within the reproductive tract *(Witkin et al. , 1988 ,Coulam , 1985).*

B- Psychogenic and emotional factors

Although many authers have noted increased psychologic problems among infertile couples, few have provided evidence that these problems were a cause of infertility rather than a result of it. These circumstances, combined with the frustration and anxiety already experienced by the infertlie couple, creates a vicious circle that adversely affects the couple's interpersonal and sexual relationship. Emotional tension may also result in tubal spasm or ovulatory defects. It was revealed that catecholamines, prolactin, adrenal steriods, endorphins and serotonin all affect ovulation and in turn are affected by stress *(Seibel and Taymor, 1982).*

Regardless of whether psychogenic factors and emotional stress are cause or the result of the infertility problems, they deserve to be managed equally and in parallel with organic and functional causes of infertility *(Noghissi & Vallach, 1983).*

Unexplained Infertility

Unexplained infertility should only be diagnosed when the women has been shown to be ovulating regularly, to have patent fallopian tubes,no peri-tubal adhesions, fibroids or endometriosis and to have a sexual partner with normal sperm production. Intercourse must have take place regularly, specially around the time of ovulation, and the infertility must be at least of 2 years duration.

Incidence

An incidence of approximatlly 10 % is suggested but the overall incidence is declining as couples are subjected to more complete and intensive investigation before being labelled 'normal but infertile'.

Possible Causes of unexplained infertility

1- Abnormalities of follicular development, ovulation and fertilization.
   a) Abnormalities of the oocyte.
   b) Hormonal abnormalities in the follicular phase.
   c) Ovum entrapment (luteinized unruptured follicle).
   d) Abnormal fertilization.
   e) Abnormalities of the luteal phase.
2- Immunological factors: presence of antibodies to spermatozoa.
3- Occult infections with mycoplasma,ureaplasma or chlamydiae
4- Occult endometriosis.
5- Psychogenic and emotional factors.

CHAPTER 2

Basic Work Up of the Infertile Female