Immediate Postpartum Insertion of a Sutured Lippes Loop

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ABSTRACT

Kamal I, Ezzat R, Zaki S, Shaaban H, Kessel E (Dept of Obstetrics and Gynecology, Cairo University Faculty of Medicine, Cairo, Egypt, and International Fertility Research Program, Research Triangle Park, NC, USA). Immediate postpartum insertion of a sutured Lippes Loop.

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Use of the sutured Lippes Loop for immediate postpartum insertion was evaluated in 100 volunteers at the Kasr-el-Aini Hospital in Cairo. The intrauterine devices were inserted manually immediately after delivery of the placenta. There was an expulsion rate of 1.2 per 100 women at three months, one case of infection requiring treatment and one removal because of bleeding. One woman became pregnant and expelled the Loop. The two major problems associated with the use of an intrauterine device, high expulsion rate and perforation, were overcome by hand insertion of the Loop.

INTRODUCTION

The potential benefits of postpartum insertion of an intrauterine contraceptive device (IUD) include (a) the high motivation of mothers for family planning services in the postpartum period, (b) the ease and safety of manual IUD insertions immediately after delivery of the placenta and (c) the masking of IUD side effects by the presence of normal postpartum bleeding, lochia and afterpains. These benefits are somewhat offset by the decreased risk of pregnancy in the postpartum period, especially in the presence of full lactation (16). But, while lactational amenorrhea is demographically effective (8), it cannot be recommended as a reliable contraceptive method because of its high failure rate (6, 11). Postpartum contraceptive services are particularly important in developing countries where a woman's contact with health care personnel at delivery may be the only opportunity to provide medical care (19).

In spite of recommendations to develop a safe and effective IUD for postpartum use (4), progress has been slow. The use of the Lippes Loop in the International IUD Programme of the Population Council was associated with a 20.5% expulsion rate after three months of use when insertions were made during the first ten days of the puerperium (24). Although isolated studies of various IUD designs with specially designed inserters show expulsion rates under 10% at six weeks (15) or three months (22), other studies show higher expulsion rates and high rates of perforations (18). Manual insertion of an IUD in the immediate postpartum period is considered the safest approach. To date, efforts to design IUDs with a special configuration for postpartum use have been disappointing (2, 17).

DEVELOPMENT OF THE SUTURED LIPPES LOOP

The International Fertility Research Program (IFRP) started developmental work on an improved IUD for postpartum use in 1975 (12). While the configuration and consistency of an IUD were known to affect its expulsion rate (21), Kamal and co-workers (9) noted that embedding of an IUD is an important factor in IUD retention. This was confirmed with hysterographic studies of the experimental M device, which had the lowest expulsion rate of any device studied for interval insertions (Antonovski L: Personal communication, Skopje, Yugoslavia, 1975). The lateral projections of the Dalkon Shield were known to be ineffective for retention of this IUD in the postpartum uterus (1). Therefore, one approach chosen for study was to design anterior-posterior projections on a standard device, such as the Lippes Loop.

A special mold was made of the Lippes Loop that would accommodate a sleeve on its upper arm with three anterior-posterior projections. The sleeve, with projections, was to be made of a biodegradable
material that would dissolve in six weeks when the uterus would be involuted. As there was difficulty in obtaining a supply of biodegradable material approved for human use, the first molded sleeves, with projections, were made of Dow Corning 382 Silastic. The experimental device was tested by Apelo and Ramos (Apelo R, Ramos R: Personal communication, Manila, Philippines, 1976) using a manual insertion technique (5) and was found to have an expulsion rate of 4 per 100 women at two months compared with 11 per 100 women for an unmodified Lippes Loop.

Continued difficulties in obtaining a supply of biodegradable material approved for human use that could replace the Silastic-molded sleeve led to the suggestion by one of us (E.K.) to make three ties of heavy chromic suture on the upper arm of the Lippes Loop. The cut ends of the suture would provide the biodegradable projections for temporary embedding. Commercially available moist chronic suture material (Ethicon, no. 2) was threaded through three holes in the upper arm of the Lippes Loop and tied. The ends of the suture were trimmed to 0.5 cm, directed downward at a 45° angle and left to dry and stiffen (Fig. 1). The modified Loop was then packaged and sterilized with ethylene oxide. A preliminary study (13) of 341 women who had the Loop inserted manually showed a three-month expulsion rate of 3.1 per 100 women.

MATERIALS AND METHODS

One hundred women volunteered to enter the study. They were chosen at random from among women requesting IUD contraception while in labor as inpatients in the maternity service of Kasr-el-Aini Hospital in Cairo. The mean age of the women was 28.2 years. Ages ranged from 19 to 45 years with 5% younger than 20 and 1% older than 40. The average parity was 2.8 live births and 76% were multiparas. While 14 women reported having had a previous spontaneous abortion, only two admitted having had induced abortions.

The IUD insertions were performed with aseptic precautions immediately after delivery of the placenta, while the patient was still in the delivery room. The vulva was swabbed with a 20% Savlon solution. A sterile disposable glove was worn on the right hand, and the sterile sutured Lippes Loop was held between the index and middle fingers as shown in Fig. 2. In this way, the IUD was introduced into the vagina, past the dilated cervix and to the fundus of the uterus. The left hand was used to steady the uterus transabdominally. With the IUD anchored at the fundus, the 10-inch monofilament nylon tail was directed toward the cervix, with the physician exercising caution not to displace the IUD while withdrawing the hand. No anesthesia was necessary for the IUD insertions. Trilene analgesia was used for repair of episiotomies. Two insertions were made under direct vision during lower-segment cesarean section operations.

Fig. 1. Lippes Loop D (30 mm) with biodegradable projections.

Fig. 2. Hand technique for immediate postpartum insertion of the sutured Lippes Loop.
The women were discharged on the second or third morning following delivery, except for the two cesarean section cases, who were discharged on the tenth day. All women were requested to return for follow-up visits at 1, 3 and 6 months after discharge from the hospital or at any time they noted disappearance of the IUD tail, expulsion, bleeding, pain or infection.

RESULTS

No difficulties were encountered during insertions of the IUDs. There were no known perforations. Fourteen women failed to report for follow-up visits at three months, and they could not be located at home.

At the first follow-up visit, one patient reported having had fever a week after being discharged from the hospital. She was treated with antibiotics and the fever disappeared after three days. Another patient reported heavy bleeding, which necessitated removal of the IUD at the second follow-up visit three months after insertion. Removal was followed by dilation and curettage. The pathology report revealed no abnormality.

By the three-month visit, there was one expulsion among the 86 women followed, providing a life-table rate of 1.2 per 100 women at three months. One woman became pregnant at three months after insertion and expelled the device one month later.

The monofilament thread was not visible upon examination in 55 of the 86 women at the first follow-up visit; however, sounding of the uterus confirmed the presence of the IUD in 45. In ten women, the presence of the IUD was confirmed by double-contrast hysterospermy (14). In four of these, the IUD was observed to be well accommodated to the uterine cavity (Fig. 3). In the other six women, the IUD was observed in a position of lateral rotation, with its lower tip closer to the fundus than the isthmus of the uterus (Figs. 4–6). Fig. 4A shows the three holes on the upper limb of the Lippes Loop where the chromic suture had been tied. Fig. 4B is a double-contrast hysterospermy of the same patient after complete involution of the uterus.

Fig. 5 shows a laterally rotated loop in a conical-shaped uterus with a narrow fundus (10). The base of the Loop accommodates itself to one of the longer sides (as does the fetus in utero, where it accommodates its breech pole to the wider fundus of the pear-shaped uterine cavity).

One might hypothesize that the Loop was inadvertently rotated at the immediate postpartum insertion. However, a Loop inserted in the fundus during cesarean section under direct vision was also found to have rotated laterally in the double-contrast hysterospermy (Fig. 6) performed four months after insertion, when the thread had disappeared. It appears that the lateral rotation is an adaptation to fit the Loop to a specific configuration of the uterine cavity during or after involution.

DISCUSSION

The high retention rate of the sutured Lippes Loop (with biodegradable projections) is a welcome addition to postpartum family planning programs, especially in developing countries. The IUD is an effective contraceptive with no adverse effect on lactation (7) or uterine involution (20). Its full potential was never realized because of the high expulsion rates and uterine perforations that occurred when an inserter was used for high fundal placement. The incidence of removals for bleeding appears lower in this small series than in other reports (3). The incidence of infection is similar to that in other reports (23).

The disappearance of the monofilament thread, which occurred in 64% of the cases, is a matter of concern. While it is unlikely that the associated lateral rotation will affect the efficacy of the IUD, an absent thread could lead to probing of the uterus with associated risk of infection and perforation.
The risks and benefits of verifying the presence of the IUD must be weighed for each postpartum program. Further development may eliminate the problem.

CONCLUSION

The sutured Lippes Loop, an innovation in IUD design for postpartum use, was evaluated in 100

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Fig. 4. A, Plain roentgenogram. B, Double-contrast hysterogram of the same patient, two months after insertion. Loop is in a state of lateral rotation; thread is not visible.

Fig. 5. A double-contrast hysterogram of a conical, narrow fundus, which is arcuate. The Loop is laterally rotated, its cross-arm accommodating the lateral right side of the cavity. An absent thread was the only complication; otherwise, the patient was symptomless four months after postpartum insertion.

Fig. 6. Conical uterine cavity with narrow fundus, containing a laterally rotated sutured Loop. Fundal fixation in the correct plane was performed under direct vision during a cesarean section four months previously. The patient was symptomless, but the thread was missing.
volunteers, 86 of whom were followed for at least three months. An expulsion rate of 1.2 per 100 women at three months was experienced. Only one case of infection required treatment and there was one removal for bleeding. One pregnancy occurred, followed by expulsion of the IUD.

Disappearance of the thread in 64% of followed cases is the remaining problem with this excellent method of postpartum contraception. Lateral rotation of the Loop to accommodate a particular configuration of the involuting uterine cavity was noted.

The major defects of postpartum IUD use, a high expulsion rate and perforations, are overcome by hand insertions of the sutured Lippes Loop.

REFERENCES


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