

CYTOMORPHOLOGICAL CHANGES FOLLOWING LONG TERM USE OF Cu. T. 200 & L. LOOP

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SUMMARY

Cytological evaluation of cervical smears and endometrial aspirates have been carried out in 100 women using Cu.T. 200 for a period of 3-7 years, and 75 women using L. Loop for a period of 3-6 years. No evidence of cervical or endometrial malignancy was detected. Incidence of cervical dysplasia was 12% for Cu.T. and 9.3% for L. Loop users. The percentage of inflammatory smears was 40% in Cu.T. and 52% in L. Loop users. The endometrial aspirate revealed hyperplasia in 5% and 5.3% in Cu.T. and L. Loop users respectively. The incidences of cervical dysplasia and endometrial hyperplasia increased with increasing years of use.

Introduction

Intrauterine devices are a commonly used method of family planning and spacing. The most common ones in use are Cu.T. 200 and Lippes Loop. Their long term effect on genital tract specially oncogenic potential needs careful evaluation.

The present study was carried out to analyse cytomorphological changes in the vaginal epithelium of women using Cu.T. 200 and Lippes Loop, and to correlate their effects with duration of usage.

Material and Methods

The present study consists of 100 cases of Cu.T. 200 users and 75 cases of Lippes

Loop users attending Post Partum Programme Clinic at B.Y.L. Nair Ch. Hospital and T.N. Medical College, Bombay 400 008. The study was carried out for a period of 3 years from 1981 to 1983.

The preinsertional smears were available in 26 Cu.T. 200 users and 19 L. Loop users. In the remaining cases only post insertion follow-up smears and endometrial aspirates were available for the study.

Cervical scrapes were made from squamocolumnar junction of the cervix using Ayres spatula and were stained by Papanicolaou's method after fixing in ether—alcohol mixture. The endometrial aspirates were also collected at the same time using aspiration canula and syringe. The aspirate smear was also stained by Papanicolaou's technique. The cervical smears were graded according to W.H.O. classification (1973) viz. mild, moderate, severe dysplasias, carcinoma in situ and

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inflammatory smears. The endometrial smears were classified as normal, inflammatory and hyperplastic according to the cytopathological changes seen in the endometrial cells.

Results

Pre-insertion cytological smears were available in 26 Cu.T. 200 users and 19 L. Loop users. It showed mild dysplasia in 2 cases of Cu.T. 200 and in 1 case of L. Loop user.

Table I shows incidence of cervical dysplasia in Cu.T. and L. Loop users. The cumulative incidence was 12% and 9.3% in Cu.T. and L. Loop users respectively. The incidence increased with increasing years of usage. In cases using Cu.T. for more than 4 years, invariably the device was changed once. Probably this also has a bearing on the high incidence of dysplasia in later years of usage. Out of 12 cases of Cu. T. users in whom cervical smear showed dysplasia, 8 had change of I.U.D.—in 5 cases after 4 years of uninterrupted use and in 3 cases after 5 years.

after increasing years of use. Out of 7 cases showing dysplastic smears none had severe dysplasia while only one had moderate and the rest 6 had mild dysplasia.

The single post insertion endometrial aspirate was carried out in all cases after taking cervical smears, using endometrial aspiration canula and syringe. The initial pre-insertion aspiration smear was not available for study in any of the cases. The smears were stained by Papanicolaou's technique. The smears were graded as inflammatory if there is nuclear enlargement and loss of chromatin pattern in one or both types of endometrial glands, and there is inflammatory exudate. In hyperplastic smears there is nuclear and cytoplasmic enlargement 2-3 times normal. The hyperplasia smears were further graded as mild, moderate and severe hyperplasia.

Table II shows incidence of endometrial hyperplasia in both Cu. T. and L. Loop users and years of usage. The incidence of hyperplasia was 5% and 5.3% in Cu.T.

TABLE I
Incidence of Cervical Dysplasia in Cu.T. 200 and L. Loop Users

Period of use (Years)	Cu.T. 200		L. Loop	
	No. of cases	No. (%) dysplasia	No. of cases	No. (%) dysplasia
3-4	22	2 (9.09)	37	2 (5.4)
4-5	32	3 (9.4)	17	2 (11.7)
5-6	18	2 (11.1)	21	3 (14.3)
6-7	22	5 (22.7)	—	—
Total	100	12 (12)	75	7 (9.3)

Out of 12 cases showing dysplasia only one had severe dysplasia while 9 and 2 had mild and moderate dysplasia respectively.

In L. Loop users the incidence of dysplasia was 9.3% the incidence was higher

and L. Loop users respectively. As in cervical dysplasias, the incidence increased after increasing years of use and change of the I.U.D. in Cu. T. users. Only 1 aspirate in Cu. T. user (7 years duration) showed severe hyperplasia. In

TABLE II
Incidence of Endometrial Hyperplasia in Cu.T. 200 and L. Loop Users

(Years)	No. of cases	Cu.T. 200		L. Loop	
		No. (%) Hyperplasia	No. (%) Hyperplasia	No. of cases	No. (%) Hyperplasia
3-4	22	1 (4.5)	37	1 (2.7)	
4-5	32	1 (3.1)	17	1 (5.8)	
5-6	18	1 (5.5)	21	2 (9.5)	
6-7	22	2 (9.1)	—	—	
Total	100	5 (5)	75	4 (5.3)	

patients in whom aspirate showed hyperplasia invariably all in both Cu. T. and L. Loop group had hypermenorrhoea.

Inflammatory changes in both cervical smears and endometrial aspirates were observed in 40% and 52% of the Cu. T. 200 and L. Loop users respectively. Whenever cervical smear showed inflammatory smear, endometrial aspirate also had some inflammatory element. The fungus was detected in 6.6% of L. Loop users and only one case of Cu. T. 200 user on endometrial aspirate. The rate of inflammatory smears decreased with increasing years of use. The fungal infestation had no co-relation with years of usage.

Discussion and Comments

It has been proved beyond doubt that I.U.D.s have oncogenic property after long term usage in animals like rats (W.H.O. technical report series No. 397, 1968). The rat does not have periodic reproductive cycle and sloughing off of the endometrium, which results in the development of endometrial tumour. Many authors have studied the effect of I.U.D.s on human genital tract with variable results. Ayre (1965) reported high incidence of suspicious smears. Pincus *et al* (1964) had found suspicious smears

in 2.5% cases. Mishra *et al* (1977, 1985) did not report a single case of malignancy even after 5 years of uninterrupted I.U.D. use. In their recent study (1985) they observed incidence of cervical dysplasia as 5.2% and endometrial hyperplasia as 2.1% following uninterrupted use of Cu. T. upto 6 years. They also found higher incidence of cervical dysplasia or endometrial hyperplasia after change of device rather than after uninterrupted use of single device, probably due to fresh onslaught of copper metal in new device.

In our study not a single case of cervical or endometrial carcinoma was noticed even after continuous use of Cu. T. 200 or L. Loop for upto 7 years. Only cervical dysplasia (Cu. T. 12% and L. Loop 93%) and endometrial hyperplasia (Cu. T. 5% and L. Loop 5.3%) of mild to moderate degrees was noticed. In 3 of the patients in whom preinsertion smears had shown dysplasia, there wasn't any progress to higher grade after I.U.D. usage.

Incidence of both dysplasia and endometrial hyperplasia increased with increasing years of use and when the device was changed rather than with single uninterrupted usage.

Rate of inflammatory smears was 40% in Cu. T. users. However the incidence

of inflammatory smears decreased with increasing years of usage in contrast to incidence of dysplasia and hyperplasia. This can be explained by Hagenfeldt's (1972) hypothesis that inflammatory changes tend to decline with prolonged use of the intrauterine device as release of copper is diminished.

We also noticed few smears showing fungal infestation after Cu. T. usage which has not been reported by other workers in our country.

Many foreign workers (Gupta, 1982; Hager and Majumdar 1979, Henderson, 1973) have described association of *Actinomyces* organism in the genital tracts of women using intrauterine contraceptive devices. Organisms of the actinomyces group bear resemblance to some filamentous fungal organisms. They were considered fungi for long time but are now considered as non-sporing anaerobic bacteria. They occur as dark brownish irregular spidery bodies ("Gupta bodies"). Presence of 'Actinomyces' in the genital tract even among asymptomatic women is an indication for I.U.D. removal and therapy.

To summarise, we feel that although not a single case of cervical or endometrial malignancy was reported even after long term use of Cu. T. 200 or L. Loop, every patient must be followed up

by regular follow-up and cervical cytology once a year. Further, since the incidence of cervical dysplasia and endometrial hyperplasia increases after 5 years of use of a single device, the maximum period of uninterrupted use of Cu. T. 200 device should not exceed 5 years.

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