PROSPECTIVE STUDY OF EFFECT OF INTRAUTERINE COPPER CONTRACEPTIVE DEVICE DURING AND AFTER CAESAREAN SECTION

Thesis

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By

Ahmed Issam El-Saeid Moustafa

MB, B.Ch. Al-Azhar University, 2009

Obstetrics and gynecology resident, Dar El-Shefaa Hospital

Supervised By

Professor / Yahya Abd El-Salam Wafa

Professor and head of Gynecology and obstetrics department

Al-Azhar University, Faculty of Medicine

Professor / Ashraf Abd El-Mawgood Atia Moawad

Professor of Gynecology and obstetrics

Al-Azhar University, Faculty of Medicine

Faculty of medicine

Al-Azhar University

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تحت إشراف

ا.د. يحيى عبد السلام وفا

أستاذ أمراض النساء والتوليد
كلية الطب - جامعة الأزهر

ا.د. أشرف عبد الموجود معوض

أستاذ أمراض النساء والتوليد
كلية الطب - جامعة الأزهر

كلية الطب
جامعة الأزهر
٢٠١٣

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2D US	Two-dimensional Ultrasound
3D PD	3D Power-Doppler ultrasound
3D-US	Three-Dimensional Ultrasonography
4-D	Four-Dimensional
ACOG	American College of Obstetricians and Gynecologists
CDR	Caesarean Delivery Rate
CPD	Cephalopelvic disproportion
CS	Caesarean Section
CTG	Cardiotocography
ERCD	Elective Repeat Caesarean Delivery
FDA	Food and Drug Administration
FI	Flow Index
IPP	Immediate Postplacental
IPPI	Immediate Postplacental Insertion
IUC	Intrauterine Contraception
IUCD	Intrauterine Contraceptive Device

MRSE	Methicillin-Resistant Staphylococcus Epidermidis
NSAIDS	Non-Steroidal Anti-Inflammatory Drugs
PID	Pelvic Inflammatory Diseases
PVC	Polyvinyl Chloride
RCA	Royal College of Anaesthetists
RCOG	Royal College Of Obestetricians and gynaecologists
RCT	Randomized Controlled Trial
STDs	Sexually-Transmitted Diseases
TA	TransAbdominal
TV	TransVaginal
US	Ultrasonography
VBAC	Vaginal Birth After Caesarean
VFI	Vascular-Flow Index
VI	Vascularization Index
WHO	World Health Organization

Introduction

Each year, more than 100 million women make decisions about beginning contraception after child birth. Proper family planning programs and adequate methods of contraception are important tools to avoid many problems in our world **(Shaamash et al., 2005)**.

Contraception, socially recognized and accepted only in the last 30 years, is both an essential and complicated part of modern life. Contraception has separated sex from procreation and has provided couples greater control and enjoyment of their lives. It is critical element in limiting population, thus preserving our planet's resources and maintaining quality of life for ourselves and our children. Contraception is both personal and a social responsibility. This could not be achieved by the simple contraceptive methods employed before the late 20^{th} century. Greater effectiveness and ease of use required more complicated methods, associated with greater consequences to our health **(Speroff and Darney, 2005)**.

Intrauterine contraceptive device (IUCD) is the most widely used method of reversible fertility regulation in the world. Over 100 million women worldwide use it for contraception. Many cultures have addressed the need for successful fertility regulation by expanding IUCD. Intra uterine contraceptive device is one of the most popular methods of contraception in Europe and Latin America, ranging from 10% to 30% of women contraception. In Cuba, Egypt, and North Korea, IUCD use accounts for more than 50% of contraceptive use. In China, 83% of

married women use contraception, and 36% of these use IUCDs **(Population Reports, 2007).**

The postpartum period is an ideal time to begin contraception, as women are more highly motivated to adopt contraception at this time and it is convenient for both patients and service providers. For intrauterine device contraception (IUCD), this period offers other advantages, such as ease of insertion and minimal adverse impacts on breast feeding **(Trussell J., 2004).**

In the middle 1960s, postpartum IUCD insertion was one of the contraceptive measures evaluated by the Population Council and other groups. Among early studies, most postpartum insertions were performed at any time from a few hours to seven days or more after delivery, and retention of the IUCD in the uterus was poor.

Since the 1970s, immediate post-placental insertion (IPPI), i.e. IUCD insertion performed within 10 minutes after placental delivery, has been advocated, and fairly low expulsion rates have been reported **(Xu et al., 1996).**

Immediate post-placental placement of intrauterine contraceptive devices (IUCDs) provides women effective, long-term and reversible contraception that is convenient at a time in their lives when they face considerable demands on their time, unusually high levels of stress and significant disruptions in their usual routines. Previous trials of IUCD placement at the time of Caesarean section have demonstrated high levels of device retention and low levels of complications **(Muller et al., 2005).**

Although there is extensive literature, particularly from China in the 1980s and 1990s, of intra-operative placement of IUCDs at the time of Caesarean delivery, more recent experience (especially in the United States) has been limited. A cochrane analysis found that the risk of expulsion associated with IUCD placed at the time of Caesarean section was significantly lower than the expulsion rates seen with transvaginal placement of IUCDs immediately following vaginal delivery of the fetus and placenta **(Xu et al., 1996).**

Compared with other contraceptive methods, early postpartum IUCD insertion has several advantages. It provides protection against pregnancy without interfering with breastfeeding **(Grimes D., 2001)**. Moreover, early insertion of an IUCD may avoid discomfort related to insertion **(Xu et al., 1996)**.

Caesarean delivery is defined as the birth of a fetus through incisions in the abdominal wall (laparotomy) and the uterine wall (hysterotomy). This definition does not include removal of the fetus from the abdominal cavity in the case of rupture of the uterus or in the case of an abdominal pregnancy **(Cunningham et al., 2010)**.

Aim of the work

1 - to review a literature about Insertion of intrauterine contraceptive devices during Caesarean section

2 - to assess the efficacy, safety, convenience and complications of copper IUCD inserted immediately after delivery of the placenta during lower segment caesarian section.

Intrauterine device

The Intrauterine Device (IUD) is the most widely used reversible form of contraception in the world **(Nelson et al., 2006)**.

Historical overview

A frequently told, but not well-documented story, assigns the first use of IUD to caravan drivers who allegedly used intrauterine stones to prevent pregnancies in their camels during long journeys **(Speroff and Darney, 2005)**.

The first IUDs for women were developed in nineteenth century in Germany as variation of vaginal pessaries. **(Huber et al., 1975)**. They were multipurpose devices that only indirectly acted as contraceptives **(Tatum et al., 1996)**.

In 1902, a pessary that extends into the uterus was developed by *Hollweg* in Germany and used for contraception. In 1909, Richter succeeded to introduce a silkworm catgut ring with a nickel and bronze wire protruding through cervical os **(Richter, 1909)**.

Given that these devices were used by women during the world war before antibiotics or non steroidal anti-inflammatory drugs, their use quickly became associated with serious infections and significant patient discomfort. These side effects created such an enduring negative image for IUDs that when *Grafenberg* introduced the first IUD in the 1920s; it was generally rejected by the medical community.

The *Grafenberg ring* was tailless device composed of German silver an alloy of copper, nickel, and zinc. Because of its extreme flexibility, expulsion could easily remain undetected, exposing the user to unwanted pregnancy **(Speroff, and Darney, 2005)**.

Ota in Japan solve the problem; he added a small central disk with three spokes that radiated out to the inner surface of the gold or gold- plated ring to stabilize the device and reduce expulsion rate and he called it **Ota ring (Ota, 1934)**.

Throughout World War II and in the first two decades after World War II an awareness of explosion in population and its impact began to grow. In 1959, reports from Japan and Israel by *Ishihama and Oppenheimer*, respectively, once again stirred interest in the rings. The *Oppenheimer* report was in the American Journal of Obstetrics and Gynecology, and several American gynecologists were stimulated to use rings of silver or silk and triggered an outpouring of creative new devices by others **(Ishihama, 1959 and Oppenheimer, 1959)**.

In the 1960s and 1970s, the IUD thrived. Techniques were modified and a plethora of types were introduced. The various devices developed in the 1960s were made of plastic (polyethylene) impregnated with barium sulfate so that they would be visible on an x-ray **(Speroff and Darney, 2005)**.

The Margulies coil, developed by Margulies in 1960 at Mt. Sinai Hospital in New York City was the first plastic device with a memory, which allowed the use of an inserter and reconfiguration of the shape