Ain Shams University - Faculty of Medicine
Department of Obstetrics & Gynecology

Essay on

"Ectopic Pregnancy"

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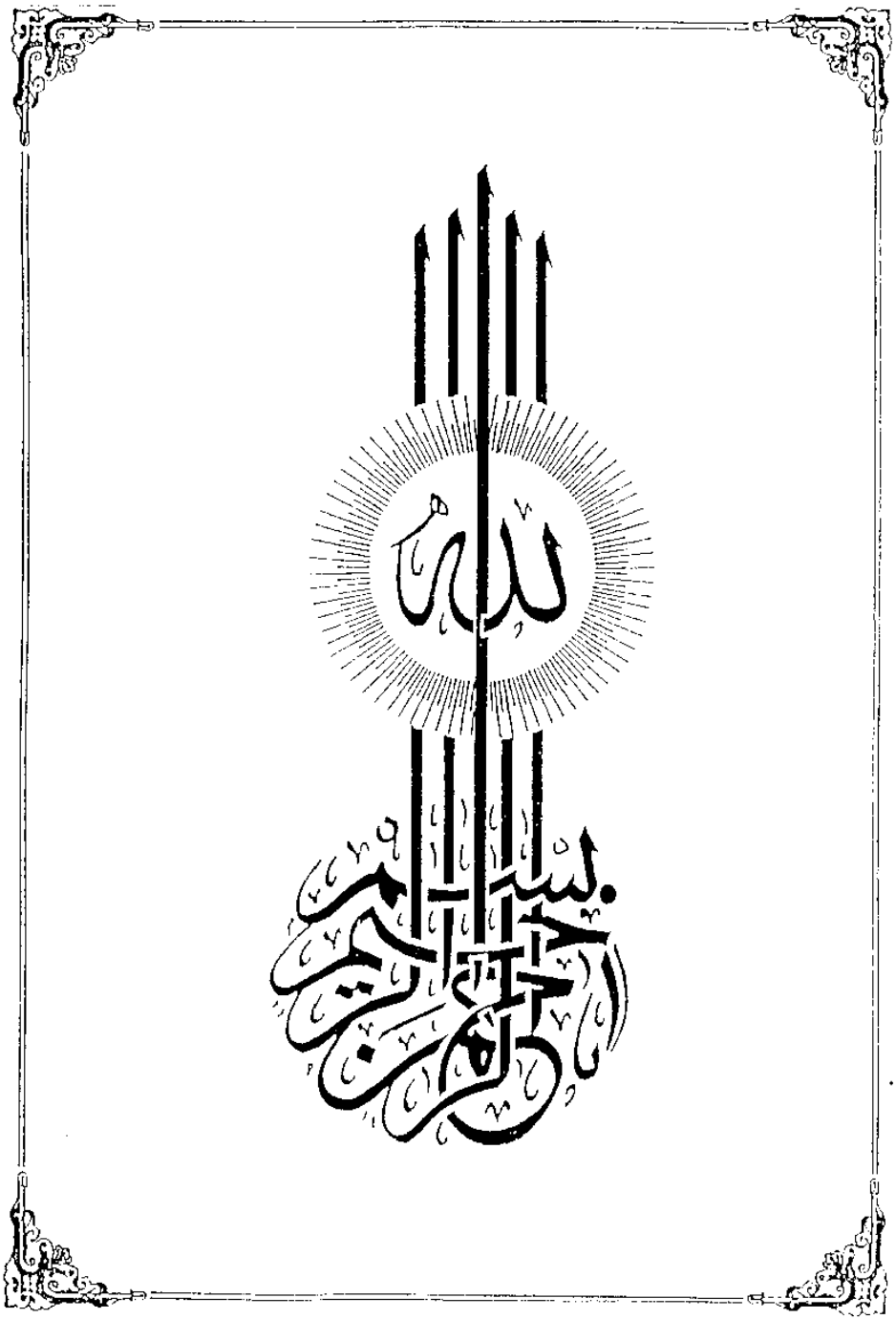

INTRODUCTION

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Ectopic pregnancy (EP) is an unmitigated disaster of reproduction. The reproductive loss associated with this failure of proper nidation has increased steadily for the past 15 years allover the world. The risk of death from an extrauterine pregnancy is 10 times greater than that from a vaginal delivery and 50 times greater than that from an induced abortion *(Dorfman, 1983).*

It has been suggested that changes in contraceptive patterns e.g., an increased use of copper Intra uterine contraceptive devices (IUCDs), an increased rate of legal abortions and pelvic inflammatory diseases, might have contributed to the high incidence of EP in most western countries during the last decade. To reduce a further increase in the rate of EP with its negative impact on fertility, primary preventive measures based on epidemiologic studies seem to be of utmost importance *(Dorfman, 1982).*

The obstetric prognosis after an EP is still very poor and only about one third of the women operated upon will have a live birth. More than 50% will subsequently be unable to conceive. Efforts to diagnose EP at an early stage include improved ultrasound techniques and assays for human chorionic gonadotropin (HCG). The surgical strategy has

changed towards more conservative management. These efforts imply better preservation of the Fallopian tube, but it is not clear to what extent modern management results in an improved future fertility *(Thorburn, et al, 1988).*

AIM OF THE ESSAY

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We are aiming to make a review on ectopic pregnancy especially tubal pregnancy, as regards anatomy of the tubes (in short). Definition and incidence, mortality, etiology, pathology, natural history of tubal pregnancy, diagnosis including clinical picture and investigations (laboratory, laparoscopy, curettage, culdocentesis...) methods of treatment (surgical and medical), prognosis and fertility outcome. Other types and sites of ectopic pregnancy as: cornual pregnancy, abdominal, cervical, broad ligamentary, rudimentary horn, ovarian and vaginal pregnancy.

A protocol for management of a case of EP in Ain Shams University Hospital.

REVIEW OF LITERATURE

Anatomy of Fallopian Tubes

The two tubes are oviducts which extend from the ovaries to the cornua of the uterus, one on either side. They are somewhat tortuous and their outer parts curve backwards. Each lies in the free upper border of the broad ligament and when straightened, is 10 cm in length. Its lumen communicates with the uterine cavity at its inner end, and with the peritoneal cavity at its outer end, so it provides an open, or potentially open canal between the exterior and the abdominal cavity.

The tube is divided into, four parts:

- Interstitial or intramural part which traverses the uterine wall, 1-2 cm in length, with very narrow lumen and has no peritoneal coat.
- Isthmus, this is a straight and narrow portion adjacent to the uterus, 2-3 cm in length, has thick walls and narrow lumen.
- Ampulla, it is a wider, thin-walled and tortuous outer portion, 5 cm in length, and leads to the infudibulum which is the trumpet - shaped outer end with an opening into the peritoneal cavity, which is surrounded by fimbriae, the longest of them is directed towards the ovary (fimbria ovarica). The fimfriated extremity is free of the broad ligament and curls back on itself so that the fimbriae embrace the ovary. The extrauterine part of Fallopian tube is covered with peritoneum. Beneath this are an

outer longitudinal layer and an inner circular layer of involuntary muscle. The muscle zone is thick at the isthmus and thin at the ampulla.

The mucous membrane is arranged in the interstitial and isthmic portions of the tube in four or five longitudinal ridges, which develop subsidiary folds or plicae to form a very complicated arborescence in the ampullary portion. It is lined by columnar ciliated epithelium. The cilia with the peristaltic action of the muscle, propel the ovum towards the uterus. Other epithelial cells have secretory function of a serous fluid rich in protein for nutrition of the fertilized ovum. Superiorly above the tubes lie coils of intestine and omentum, with the appendix and caecum on the right side and the pelvic colon on the left side. Inferiorly the broad ligament with its contents, and particularly the mesosalpinx with the epoophoron, paroophoron and Gartner's duct lie below. So do the ovary and mesovarium but on a more posterior plane. Posteriorly, the ovaries and uterorectal pouch with its contents. Anteriorly lie the top of the urinary bladder and the uterovesical pouch. Laterally, the lateral pelvic wall with the structures thereon. (Fig. 1)

Blood supply of the tube is through branches from the uterine and ovarian arteries anastomosing in the mesosalpinx. Lymphatic drainage of the tube is in part with the fundus of the uterus but mainly with the ovary, accompaning the ovarian vessels to reach the aortic lymph nodes *(Tindall, 1987).*

Fig. (1): [General appearance of pelvic viscera] (Quoted from a colour atlas of Gynecologic surgery Vol. 2).

Ectopic Pregnancy

Definition and Incidence:

An "ectopic pregnancy" is one in which the fertilized ovum implants on any tissue other than the mucous membrane lining of the uterine cavity *(Cartwright, 1988).* The incidence of EP is once in every 300-1000 deliveries after the twenty-eighth week, but it varies from place to place even in the same country *(Tindall, 1987).*

Marked increase in both absolute number and the rate of ectopic pregnancies has been documented in the United States in the past two decades. It was more than four times incrase from 17,900 in 1970 to 78,400 in 1985 *(Cunningham et al, 1989).* These numbers are not totally accurate because an unknown number of ectopic pregnancies resolve spontaneously and thus are undiagnosed. Incidence of EP is increased in non white comapred to white women, and also increases by age increase *(Stock, 1988).*

(Tuomivaara et al, 1986) reported the reasons for this internationally observed increase in EP including: increased prevalence of sexually transmitted tubal infections that damage tubal mucosa but not so severely as to cause complete occlusion. Besides the popularity of

contraception that prevent intrauterine but not extrauterine pregnancies, especially IUCDs and possibly low-dose progestational agents. Unsuccessful tubal sterilizations, induced abortion followed by infection, fertility induced by ovulatory agents, previous pelvic surgery especially tubal operations and tuboplasty, exposure to stilbestrol in utero. In addition to better and earlier diagnostic techniques *(Cunningham et al, 1989).*

(Hamilton et al, 1992) found that 5% of all clinical pregnancies after in vitro fertilization and embryo transfer (IVF/ET) result in ectopic pregnancies.

Mortality:

EP is now the second leading cause of maternal mortality in USA *(Cunningham et al, 1989)* in which 0.5 death per 1000 EP were recorded during 1983, and nearly half of these women did not present with the classic triad of pain, bleeding, and an adnexal mass *(O'Connor & Kurman, 1988).* Deaths from EP in USA decrased from 63 women in 1970 to 46 in 1980 and 35 in 1983. Unfortunately the percentage of all maternal deaths attributed to EP increased from 8% in 1970 to 14.7% in 1982 *(Atrash et al, 1987).* The dramatic decrease in the death-to-case rate from 3.5 per 1000 women in 1970 to 0.5 per 1000 women in 1983 is due most probably to improved diagnosis and tratment *(Dorfman et al, 1984).*

Although the incidence of EP between 1970 and 1983 increased four folds, the risk of death from EP declined by 85% due to improved diagnostic technology, management and care. With the advent of conservative surgery and the emphasis on early diagnosis, increased awareness of this condition may be an important factor in reducing the morbidity and mortality of EP *(Rock, 1990)*.