PELVIC INFLAMMATORY DISEASE AMONG INTRAUTERINE DEVICE USERS

A Review

Presented to the

FACULTY OF MEDICINE

AIN SHAMS UNIVERSITY

IN PARTIAL FULFILMENT

FOR THE MASTER DEGREE IN

(OBSTETRICS & GYNAECOLOGY)

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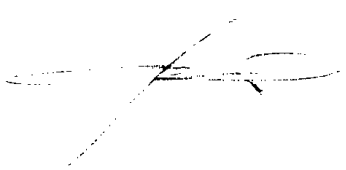

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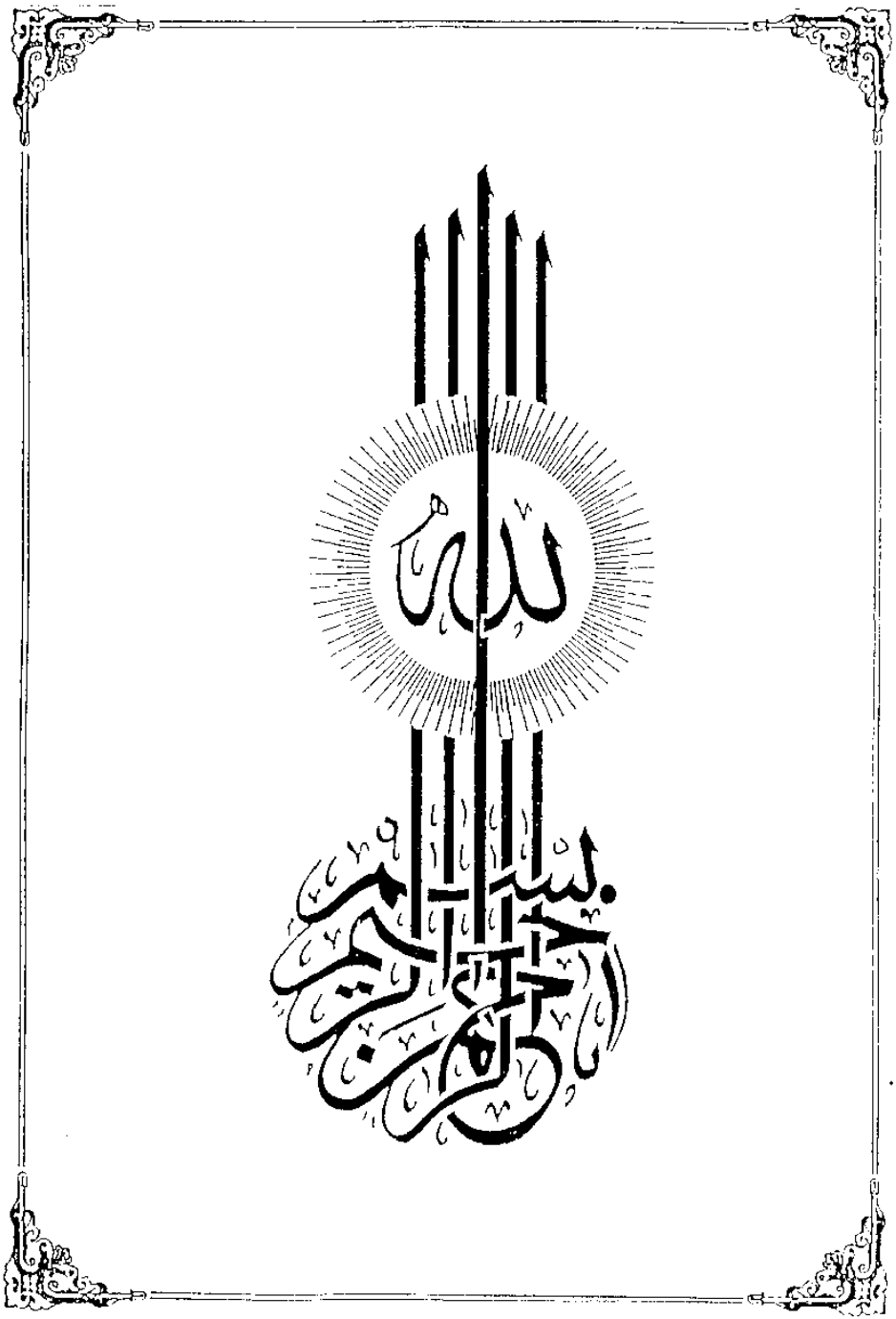

C O N T E N T S

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INTRODUCTION AND AIM OF THE WORK

Intrauterine contraceptive devices are commonly used in family planning programms all over the world.

One of the serious complications of intrauterine device use is pelvic inflammatory disease which necessitates modification in their current way of use.

The aim of this work is to revise the available literatures dealing with pelvic inflammatory disease in intrauterine device users, to study the predisposing factors, pathogenesis and complication and to outline the diagnostic and preventive measures and the possible treatment for this type of infection.

Recommendations for the ideal way to decrease the incidence of pelvic inflammatory disease in intrauterine device users and recommendations for further practical research will be proposed.

INTRAUTERINE DEVICES

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[] History:

Intrauterine devices as a method of contraception has passed through several stages of development.

Southam (1965) reported that in the human the use of contraceptive pessaries . was reported in the eleventh century by the islamic scientist Avicenna. During the late nineteenth century stem pessaries were in use. They were technically not intrauterine devices since they did not rest entirely within the uterine cavity. The bulk of the device remained in the vagina while the stem extended through the cervical canal and protruded into the uterine cavity.

Richter (1909) developed a new device. It was ring shaped and made of silk worm gut. **Pust (1923)** reported that the silk worm threads were also incorporated in a cervicouterine device developed in 1923 by K.Pust who combined the silk worm ring with the other stem pessary.

Siddle (1924) reported that Pust distributed his intrauterine device to other physicians but many refused to use it on the ground that such device would produce pelvic infection. **Grafenberg (1931)**

reported that the first intrauterine device to be widely used was a ring of gut and silver wire developed by Ernest Gräfenberg. He added that this device became popular in Germany in the late 1920s. **Ota,(1934)** reported that he introduced gold and gold plated silver intrauterine rings.

Tietze and Lewit (1962) reported that a period came when intrauterine devices were prohibited because of the fear of pelvic infection before the development of antibiotics till late in 1950s when reappraisal of intrauterine devices have been instituted. They added that the Population Council convened the first international conference on intrauterine devices in New York in 1962.

Lippes (1962) reported that in addition to advances in antibiotic therapy at that time, the development of polyethylene, a biologically inert plastic that could be moulded into any desired configuration was the crucial point to the acceptance of intrauterine devices. He added that the Margulis coil and the Lippes loop were the first widely used plastic intrauterine devices. Jack Lippes of the United States added a transcervical thread to assist in

detecting and removing the device and a small amount of barium sulphate to render the device opaque to X-rays.

Segal et al (1965) reported that the Population Council established the Cooperative Statistical Program to undertake a broad evaluation of intrauterine devices and, in 1964 held a second conference.

Hefnawi and Segal (1975) reported that by the mid 1970 two major reviews of intrauterine device development took place, a workshop sponsored by the Battle Memorial Institute in Seattle in October 1973 and a third international conference sponsored by the Population Council in Cairo in December 1974. At both session the focus of attension on intrauterine devices was shifting to the so-called second generation of devices. These were the bioactive or medicated devices in which the plastic intrauterine device became a carrier for other substances such as metals, hormones or antibleeding agents.

Zipper et al (1969) reported that the first medicated devices were developed by Jaime Zipper and Howard Tatum in which copper wire was wrapped around the T or 7 devices, which had a relatively

small surface area to improve their contraceptive efficacy. They added that shortly thereafter, hormones as progesterone were incorporated in various devices to deliver some of the steroids which have proved effective in oral contraceptive pills directly to the uterus. Somewhat later other compounds designed to reduce the heavy menstrual bleeding associated with intrauterine device use were also incorporated.

Classification of intrauterine devices:

Intrauterine devices have been designed in a variety of shapes and sizes and of different materials including plastics, metals and combination thereof. **Lippes (1982)** reported that devices are classified as open or closed depending upon geometric configurations. Geometric forms include spirals, rings, loops, bows, the shape of a 7 or T **Lippes (1982) and Tatum (1982)** reported that they are also classifed as inert devices or medicated carrying drugs as copper or progesterone. Inert closed devices include Grafenberg ring and Ota ring. Inert open or linear devices include Lippes loop and Saf-T-Coil. While medicated devices may be either copper bearing devices as copper T, copper 7 and multiload devices, progesterone releasing devices such as progestasert devices and Norgestrel (experimental)

or devices designed to inhibit bleeding and medicated with antifibrinolytic agents as trasylol or prostaglandin inhibitors as mefenamic acid and tolfenamic acid.

Lippes (1982) reported that closed devices are no longer used in western counteries.

Complications and side effects of intrauterine device use:

As a method of contraception intrauterine devices have some side effects and complications. Berthet and Racinet (1980) divided them into side effects and complication during insertion or after the insertion of the intrauterine device.

(A) During the insertion:

Berthet and Racinet (1980) and Tatum (1982) reported that during insertion of the intrauterine device syncope or vasovagal reactions such as nausea and bradycardia may occur. They added that also immediate perforation may occur and it is usually transfundal and consist of intraperitoneal placement of the intra-uterine device.

(B) After the insertion of the intrauterine device:

(1) Spotting and bleeding:

Hatcher et al (1984) reported that 15 per cent of women will have their intrauterine devices removed because of bleeding or spotting. They added that bleeding is often heavier for women with intrauterine devices. They reported that patients may experience more days of bleeding, persistant bleeding or spotting between periods. **Lippes (1982)** reported that if bleeding is more than 80 millitiers per cycle after the first two months after insertion, intrauterine device removal is recommended.

(2) Cramping and pain:

Hatcher et al (1984) reported that cramping and pain is a very common complication of intrauterine device use. It may be due to sounding the uterus during the process of insertion, partial expulsion of the intrauterine device, too large an intrauterine device, spontaneous abortion, ectopic pregnancy or pelvic inflammatory disease.

(3) Expulsion:

Tietze and Lewit (1970) reported that intrauterine device expulsion rate in most large studies ranges

from 5 to 20 per 100 women at one year. He added that expulsion declines with the age of the user, among multiparous women occur more frequent 4-8 weeks postpartum or insertion in the first 17 days after the menstrual period.

(4) Lost intrauterine device threads:

Hatcher et al (1984) reported that lost intrauterine strings may be due that the patient could not feel it, pregnancy, perforation or retraction of the threads.

(5) Difficult removal:

Hatcher et al (1984) reported that difficult removal may be due to the sharp angle of the copper,7 device which must be drawn through the internal cervical os or embedding of the intrauterine device in the endometrium after prolonged use.

(6) Pregnancy:

Hatcher et al (1984) reported that approximately one third of intrauterine device related pregnancies result from undetected partial or complete expulsion but pregnancy may occur even if the device is in utero.

Lippes (1982) reported that 50 per cent of cases will terminate in spontaneous abortion and that pregnancy which continue into the second trimester with an intrauterine device in utero may develop sepsis. They added that pregnancy is suspected when the patient misses a menses, has nausea or feels breast fullness.

(8) Ectopic pregnancy:

Hatcher et al (1984) reported that 5 per cent of pregnancies with intrauterine device in place are ectopic.

(9) Pelvic inflammatory disease:

Pelvic inflammatory disease in intrauterine device user will be discussed in details.

Intrauterine device alterations after insertion

Gupta (1982) reported that degenerative changes occur on the surface of both plain plastic and copper-cald intrauterine devices. These changes are progressive and increase with the increasing duration of the intrauterine device in the uterine cavity. The surface of the intrauterine device instead of being smooth and glistening becomes irregular and cobblestoned with large irregular calcium, iron and protein compound deposits. **Gupta (1982)** added that non-refractile, coated plastic or metal fragments may occur as 50 um to 200 um flakes which are generally brown or brownish black with dense centers. These fragments often have an acute and chronic inflammatory response around them. Occasionaly a foreign body giant cell reaction with histiocytic proliferation may be observed.

Nilsson et al (1981) in their study of bacterial cultures from intrauterine devices removed from patients with suspected pelvic inflammatory disease, an association between positive cultures of beta haemolytic streptococci and Escherchia coli and pelvic inflammatory disease was found. Positive cultures of Neisseria gonorrhea were significantly correlated with pelvic inflammatory