

ULTRASONIC EVALUATION OF COPPER-T DEVICES IN WOMEN WITH ABNORMAL UTERINE BLEEDING

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SUMMARY

Ultrasonographic spatial orientation of Cu-T device was carried out in 58 women in order to evaluate the relationship of intrauterine position of copper devices with the menstrual abnormalities. The various parameters assessed during each examination included; length of the vertical stem of copper-T, distance of the device from the uterine fundus (FD), distance between uterine cornua and lateral limits of the transverse bar of the IUD on both the right and left side (RCD and LCD).

A definite correlation was observed between fundal distance and the menstrual pattern. Assymetrical positioning of the device was noticed in women presenting with irregular uterine bleeding. Hence, a careful ultrasonic assessment of intrauterine copper devices in patients with menstrual disturbances may improve the management potentials.

Introduction

Intrauterine contraceptive devices are well established and effective method of temporary contraception. However, abnormally heavy and irregular uterine bleeding that occurs so commonly with these devices is one of the important reasons that has hindered with popular acceptance it deserved.^{1, 2} Same applies for the Copper T 200 IUD used in our family planning services. Except on a few occasions the etiology of such abnormal bleeding remains unexplained. The relationship between the location of the device within the uterine cavity and abnormal bleeding has not been adequately

studied. In order to study the spatial orientation of the device within the uterine cavity, a ultrasonographic study was carried out.

Material and Method

A total of 58 women using Cu-T 200 IUD were scanned ultrasonically. The scan was unsatisfactory in 8 women due to gross obesity, puckered lower abdominal midline scar or due to acutely retroverted uterus. The study group comprised of 25 women using Cu-T for a period of 3 months to 1 year with abnormal uterine bleeding. The bleeding abnormality was in the form of either heavy menstrual flow with regular cycles, which was present in 6 cases or irregular and intermenstrual bleeding which was the complaint in 19 cases. All of these women gave history of regular cycles

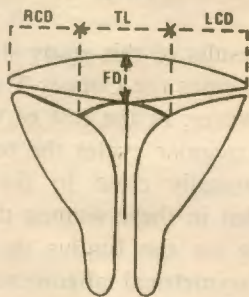
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with average flow prior to Cu-T insertion and had post-menstrual Cu-T insertion. They had grossly normal cervix with negative vaginal cytology. A similar group of women using Cu-T for more than three months, but having normal regular cycles were also studied. The women in this control group were matched case for case with the study group, with respect to age and parity.

Ultrasonographic examination was performed in each case using the Aloka real time scanner with a 3.5 Mhz linear array transducer. In order to eliminate observer's bias the menstrual history was not revealed to the ultrasonographer. Figure I is the

ULTRASONIC EVALUATION OF COPPER - T
DEVICE



FD -- FUNDUL DISTANCE
TL -- TRANSVERSE LENGTH
RCD -- RIGHT CORNUAL DISTANCE
LCD -- LEFT CORNUAL DISTANCE

FIG. 1

diagrammatic representation of various parameters that were assessed during each ultrasonic examination. In order to measure these, first a longitudinal scan was performed and the stem of the Cu-T was visualized. Since the length of the stem of the Cu-T 200B is 36 mm, the scan was considered satisfactory when the length of the stem was found to be 34-36 mm. The distance

from the top of the fundus was measured and called as Fundal Distance (FD). The antero-posterior thickness of the uterus at the level of the upper limit of the IUD and the length of the uterus from the fundus to the external cervical os were also measured.

Next, a transverse scan was performed rotating the transducer through 90°. The transducers position was adjusted till the maximum length of the transverse bar of the Cu-T was visualised. The distance between the lateral limits of the uterus in the transverse scan and the limits of the transverse bar image was measured on each side and was designed as right cornual distance (RCD) and left cornual distance (LCD) according to the right and left side. It was envisaged the difference between the right and left cornual distance and the distance from the fundus (FD) would give a fair quantitative idea of the orientation of the IUD within the uterine cavity.

Results and Discussion

The mean age and parity in the two groups were similar which was expected as the cases were matched as closely as possible. The mean distance of the IUD from the fundus (FD) in the control group (19.9 ± 31.1 mm) and in women with abnormal uterine bleeding (19.6 ± 8.5 mm) were found to be similar (Table I). In the group of 19 women with irregular cycles there were 4 cases in whom the distance was more than 26 mm, which implies that the IUD was lying very low in the cervical canal. In the same group 3 patients were found to have adnexal masses, unilateral or bilateral. Excluding these 7 cases the Fundal Distance in the remaining 12 cases with irregular cycles was found to be significantly ($P < .01$) smaller than the control group.

TABLE I
Mean Fundal Distance (FD mm) in Women Using Copper 'T' Devices

	No. of cases	Fundal distance (mm)
1. Normal periods	25	19.9 ± 2.1
2. Abnormal periods	25	19.6 ± 8.5
3. Regular cycles with excessive flow	6	19.9 ± 1.2
4. Irregular cycles/ intermenstr. bleeding	19	22.3 ± 9.8
— With very low Cu-T	4	35.5 ± 5.0
— With Adnexal mass	3	18.0 ± 9.0
— Others	12	13.3 ± 3.2

The mean length of the transverse bar echo (26.0 ± 4.8 mm) was smaller and the difference between right and left cornual distance (7.1 ± 6.1 mm) was significantly larger in women with irregular cycles as compared to women with normal cycles (Table II). Interestingly in the 6 women with menorrhagia these measurements were not significantly different from that of women with normal periods. In the cases with low lying IUD the difference between the two cornual distance was not different from that of control group but the transverse limb image was significantly smaller.

The uterine measurements in all the groups were similar.

Conclusions

Thus, the results of this study shows that in 4 out of 25 cases the Copper-T was lying very low. However, in the rest of the Cu-T users having irregular cycles the top of the IUD was unusually close to the fundus. This means that in these women the device was impinging on the fundus or partially embedded. Assymetrical alignment of the transverse limb i.e. tilted to one side was

TABLE II
Mean Length of Transverse Limb and Difference Between Right Cornual Distance and Left Cornual Distance in Women Using Copper 'T' IUCD

	Transverse limb (mm)	Mean difference between right and left cornual distance (mm)
Normal Periods (25)	32.0 ± 1.3	2.1 ± 1.6
Abnormal periods (25)	28.8 ± 4.7	6.1 ± 5.6
Regular cycles with excessive flow (6)	31.6 ± 1.7	5.0 ± 1.4
Irregular cycles (19)	26.0 ± 4.8	7.1 ± 6.1
— Very Low Cu-T (4)	23.7 ± 4.7	2.2 ± 0.9
— Adnexal Mass (3)	28.2 ± 1.0	8.6 ± 2.2
— Others (12)	26.2 ± 4.8	19.6 ± 3.0

found more frequently in women with irregular cycles. In patients with menorrhagia but regular cycles the positioning of the device was not essentially different from those with normal periods. Uterine size in women with abnormal bleeding was not significantly different from controls matched for age and parity.

The results of this study suggest interesting diagnostic and therapeutic possibilities of pelvic ultrasound in evaluating the copper "T" devices in women experiencing irregular vaginal bleeding. To venture explanations for the findings observed will be hypothetical and presumptuous.

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