وفي أنفسكم أفلا تبصرون

صدق الله العظيم

THE EFFECT OF COPPER INTRAUTERINE DEVICES ON THE SERUM LEVELS OF IMMUNOGLOBULINS IgG AND IgM

Thesis

Submitted for the Partial Fullfilment for the Master Degree in
Obstetrics and Gynecology

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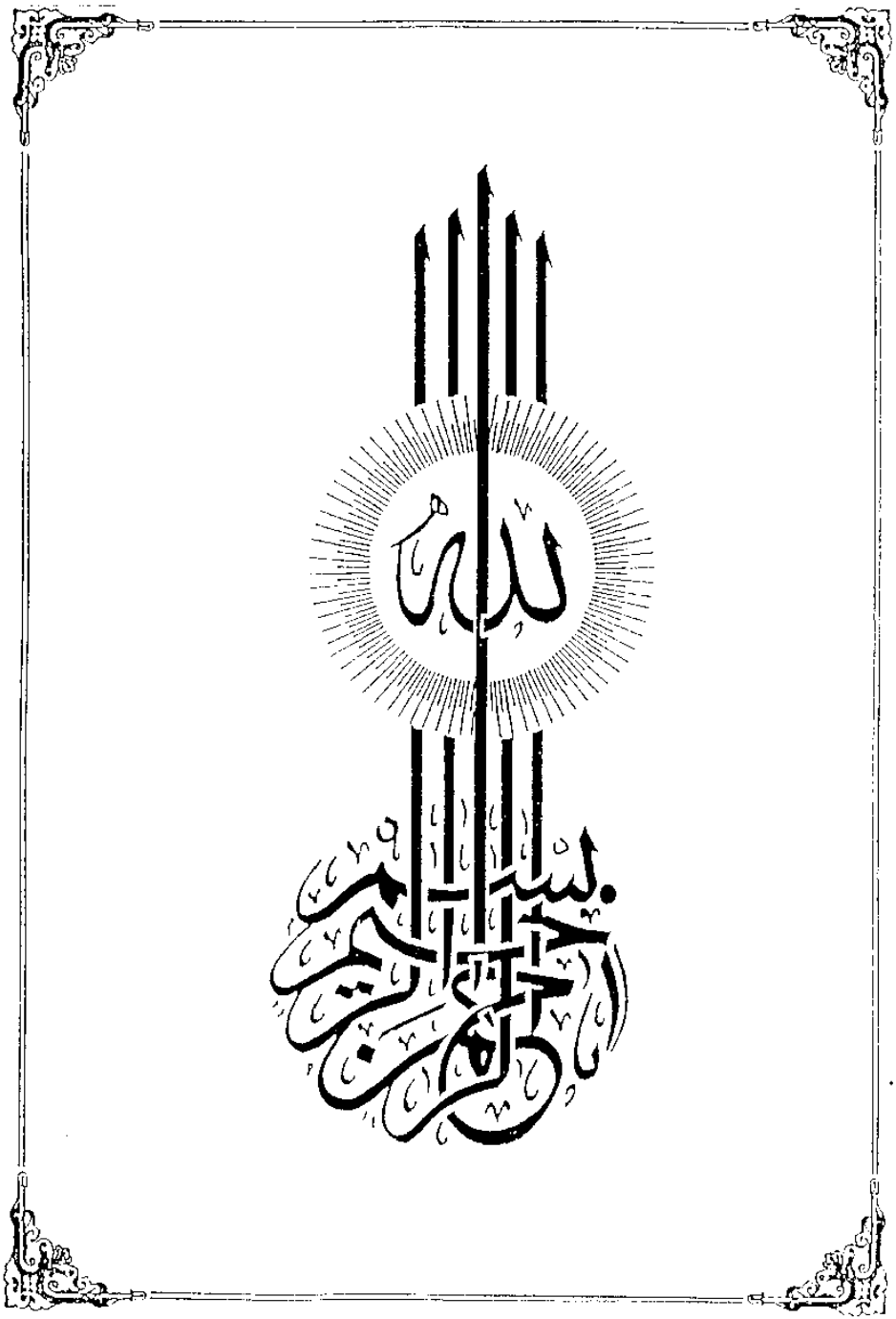
1989



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ACKNOWLEDGEMENT

I wish to express my sincere thanks and gratitude to **Dr. Mohamed Abdel-Halim Mehanna** Assistant Professor of Obstetrics and Gynecology, Faculty of Medicine, Ain Shams University for his Kindness, guidance and instructive superivision.

My sincere appreciation should be expressed to **Dr. Hazim Amin El Zeney** Lecturer of Obstetrics and Gynecology, Ain Shams University for his honset, and encouragement through this work.

I'm thankful to **Dr. Samir Ibrahim Abd El-Hadi** Lecturer of Microbiology and immunology Ain Shams University for his valuable assistance and help and finally I want to thank all workers in Gynecology, obstetric and in bacteriology departments who helped me to do this work.

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INTRODUCTION

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The increasing, worldwide utilization of the intrauterine contraceptive devices (IUDs) has spurred intensive investigations into the mechanism of its action.

The mechanisms of action of I.U.D. is still not understood, although, several mechanisms have been proposed while the immunoglobulins mechanism of action of intrauterine contraceptive devices is gaining popularity overothers. (Yoshinga, et al., 1970).

The question arises as the possibility of a hypersenstivity reaction induced by the Interauterine contraceptive devices.

The circulating antibodies in response to possible antigenic challenge would be of IgG & IgM types and others immunoglobulins.

Copper Interauterine devices have been accepted as a rather effective, relaible, reversible contraceptive method without many side effects. (Mishel et al., 1966).

Metalic copper has a potent contraceptive effect when placed within the uterine lumen. The I.U.Ds which containing these metals have biological effect produced by continuous libration of ions necessary for their sustained contraceptive action.

AIM OF STUDY

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The aim of this work is to study the correlation between copper intrauterine devices and serum level of both IgG and IgM and what is the immunological significance of the serum immunogloublins G and M to copper IUDs. (Stimulating effects and duration of copper IUDs on systemic humoral response of the body).

REVIEW OF LITERATURE

History :

The intrauterine device (IUD) is often referred to as a modern medical contraceptive although its origin may be rooted in antiquity. A commonly quoted, but unconfirmed, story dating back to ancient times explains how desert travelers placed small stones in the uteri of their camels to prevent pregnancy during caravan journeys. The specific observation that intrauterine foreign bodies have an antifertility effect has been credited to Hippocrates.

For centries pessaries with intravaginal stem of wood or bone were inserted through the cervical canal to provide support for internal organs. It was not until the end of the nineteenth centary that contraceptive use of stem pessaries was mentioned specifically (Davis, H.J., 1971).

Richter (1909) described an entirely intrauterine contraceptive device which consisted of a loop of silkworm gut. Twenty years later, Grafenberg (1929) reported experience with over 2,000 women using a ring device made of silver wire wound around a silkworm gut ring. Subsequently, Ota, (1934) further modified the intrauterine ring by replacing the silver wire with gold-plated silver, gold and various plastics. Ota was the first to introduce a type of device which was the forerunner of IUDs as they are known today.

Oppenheimer (1959) reviewed his 28-year experience with over 1,000 women Grafenberg-type ring insertions in 329 womme; Ishihama 1959 described 973 of his own Ota ring insertions. Both

investigators reported low pregnancy and the absence of serious side effects or complications.

Recent Development :

Intrauterine devices progressed rapidly following the reports of Oppenheimer and Ishihama, Margulies (1960) developed a spiral-shaped device, the Gynecoil for a number of reasons, this device represented a departure from the previously accepted design concepts. First, the Gynecoil, or Margulies spiral, was an "open" device. Since it did not consist of a closed loop or circle, it avoided a design feature which has been associated with severe complications. Second, the stem of margulies spiral extend through the cervical canal which facilitates removal of the device. Third, the spiral was made of polyethylene, a plastic polymer which subsequently becomes the standerd for intrauterine devices fabrication. Fourth, Margulies incorporated small amounts of barium sulfate into the intrauterine devices which made of radioopaque and permitted radiographic identification. Finally, insertion of the device was facilitated by placing the spiral into a narrow plastic tube or carrier which strightened the coil and allowed it to be inserted through the cervical os with minimal dilation.

During the period when Margulies developed his spiral device, lippes developed and tested the IUDs which bears his name at the numerus IUDs that have been developed and tested the lippes loop has been the most widely used.

Zipper et al., (1967) made the next significant contribution to the development of the modern IUD. Subsequent studies conducted by Zipper and associates (1974) demonstrated that a T-shaped device with small amounts of copper wire wrapped around the stem was more effective in reducing the pregnancy rate than was the same device without copper.

Scommegna and Co-Workers (1970), reported that the response of human endometrium to progestrone released slowly in utero from Silastic tubes attached to the upper arms of lippes loops was histologically similar to that seen after systemic adminstration of pregestrone

In addition to the lippes loop, Saf -T-Coil, Copper-7, and Progestasert IUDs which are commonly avilable in United States today, two other IUDs, the copper-T and the Multiload, designed in Holland by Van Os (1974), has a polyethylene skeleton with a vertical arm which is wound with copper wire and is appended at the top with two pliable barbed wings. This design modification was made to increase resistance to expulsion while maintaining the ease of insertion previously associated with the T-shaped copper bearing IUDs.

Types Of IUDs

Intrauterine devices are classified into; non medicated "inert" devices and medicated devices. All have one or two threads attached while the colour of the thread is often helpful in identifying the type of the device which a patient has in situ it is important to remembre that the colour of the threads of some devices has changed over the years and therefore can not be relied on as positive identification (Newton J.R., 1985).

Non medicated IUDs :

Which carry no biological active ingradients and are made only of plastic or metals as: gold, silver and stainless steel or polyethylene, most contain bariam sulfate to make them radio opaque. May be regarded as falling into several general classes.

a. Coils and Loops :

These are devices capable of being drown into a linear like inserter and of recovering their shape when they reach uterine cavity. They include :-

1. Lippes loop : (Fig. 1)

Designed by Jack Lippes of USA (1961), formed of impregnated polyethylene with two transcervical threads. It is like double S and is available in 4 size. (Newton J.R. 1985).

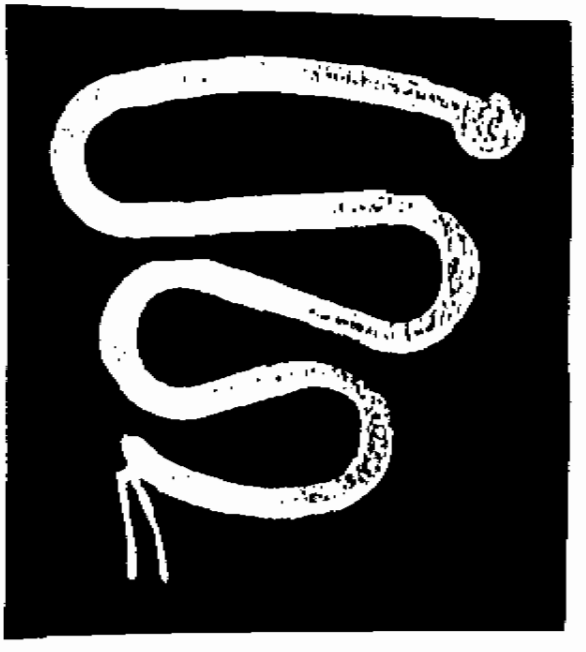

Fig. (1) : Lippes Loop.