

VAGINAL CYTOLOGICAL CHANGES FOLLOWING USE OF DIFFERENT METHODS OF CONTRACEPTION

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During the past decade, great advances have been made in contraceptive technology. The development and subsequent modification of oral steroid contraceptives together with the designing of improved types of Intrauterine Contraceptive Device (I.U.D.) had radically altered the contraceptive practice of couples throughout the world. Apart from the conventional contraceptives namely condom with/without spermicidal jelly, the widespread use of newer contraceptive techniques, specially the systemically acting steroids has evolved a considerable amount of basic and clinical studies.

Vaginal cytology is the simplest parameter which can explore the possibility of two most important complications, name-

ly, pelvic infection and genital malignancy developing after prolonged use of modern contraceptives. The present study aims at identification of incidence, of these two complications following use of conventional contraceptives, IUD and oral pills.

Material and Methods

The 412 cases for the present study were picked up from the Family Planning Department of the Medical College, Calcutta, during the period from January, 1977 to December, 1978. Vaginal cytology was done from time to time depending on duration of use of condom (conventional contraceptive), oral pills and IUD (Lippes Loop and CuT) (Table I).

Vaginal smears were collected from all the cases, fixed in a solution of equal parts of ether and 95% alcohol and stained by Papanicolaou's staining technology (Papanicolaou, 1954). The stained slides were analysed with respect to evidence of malignancy or dysplastic changes or inflammation. The nature of dysplasia has been graded as mild, moderate or severe according to the degrees of atypia of the

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TABLE I
Duration of Use of Contraceptive Before Vaginal Cytological Study

| Duration of Use | Condom | Pills | Intrauterine Device | |
|-----------------|--------|-------|---------------------|----------|
| | | | Lippes Loop | Copper-T |
| Upto 6 Months | 8 | 24 | — | 20 |
| 7-12 Months | 12 | 24 | 8 | 28 |
| 13-18 Months | — | — | 16 | 8 |
| 19-24 Months | 4 | 16 | 20 | 20 |
| 25-36 Months | 12 | 16 | 16 | 36 |
| 3-4 Years | 4 | 4 | 48 | 8 |
| 4-5 Years | — | 16 | 12 | 8 |
| 5-6 Years | — | 8 | 8 | — |
| 10 Years | — | 4 | — | — |
| 11 Years | 4 | — | — | — |
| Total | 44 | 112 | 128 | 128 |

exfoliated cells. The results were correlated with methods of contraception, duration of use and other related factors.

Results

Age and parity Distribution of contraceptive users: The majority of women using contraceptives were within the age group of 21-35 years, although a good percentage of women upto the age of 40 years seemed to be using the Lippes loop.

With respect to parity it appears that mothers of 1 to 4 children were maximum users of modern contraceptive means in the present study.

Complaints of the Users of Different

Contraceptive Means: The various complaints received from the users of different contraceptives indicate that while the oral pills caused increased white discharge and amenorrhoea, as compared to the use of condom, I.U.D. caused significant increase in menorrhagia. In 2 cases of amenorrhoea, 1 in pill user and another using Lippes loop, the method had to be discontinued.

Cytologic Findings: Table II represents the cytological changes in women using the conventional contraceptives by way of condom. It is evident from the table that in vast majority of cases (33 out of 44) there was no departure from normal with

TABLE II
Cytological Changes in Users of Condom of Different Duration

| Duration of use in month | Negative | Inflammation | Dysplasia | | |
|--------------------------|----------|--------------|-----------|----------|--------|
| | | | Mild | Moderate | Severe |
| Upto 6 | 8 | — | — | — | — |
| 7 to 12 | 9 | 3 | — | — | — |
| 13 to 18 | — | — | — | — | — |
| 19 to 24 | 5 | 1 | 1 | — | — |
| Above 24 | 11 | 5 | 1 | — | — |
| Total | 33 | 9 | 2 | — | — |

respect to vaginal cytology. Only 9 cases showed inflammatory reactions and in 2 cases mild dysplasia was noted and that too in continuous users for 24 months and above.

However, in case of oral pill users the incidence of dysplasia was higher (Table III). Although the vaginal cytology re-

veal that in significant numbers, vaginal cytology was normal viz. in 106 out of 128 Lippes loop users and in 108 out of 128 CuT users. One important variation in cytological change in I.U.D. users was that the inflammatory changes were observed in significant per cent of cases and was evidenced as early as 6 months cases of Lippes loop users and 3 in CuT

TABLE III
Cytological Changes in Users of Oral Pills of Different Duration

| Duration of Use in Months | Negative | Inflammation | Dysplasia | | |
|---------------------------|----------|--------------|-----------|----------|--------|
| | | | Mild | Moderate | Severe |
| Upto 6 | 24 | — | — | — | — |
| 7 to 12 | 24 | — | — | — | — |
| 13 to 18 | — | — | — | — | — |
| 19 to 24 | 8 | 4 | 3 | 1 | — |
| Above 24 | 38 | 3 | 5 | 2 | — |
| Total | 94 | 7 | 8 | 3 | — |

tains normalcy in 94 cases out of 112, there were 7 cases suggestive of inflammation, 8 cases of mild dysplasia and 3 cases revealing moderate dysplasia. But all inflammatory and dysplastic changes occurred after the use of oral pills for a number of years. No case revealed severe dysplasia or malignancy.

The cytological changes in I.U.D. users

cases of Lippes loop users and 3 in CuT users. The changes were evidenced within 7 to 12 months of IUD use. Moderate dysplasia was observed in 1 case with Lippes loop and 2 cases with CuT. However, duration of use in both the cases was 24 months. There was no case of severe dysplasia even in users of longer duration (Table IV).

TABLE IV
Cytological Changes in Users of Intrauterine Device of Different Duration

| Duration of Use in Months | Negative | | Inflammation | | Dysplasia | | | | | |
|---------------------------|----------|-----|--------------|-----|-----------|-----|----------|-----|--------|-----|
| | LL | CuT | LL | CuT | Mild | | Moderate | | Severe | |
| | | | | | LL | CuT | LL | CuT | LL | CuT |
| Upto 6 | — | 17 | — | 3 | — | — | — | — | — | — |
| 7 to 12 | 5 | 21 | 2 | 6 | 1 | 1 | — | — | — | — |
| 13 to 18 | 11 | 7 | 4 | 1 | 1 | — | — | — | — | — |
| 19 to 24 | 16 | 16 | 3 | 3 | 1 | 1 | — | 1 | — | — |
| Above 24 | 74 | 47 | 7 | 2 | 1 | 1 | 1 | 1 | — | — |
| Total | 106 | 108 | 16 | 15 | 4 | 3 | 1 | 2 | — | — |

LL—Lippes loop.

CuT—Copper-T

Table V, shows the distribution of cases

TABLE V
Distribution of Cases with Initial and Developed Inflammation and Dysplasia in Condom Users According to Duration of Use

| Duration of use in months | Inflammation | | Dysplasia | |
|---------------------------|--------------|----------------|-----------|----------------|
| | Initial | Deve- loped | Initial | Deve- loped |
| Upto 6 | — | — | — | — |
| 7 to 12 | 3 | — | — | — |
| 13 to 18 | — | — | — | — |
| 19 to 24 | 1 | — | 1 | — |
| Above 24 | 4 | 1 | 1 | — |
| Total | 8 | 1 | 2 | — |

with initial and developed inflammation and dysplasia in condom users according to duration of use. It is observed that although inflammatory changes were present in 8 cases of condom users in the initial phase, only 1 developed the same after 24 months of use of such conventional contraceptives. Initially there was dysplastic change in 2 cases. Subsequently there was no such evidence in vaginal cytology even after 24 months.

Table VI, shows the distribution of

TABLE VI
Distribution of Cases with Initial and Developed Inflammation and Dysplasia in Oral Pill Users According to Duration of Use

| Duration of use in months | Inflammation | | Dysplasia | |
|---------------------------|--------------|----------------|-----------|----------------|
| | Initial | Deve- loped | Initial | Deve- loped |
| Upto 6 | — | — | — | — |
| 7 to 12 | — | — | — | — |
| 13 to 18 | — | — | — | — |
| 19 to 24 | 4 | — | 3 | 1 |
| Above 24 | 2 | 1 | 6 | 1 |
| Total | 6 | 1 | 9 | 2 |

cases with initial and developed inflammation and dysplasia in oral pills accord-

ing to duration of use. It is clearly found that although there was initial inflammation in 6 cases among pill users, 1 developed inflammation after use of oral pills for more than 24 months. Similar figure for dysplastic changes showed 9 in the initial phase and 2 in the later phase of more than 20 months use.

In case of I.U.D. users (Table VII), the

TABLE VII
Distribution of Cases with Initial and Developed Inflammation and Dysplasia in Intrauterine Device Users According to Duration of Use

| Duration of use in months | Inflammation | | Dysplasia | |
|---------------------------|--------------|----------------|-----------|----------------|
| | Initial | Deve- loped | Initial | Deve- loped |
| Upto 6 | 3 | — | — | — |
| 7 to 12 | 7 | 1 | 2 | — |
| 13 to 18 | 4 | 1 | 1 | — |
| 19 to 24 | 3 | 2 | 2 | 1 |
| Above 24 | 8 | 2 | 4 | 1 |
| Total | 25 | 6 | 9 | 2 |

incidence of inflammation was 25 in the initial phase and 6 in the developed phase, whereas the dysplastic changes were 9 in initial phase and 2 in developed phase.

Comments

Although the traditional contraceptives have declined in popularity in the past several years, they still have a place in the contraceptive armamentarium. Some patients prefer to use them for personal reasons or because they cannot tolerate other methods. Although the original purpose of the condom was to protect the user against venereal disease, if it is used together with medical contraceptives like spermicidal jelly, some non-specific vaginal infection may result. The present study suggests that out of 44 cases of condom users there was cytological evidence

of inflammation in 9 cases. All were of non-specific character. But there was not a single case where dysplastic changes were observed in vaginal cytology in this group excepting in 2 cases where dysplastic changes were only in mild form.

There has been disquieting development relating to pelvic infection to the use of pills. Fiumara (1971) has noted an increased incidence of upper genital tract infection among women using pills, who have been exposed to gonococcus. A higher incidence of ectopic pregnancy has been reported among the pill users partly due to less mobility of the tube caused by progestogen in the pills.

From the epidemiological standpoint, there is little reason to suppose that steroid contraceptives would have any influence on cervical cancer. The risk of the disease is closely related to such factors as age at marriage, age at first intercourse and number of sexual partners. Indeed almost everything points to the importance of some aspect of sexual intercourse as the principal etiological agent and almost nothing to hormonal factors.

Nevertheless, a considerable number of studies of the relationship between oral contraceptives and carcinoma of the cervix (or, to be more precise, carcinoma in situ of the cervix) have been undertaken. The results have been contradictory; rates of cervical neoplasia were lower for users of oral contraceptives than controls in two studies—(Pincus, *et al* 1965; Tyler, 1964), no different in four studies (Maquo *et al*, 1966; Weid *et al* 1966; Worth *et al* 1972) and higher in further four studies (Attwood 1966; Kline *et al* 1970; Liu *et al* 1967). No association was found between the use of oral contraceptives and cervical neoplasia (Roy Chowdhury, 1980).

Oral contraceptives have been in wide-

spread use for only about 10 years. The possibility that they might have a carcinogenic effect cannot therefore be excluded at the present time. The present data reported and those that are currently available, however, are reassuring.

Prolonged use of I.U.D. is often accompanied by alteration in the uterine cavity. The changes may include non-specific and specific inflammatory and foreign-body reactions and exfoliation of bizarre atypical cells. The well recognized association between pelvic inflammatory disease and tubo-ovarian infection with unilateral tubo-ovarian abscess is being reported with increasing frequency among I.U.D. users.

We have no firm information available concerning the late sequelae of mild pelvic infection in I.U.D. users. Whether these patients will represent a future pool of women with tubal factor infertility is not known.

Ayre published a preliminary report in 1965 suggesting that the I.U.D. may change hard cervical epithelium into a dysplastic one. He reported the development of cervical squamous atypia in normal women after I.U.D. insertion. These epithelial changes are reversible after removal of the device and electro cautery or cold conization.

Summary

Vaginal cytology was performed in 412 cases using condom (conventional contraceptive), oral pills and I.U.D. (Lippes loop and CuT) with different duration of use. This was done to explore the possibility of two most important complications, namely pelvic infection and genital malignancy developing particularly after prolonged use of modern contraceptives.

It is evident from the present study that there is no precipitous carcinogenicity of

modern contraceptives—not even in the recently used oral pills or medicated IUD. Rather the possibility of a prophylactic effect of these contraceptives against cervical malignancy by restricting family, merits intensive study.

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