LAPAROSCOPIC PELVIC BIOPSY IN TUBAL INFERTILITY

THESIS

Submitted in Partial Fulfillment for the Master Degree in Gynaecology and Obstetrics

By

HELMY AHMED ABD-EL-AATI SALAH
M.B.B.Ch.
Ain shams University

Under Supervision of

Prof. Dr. M. EZZ EL DIN AZZAM
Prof. of Obstetrics & Gynaecology
Faculty of Medicine, Ain Shams University

Prof. Dr. MAHMOUD A.A. EL-SHORBAGY
Prof. of Obstetrics & gynaecology
Faculty of Medicine, Ain Shams University

Dr. ZEINAB A.K. SHEHAB EL DIN
Lecturer of Pathology
Faculty of Medicine, Ain Shams University.

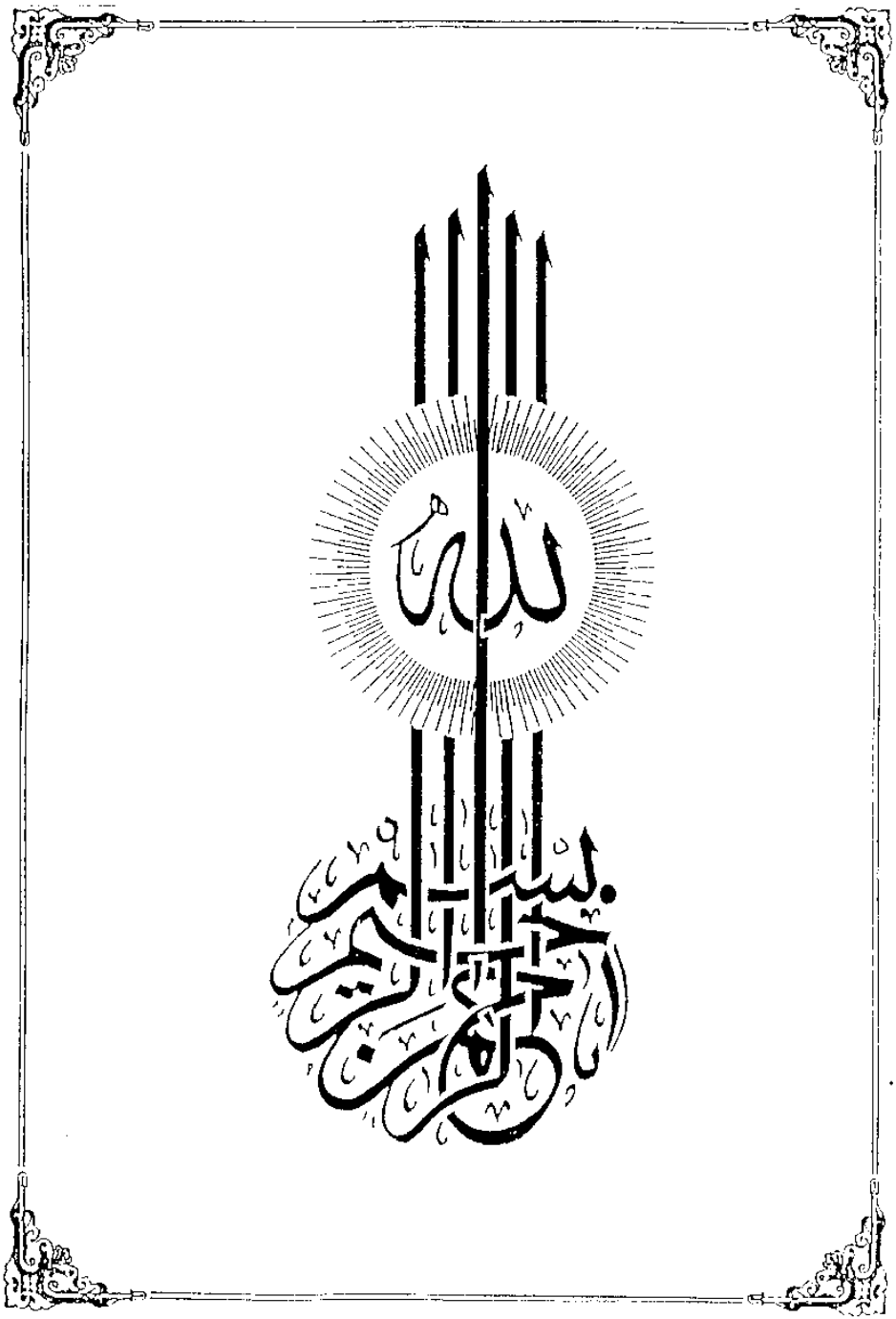
1991

بسم الله الرحمن الرحيم

" لله ملك السموات والأرض يخلق ما يشاء ، يهب لمن يشاء اناثاً ويهب لمن يشاء الذكور ، أو يزوجهم ذكراناً وإناثاً ويجعل من يشاء عقيماً ، إنه عليم قدير »

صدق الله العظيم

سورة الشورى (الايات ٤٩، ٥٠)



ACKNOWLEDGEMENT

I wish to take this opportunity to express my sincere appreciation to ***Professor Dr. Mohamed Ezz El Din Azzam,*** *Prof. of Obstetrics and Gynaecology, Faculty of Medicine, Ain Shams University, for his valuable guidence, encouragement, brilliant ideas and advices.*

I would like to express my sincere thanks and I'm greatly indebted to ***Professor Dr. Mahmoud Ali Ahmed El Shsorbagy,*** *Professor of Obstetrics and Gynaecology, Faculty of Medicine, Ain Shams University, for his kindness, cleverness. He supervised this work and reviewed it several times with patience for the final production of this work.*

Also my profound gratitude to ***Dr. Zeinab Abd El Kader Shehab El Din,*** *Lecturer of pathology, Faculty of Medicine, Ain Shams University for her honest assistance to carry out this work.*

CONTENTS

INTRODUCTION AND AIM OF THE WORK

INTRODUCTION

Infertility is the complaint of approximately 10% of couples, which makes it one of the most common problems for which people seek medical advice. Infertility is, usually, defined as the inability to conceive after one year of regular marital life without use of contraception. It is estimated that the male factor is implicated in 25-40% of infertility problems.

Failure of ovulation accounts for 10-15%, cervical factor accounts for 5%, tubal factor accounts for 30-40%, the uterine factor accounts for 5%, and in the remaining 10-20% of infertile couples, there is no apparant cause for the infertility. (Speroff et al., 1981a).

Regards the causes of infertility, the tubopelvic factor, nowadays, represents the commonest cause, this is largely due to increase in sexually transmitted disease, particularly, which cause PID, such as chlamydial and gonococcal infection. These infections are the causative organisms in about 80% of PID. (Westrom, 1984).

In developing counteries and particularly in rural areas, where bilharzial and tuberculous infections are common, the tubopelvic factor may be related to those infections.

Laparoscopy should be regarded as a complementary part in infertility investigations.

The ability to see and manipulate the fallopian tubes during diagnostic procedures, has made laparoscopy an essential part in

the evaluation of the infertile women. The diagnosis of unexplained infertility can not be made unless the pelvis has been visualized by the laparoscope. (Gomel, 1983).

AIM OF WORK

The aim of this work, is to detect types of pathological lesions in primary infertile women with tubopelvic factors in rural areas where infection of the female genital tract is common.

Laparoscopy will be used to evaluate and grade the tubopelvic lesions and a biopsy will be taken for histopathological examination.

REVIEW OF LITERATURE

ANATOMY AND PHYSIOLOGY OF FALLOPIAN TUBE

Tubal Anatomy:

The human oviduct is a tubular, seromuscular organ attached distally to the ovary and proximally to the lateral aspect of the uterine fundus and supported throughout its length by the mesosalpinx.

Although the length of the fallopian tube may vary considerably among individuals, it averages 11-12 cm. Based on morphologic and anatomic difference, the oviduct may be divided into four segments:

1. **Infundibulum:** The infundibulum is the distal portion of the oviduct, ending in multiple fimbrial folds, finger like in appearance. The fimbrial folds surround the abdominal ostium of the tube. one of these fimbriae is longer than the others and extends to, and partly embraces, the ovary and is called fimbria ovarcia. The infundibulum is thin walled, its diameter exceeds 1 cm and its length is approximatelly 1 cm. The fimbrial epithelium is densely ciliated, in normal fertile women (Brosen and Vasquez. 1976).

2. **Ampulla:** The ampulla is the longest portion of the oviduct. averaging 5-8 cm in length and its diameter varies from 1 to 2 mm at its junction with the isthmus. The mucosa is densely ciliated and thrown into complex longitudinal folds.

3. **Isthmus:** The isthmus is the most proximal portion of the extra-uterine oviduct and extends from the ampulla to the uterus.

Its average length is 2-3 cm with very narrow lumen ranging from 0.1-1.0 mm in diameter. It is thick walled as it contains the heaviest musculature of any portion of the extrauterine oviduct. The isthmus is thought to be important in regulating both passage of spermatozoa into the ampulla and entrance of the developing embryo into the uterus, (Eddy and Paurstein, 1980).

Generally, the fertilization occurs at the ampullary isthmic junction of the tube, (Diamond, 1977).

4. **Intramural segment:** This segment traverses the myometrium and emerges at the uterine cornu just above the utero-ovarian ligament. This segment has a very narrow lumen, it is convoluted in its course through the myometrium, and angulates acutely on entering the endometrial cavity. It has been considered to function as a sphincter which regulates passage of gametes between the uterus and oviduct, (Eddy and Paurstein, 1980). It almost remains patent in cases of isthmic cornual obstruction after infectious disease, (Diamond, 1977).

The wall of the fallopian tube has three basic layers: serous, muscular and mucosal. The serous or outer layer is an extension of the broad ligament peritonium, enveloping the tube and forming the mesosalpinx at the lower border. Blood vessels and nerves occupy this layer. The muscular layer consists of an outer longitudinal fibres (an extension of the myometrium), middle circular fibres and an inner layer of fibres arranged into the lamina propria. The mucosal or inner layer of the tube is convoluted with its fold increasing in number from three or four in the interstitial

segment to an intricate arboreal pattern in the ampulla. Mucosal epithelium consists of three types of cells: Ciliated or non sceretory, non ciliated or secretory, and interciliary or peg cells. An additional cell type has been identified and termed wandering cells, (Diamond, 1977).

Such wandering cells are reported to lie at the base of the epithelial layer, more active than other cells and are the reserve cells that give rise to other epithelial elements (Woodruff and pauerstein, 1969).

Blood supply:

The vascular supply of the tube is derived from uterine and ovarian arteries which together supply arcades of vessels along the length of the oviduct. Generally, branches of uterine artery supply the isthmus and proximal ampulla, while branches of ovarian artery supply the remainder of the fallopian tube. The venous drainge follows the arterial supply.

The well developed collateral blood supply to the oviduct assures adequate perfusion of the tube. The lymph vessels of the tube drain into the aortic or lumber lymph nodes.

The lymphatics of the tube follow the course of the ovarian and uterine lymphatic drainage. Three separate lymphatic network drain the mucosa, muscularis and serosa respectively (Eddy and Paurestein, 1980).

Nerve supply:

The anatomic innervation of the tube is both sympathetic and parasympathetic. The distribution pattern of extrinsic tubal adrenergic nerves is composed of "long post-ganglionic fibres arising distally from hypogastric, coeliac and pelvic ganglia, and of short neurones originating in the proximal ganglia located in the cervico-vaginal

region, (El Bodawi and Schenk, 1968).

Adrenergic innervation is prominent in the circular musculature of the isthmus and at the ampullary isthmic region. The dense adrenergic innervation permits the isthmus to act as physiologic sphincter. Recently, there is evidence to suggest a role of the adrenergic innervation in the regulation of the ovum transport in any species, (Eddy and Pauerstein. 1980).

The parasympathetic supply to the tube is dual.

The distal portion of the tube is supplied by vagal fibres from the ovarian plexus. The sacral parasympathetic fibres derived from S_2, S_3 and S_4, are conveyed to terminal ganglia of pelvic plexuses. From the ganglia, short post-ganglionic fibres supply the interstitial portion of the isthmus. The sympathetic and parasympathetic nerves of the fallopian tubes accompany the ovarian vessels and come directly from the preaortic plexus. They are both motor and sensory. The segmental supply is D_{11} or D_{12}, the fallopian tube is sensitive to cutting, crushing and touching (Jeffcoate, 1975).

Tubal fluid:

The tubal fluid is composed of serum, transudate and specific secretion containing some unique proteins, and is regulated quantitatively and qualitatively by prevailing balance of ovarian hormons. The egg is suspended in fluid formed by secretory cells of tubal epithelium, which is also the medium for capacitation of sperm and maturation of the morula.

Egg Transport:

Egg transport encompasses the period of time from ovulation to the entery of egg into the uterus.

Laparoscopic observations suggest that usually in the process of ovum pick up, the fimbriated end of the tube sweeps over the ovary in order to pick up the ovum, and entery of the egg into the tube is facilitated by muscular movements, that bring the fimbriae in contact with the surface of the ovary (Sharma et al., 1987). The human egg reaches the ampullary isthmic junction 30 hours or more after its discharge from the ovary (Croxatto et al., 1980).

The egg remains in the vicinity of the ampullary isthmic junction for much of its tubal sojourn because of contraction or spasm of muscle fibres, (Hefez, 1979).

Sperm transport:

The distribution of sperm along the female genital tract describes a concentration gradient from the site of insemination to the tubal ampulla, (Eddy and Pauerstein, 1980).

Surprisingly, however, spermatozoa reach the oviduct much faster than their own speed would allow (Gomel, 1983).

Of the millions of spermatozoa deposited in the vagina, only a minute percentage reach the uterine cavity. uterine contractions, perhaps enhanced by prostglandins present in seminal plasma, may hasten the transport of uterine contents towards the oviduct. The uterotubal junction and the interstitial oviduct act as a selective trap through which only a few sperms enter the isthmus, (Blandau, 1978).