

**PREGNANCIES AND INTRAUTERINE DEVICES WITH SPECIAL
REFERENCE TO THE OUTCOME OF PREGNANCIES AND THE FATE
OF THE DEVICES**

by

KATAYUN VIRKAR,* M.D., F.C.P.S.

and

NAYAN PARULKAR,** M.D., D.G.O.

One of the complications developing in cases using IUCD is the occurrence of pregnancies with the device in situ. Many women have found it disheartening to use the intrauterine device for a year or two and then find themselves pregnant. The knowledge of the occurrence of a pregnancy with the device in situ also puts off other women from selecting the method for contraception.

A number of reports have appeared stating the pregnancy rates with the devices. (Hall, 1966; Tietze, 1970; and Wilson *et al*, 1968). The present study was undertaken to correlate the various factors concerned with the pregnancies and to note the outcome of the pregnancies and the fate of the devices.

Material and Methods

In the period of 6 years from 1965 to 1970, a total of 1339 insertions were car-

ried out using different devices-Lippes-loop, (25 mm, 27.5 mm and 30 mm), Soonawalla device and Antigon. A total of 49 pregnancies with IUCD in situ were reported giving a percentage rate of 3.6 pregnancies. Only those pregnancies which occurred after the insertion and before the expulsion have been reported. The lost to follow-up rate according to the statistical analysis method is only 3.4 in our series.

Studying the age groups of the women, no definite correlation could be obtained. It was seen that women of parity over 4 were less liable to a pregnancy with IUCD in situ but the results were not significant.

Maximum number of pregnancies occurred in the period of 4-12 months and only 8% occurred after 2 years. (Table I). It is the custom in our clinics to change the device after 2 to 3 years, but the

TABLE I
Duration of Use of the Device

	0-3 months	4-12 months	13-24 months	25-36 months	36 + months	Total
No. of pregnancies	6	26	13	4	—	49

duration shown is that of the particular device with which the pregnancy occurred. Otherwise, 4 cases would have the total duration of use for more than 36 months. Changing the device seems to

*Senior Research Officer.

**Assistant Research Officer.

Institute for Research in Reproduction, Bombay-12.

Received for publication on 15-1-1973.

affect the uterine milieu leading to increased chances for conception.

The pregnancies occurred most frequently (10.4%) with the small Lippes loop whilst the percentage rates of pregnancies with Soonawalla device and Antigon were 7.8 and 6.9, respectively. The percentage rates with Lippes loop 27.5 mm and the 30 mm were 2.5 and 2.1, respectively. (Table II).

Outcome of pregnancies

The outcome of the pregnancies was recorded. Eleven of the 49 cases preferred to have induced abortion. In the remaining 38 cases, 10 ended in abortion, 4 were premature deliveries, 2 ectopic pregnancies and the rest resulted in full-term normal deliveries (Table III). The percentage of abortion is definitely high and a special note must be made of the ectopic pregnancies. During the years 1965-69, all women who came to the clinics for contraception were asked if they had undergone an operation for ectopic gesta-

tion and not a single case reported positively. The women who attend family planning clinics are normal fertile women with no pelvic pathology, unlike the women attending hospitals where ectopic pregnancies are frequently encountered. One of these ectopic pregnancies interestingly enough was diagnosed as ovarian pregnancy when operated at the Wadia Maternity Hospital.

Fate of the Devices

During pregnancy, the device was expelled in 8 cases and removed in 4 cases (Table IV). In 27 cases, the device was recovered during abortion or labour. Two cases were lost to follow up as they left Bombay. In the 2 cases of ectopic pregnancy, the devices were removed after the operation. But, in 6 cases, the device remained in the uterus even after an abortion (1 case) and full term deliveries (5 cases). In the two cases out of the six, the device was removed 3½ years and 1¼ years after the delivery. These de-

TABLE II
Type of Device and Pregnancies

	L.L. small	L.L. medilm	L.L. large	Soona- wala device	Antigon	Total
Total No. of insertions	48	513	515	205	58	1339
No. of pregnancies	5	13	11	16	4	49
%	10.4	2.5	2.1	7.8	6.8	3.6

TABLE III
Outcome of the Pregnancies

Spontaneous abortion		Induced abortion	Prema- ture labour	FTND	Ectopic Gesta- tion	Total
early	late					
7	3	11	4	22	2	49

TABLE IV
Fate of the Device

	During pregnancy	During abortion	During labour	Ectopic Gestation	After abortion	After delivery	Total
Expulsion	8	8	9	—	1	3	29
Removal	4	9	1	2	—	2	18
Not known	—	—	—	—	—	—	2
Total	12	17	10	2	1	5	49

vices were detected when the women were called specially to the clinic for an examination to determine the presence or absence of the device. The women were under the impression that the devices had been expelled. In another interesting case the device had been retained after the delivery for one year but she became pregnant a second time and during the 6th week of the second pregnancy it was expelled. Fortunately, in the fourth case the device was expelled 4 days after an abortion and in the remaining two cases 10 and 30 days after the deliveries.

Discussion

The study of pregnancies with different types of devices has brought out the following facts. The device may remain in the uterus even after a full-term delivery. It can happen that a woman undergoes a sterilization operation not knowing about the device and symptoms due to the forgotten device may occur much later. It is incumbent on the part of the doctor to make sure that the device is really out when the device has not been recovered during labour.

The maximum number of pregnancies occur during the first two years of insertion. Changing the device makes a woman more prone to conception as seen in our

few cases. It has been recently postulated that the tissue reaction in the endometrium as shown by the infiltration of neutrophils and mononuclears is the main causative factor in mode of action of IUCD. (Moyer and Mishell 1971). Whilst studying the smears taken from the material on the device 4 days after the abortion it has been shown that the macrophages surrounding the devices increase in number as well as their activity. (Sagiroglu 1971; Virkar and Kelkar 1968). It seems, therefore, that the role of macrophages surrounding the device besides the lymphocytic reaction seen in the endometrium should be taken into consideration in explaining the mode of action.

There is a high incidence of abortion in the series. But, the cases who had expelled the device or got them removed during early pregnancy had full-term pregnancies. Sarah Lewit in her analysis of outcome of pregnancy also states that removal of the tailed IUD improves the chances of a live birth. (Lewit 1970). It is now our practice to remove the tailed device, as soon as possible once the diagnosis of pregnancy is made, if the thread is visible.

The incidence of ectopic pregnancy with IUCD is frequent and deaths have

been reported due to missed ectopic pregnancies with IUCDs. (Taukada 1968). The possibility of an ectopic pregnancy occurring in a woman with IUCD should be kept in mind and ruled out, specially when dealing with a case complaining of pain in abdomen or irregular bleeding. It was interesting to note that one of the ectopic gestation cases was diagnosed as an ovarian pregnancy. Ovarian pregnancy is a rare event and occurs about once per 40,000 deliveries. (Lehfeldt *et al* 1970).

References

1. Hall, R. E.: A comparative Evaluation of Intrauterine Contraceptive Devices. Excerpta Medica Foundation advances in Planned Parenthood Vol. II. Proceedings Third & Fourth Annual Meetings of the A.A. P.P.P. Chicago, Ill, May, 1965/Denver, Colo., April 1966.
2. Lehfeldt, H., Tietze, C. and Govstein, F.: Amer. J. Obst. & Gynec. 108: 1005, 1970.
3. Lewit, S.: Contraception, 2: 47, 1970.
4. Moyer, D. L. and Mishell, D. R.: Amer. J. Obst. & Gynec. III: 68, 1971.
5. Sagiroglu, N.: Internat. J. Fertil, 16: 14, 1971.
6. Taukada, Y.: J. Amer. Med. Ass. 204: 331, 1968.
7. Tietze, C.: Contraception. 1: 73, 1970.
8. Virkar, K. D. and Kelkar, S. D.: J. Obst. & Gynec. India. 18: 266, 1968.
9. Wilson, J. R. and Ledger, W. J.: Amer. J. Obst. & Gynec. 100: 649, 1968.