RADIOGRAPHIC OBSERVATIONS ON THE MISSED INTRA-UTERINE CONTRACEPTIVE DEVICE

By

HEFNAWI, F., ASKALANI, A. H., HASSEEB F.

From the Departments of Obstetrics & Gynaecology, Al Azhar University

It has been known for a long time that the presence of a foreign body within the uterus has a contraceptive effect. For centuries Arab and Turkish camel drivers employed this method to prevent pregnancy in their animals. Intra-uterine mechanical devices were used by women, as a method of contraception in the 19th and the early 20th Century, (Richter 1909, Dickinson 1916 and Pust 1923). They are now considered a safe, reasonably successful, reversible and economic method for fertility control.

They are not, however, free from various complications which render their use not absolutely effective and safe. The incidence of the different complications ranges between 15—20% (Jeffcoate 1967). One of these hazards is the problem of the missed loop in which event the thread is withdrawn into the uterine cavity.

We have tried in this work to analyse the missed loop problem, the possible causes of such missing, and its relation to other subjective side effects. We have also tried to postulate some advice to guard against such a complication.

MATERIAL AND METHOD

The trial comprised 50 women attending the Family Planning Clinics and fitted previously with I. U. C. D. S. They all complained of inability to feel the thread per vaginum. By examination the thread was not felt or seen. In every case a complete history was taken with special stress upon the date of application, the centre at which it was performed, bleeding or pain at and after insertion, and any other immediate or remote side effect. No blind attempt was

performed to extract or to dislodge the missed loop. Hystero-salpingography was performed on each case using a water soluble radio-opaque material (Urographin 12.5% diluted three times with distilled water).

This visualized the relation of the loop and its thread to the uterine wall, the disposition of the loop within the cavity and all possible information that could be obtained by such a method.

After this radiographic analysis the loop was extracted operatively under general anaesthesia after dilating the cervix. Any difficulty in extraction or undue bleeding associated with it was noted.

RESULTS

Age :

The participants' age ranged from 23 to 37 years with a mean of 31 years (Table I).

TABLE I

Age incidence of participants

AGE	No. of PARTICIPANTS
— 25	4
— 30	12
— 35	27
— 40	7

Parity :

They were all of high parity with an average of 4 children (Table II).

TABLE II

Parity of Participants

No. of children	3	4	5	6	7	8
No. of cases	12	16	8	6	4	4

Previous Contraception :

(*A*) Seventy per cent of the participants did not use any form of contraception before the application of the loop.

(B) Twenty per cent of cases shifted to the lopp due to non tolerance to oral contraceptive tablets.

(*C*) The rest of the cases used previous to the trial unsuccessful local contraceptive measures.

Time interval before missing the thread (Table III) :

Forty per cent of the missing occurred during the first year after application and more than half of these were missed during the first trimester.

TABLE III

Interval between insertion and missing of the thread

Duration of insertion/year	Percentage
— 1	40
— 2	24
— 3	8
— 4	16
— 5	12

Analysis of possible causes of missing the thread :

The possible causes of missing are tabulated in (Table IV). In 20% of the cases no abnormality was detected.

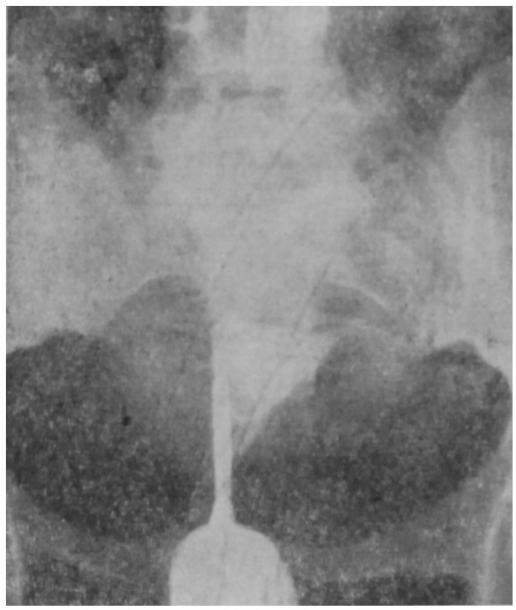
TABLE IV

Possible causes of missing the thread

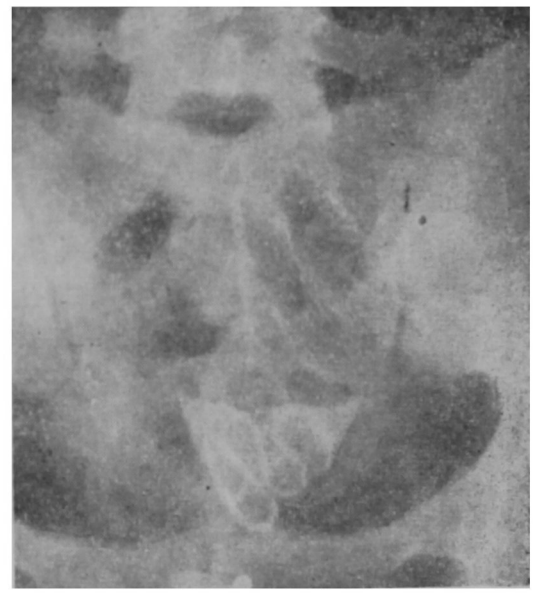
Cause	No. of cases	Percentage
Malposition	25	50
Embedding	7	14
Perforation	3	6
Broken loop	2	4
Uterine hypertonicity	2	4
No abnormality detected	10	20
Pregnancy	1	2

— Malposition of the loop :

This was present in 50% of cases although no attempt at removal was performed. Pulling on the thread or any part of the device could have altered its position if such an attempt was tried (Fig. 1 and Fig 2).



(Fig. 1) Malposition



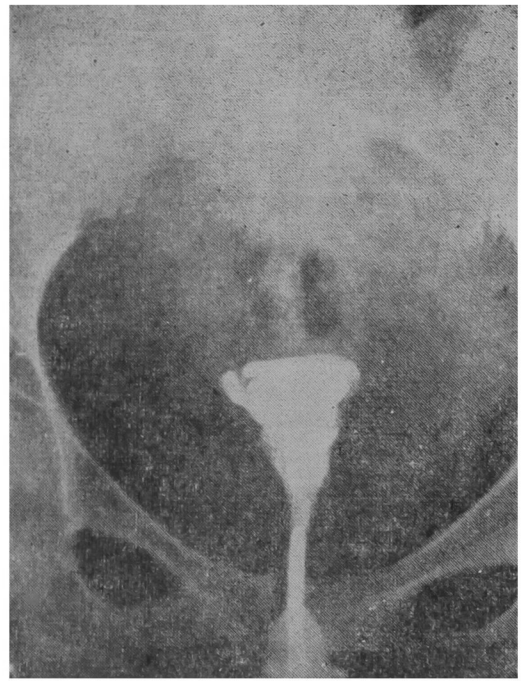
(Fig. 2) Malposition

Severe cramping and abdominal pain occurred in three quarters of these cases at the time of insertion. This, however, was not associated with any bleeding. Menorrhagia occurred later on in 12% of such cases. In most cases of malposition, the tail end of the device attached to its thread occupied the fundus of the uterus upside down or one or other uterine cornu.

— Embedding :

This occurred in 14% of cases. The tip of the device or one or more of its curves were seen dipping into the uterine wall projecting away from the hysterographic cavity outline. It is worth noting that around 75% of cases with embedding had the device for more than 2 years. One of the cases showed uterine hypertonicity as well (Fig. 3).

Severe abdominal pain was noted in 2 cases at the time of insertion. One of which is the case that showed uterine hypertonicity. Five cases had increasing meno rrhagia that started 6 months after the application.



(Fig. 3) Embedding

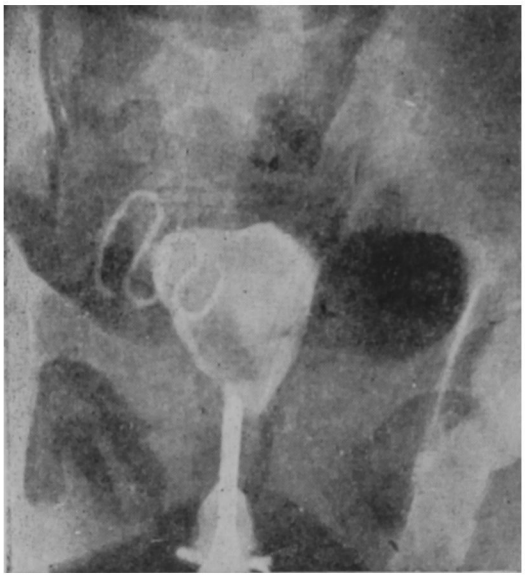
— Perforation :

Three cases of frank perforation occurred. One was silent, meaning that the insertion was not accompanied by pain or bleeding. In this particular case, the device was introduced 40 days after delivery (Fig. 4). The second case was also a silent one, but she gave a past history of curettage for post abortive bleeding. In such instance the tip of the device might have passed through a weakened, thin scarred area in the uterine wall. The third patient with perforation reported colicky abdominal pain and static pain referred to the rectum for two weeks after the insertion. This was associated with irregular uterine bleeding. In subsequent cycles she developed a congestive type of dysmenorrhoea and menorrhagia (Fig. 5).

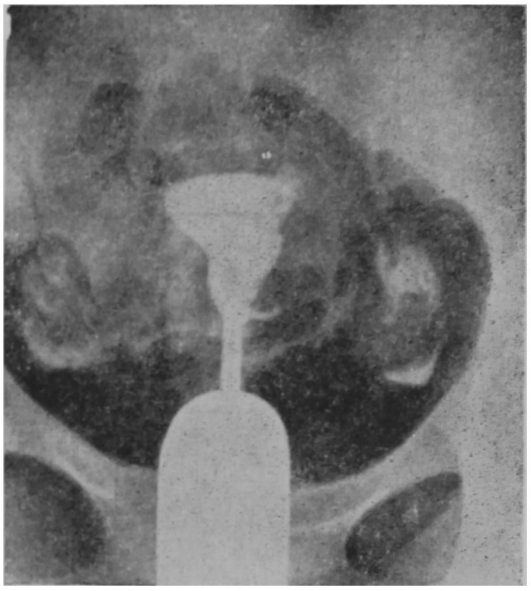
— Uterine hypertonicity :

This was evident through hysterography by an irregularly contracted uterine shadow (Fig. 6).

These cases reported irregular spotting and spasmodic dysmenorrhoea.



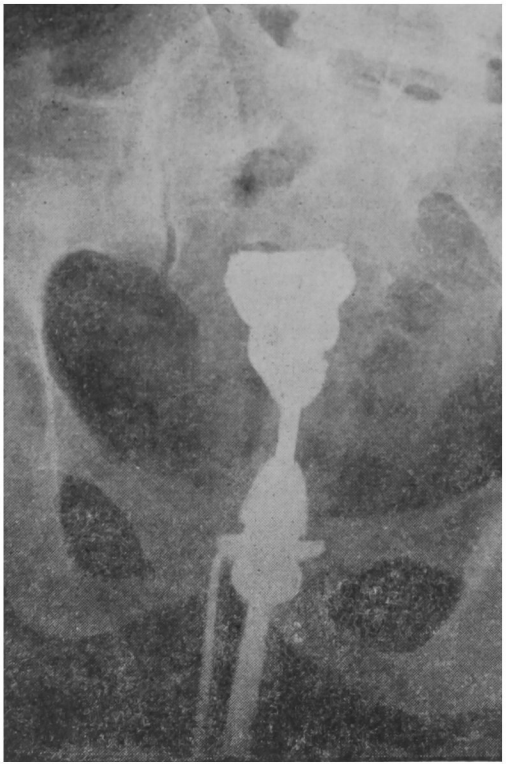
(Fig. 4) Perforation



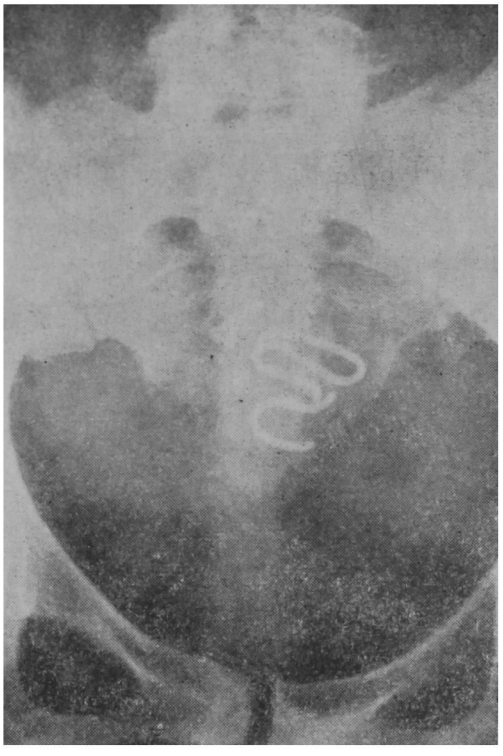
(Fig. 5) Perforation

— Broken loop :

Two cases of broken loops were discovered by x-rays.



(Fig.6) Hypertonicity



(Fig. 7) Broken Loop

The broken part produced a discontinuity of the normal coiling of the loop (Fig. 7).

— Pregnancy :

In a single case amenorrhoea occurred followed by loss of the thread. On examination the patient was found to have a two months pregnancy. In this particular case no hysterosalpingography was performed and pregnancy is still continuing.

DISCUSSION AND CONCLUSIONS

Missing the loop and the thread is one of the not infrequently met mishaps that could occur to a woman fitted with I. U. C. D. No work has been previously done to clarify the missing puzzle. The commonest reason that we encountered was malposition. Mills (1967) reported that serious displacement of an intra-uterine device is uncommon and occurs mainly at the time of or shortly after insertion. This complication, however, was common in our series and in many case the device was upside down in the uterus, the tail end occupying either the fundus or one or other uterine cornu. This most probably occurred at the time of insertion, the tip of the insertor having been pushed far away into the uterine cavity almost reaching the fundus. Pushing the stilette thus made the tail end of the device to be located in the fundus. This wrong insertion could have been avoided by adjusting the movable shoulder of the introducer so that its tip reaches only the level of the internal os of the cervix to guard against this malposition and to avoid also any possible perforation. Measurement of the cervical canal length should always be performed by a uterine sound prior to the insertion. Instructions to all Family Planning Centres should be given to adjust the movable shoulder of the applicator according to such measurement. Another advantage of uterine sounding is the correct knowledge of the length of the uterine cavity and this would enable us to choose the corresponding size of the device that should be used.

The presence of abdominal pain and cramping for a prolonged period after the insertion together with undue bleeding, point to a possible perforation or to a hypertonic sensitive uterus that does not accept the device. Removal in such cases should be recommended. Excessive uterine motility and contractions may lead to frequent movements of the device in the uterus and thus can damage the endometrial stroma continuously and cause bleeding. Bengtsson and Moawad (1967) studying the influence of Lippes' loop on myometrial activity in human beings found a significant increase in uterine contractions during the early post-ovulatory phase of the cycle. Marcus,

Marcus and Wilson (1966) found the activity of the rat uterus containing a foreign body to be increased over that of control studies.

Embeding with the missed thread occurred mostly two years after insertion. In such cases the endometrium may have become hyperplastic and hypertrophied covering parts of the device. Menorrhagia occurred in those particular cases. Study of the endometrial changes with prolonged use of I. U. C. D. is therefore advisabe and is actually the subject of further communications.

Perforation in our cases associated with the missed thread was relatively common if compared with other author's results. Wilson (1969) estimated complete perforation with the device migrating into the peritoneal cavity to occur once in 1,000 insertions. Tietze (1966) from a series of 22,403 cases reported perforation of the uterus in 42 cases (0.2%). Ledger and Willson (1966) reported the highest incidence of perforation which is 2.5 per 1,000. Our trial however, comprised only cases with missed loops and this relatively high occurrence does not represent the general incidence of perforation with I. U. C. D. Adjusting the shoulder aids in preventing such perforations. Insertions should be preferably avoided in the immediate post-partum or post-abortive periods where the soft uterine wall is easily by-passed by the tip of the device especially if it is pressed against the uterine wall. The non insertion of I. U. C. D. in such critical periods may not be easily feasible in developing countries where lactation is depended upon, because the use of other contraceptives especially hormonal ones is known to affect adversely lactation. Another contraceptive method with no such untoward effect should be chosen in such periods.

REFERENCES

1. BENGTSSON, L. D., and MOAWAD, A. H. : The effect of the Lippes loop on human myometrial activity. Am. J. Obstet. Gynec., 98, 95, (1967).

2. DICKINSON, R. (1916) : Quoted from Modern Trends in Gynaecology (4),

3. JEFFCOATE, T. N. A. : Principles of Gynaecology. Butterworth & Co. Ltd., London, 1967.

4. LEDGER, W. J. and WILLSON, J. R. : Intrauterine contraceptive devices ; The recognition and management of uterine perforations. Obstet. Gynec., New York, 28, 806, (1966).

5. MARCUS, S. L., MARCUS, C. C. and WILSON K. H. : Effect of an intrauterine contraceptive device on uterine motility in the Rat. Obstet. Gynec., New York, 27, 238, (1966).

6. MILLS, W. : Brit. Med. J., 1, 428, (1967).

7. PUST, K. : Quoted from Modern Trends in Gynaecology. (4) (1969).

8. RICHTER, R. (1909) : Quoted from Modern Trends in Gynaecology.

9. TIETZE, C. : Brit. Med. J., 2, 302, (1966).

10. WILLSON, J. R. : Intra-uterine contraceptive devices. Modern Trends in Gynaecology. (4) (1969).