

# A STUDY OF LONG TERM EFFECT OF LIPPES LOOP ON ENDOMETRIUM\*

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## SUMMARY

Long term effect of Lippes loop on endometrium was studied by histological and histochemical techniques.

### Introduction

IUCD is one of the most effective, easy and popular method of Birth Control. Lippes Loop was the earliest IUCD introduced in this country and was widely used since 1965. While the IUCD is in situ, the changes occurring in the endometrium have been studied by several authors (Ira Riffkin *et al* 1964; Achari *et al* 1967; Parr 1969; Moyer and Mishell, 1971; Sahani and Kothari, 1972 and Singh *et al*, 1980). But all these workers have reported the endometrial changes with IUCD in situ for less than three years which is rather a short term observation.

The aim of the present study is to evaluate the long term effect of Lippes-Loop on endometrium, the loop being pre-

sent in the uterus for more than 5 years, by histological and histochemical techniques.

### Material and Methods

Material endometrium was collected during removal of loop by curettage in 42 cases having IUCD for more than 5 years. Besides H & E stain, special stains like PAS stain for glycogen to assess the endometrial rippening, MGP stain for plasma cells and toluidine blue stain for mast cells were done in the materials.

### Observations

The age range of the study group were from 25 years to 41 years. Eight cases were within 30 years, 15 cases were within 31 to 35 years, 17 cases were within 36 to 40 years and above 40 years were 2 cases only. That means most of the cases were in the child bearing age.

Lippes loop was present in uterus at a stretch for 5 to 6 years in 16 cases, for 7 to 8 years in 4 cases and for 9 to 10 years in 22 cases. These 22 cases were mostly elderly within 35 to 40 years of age and

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they were probably oblivious to the loop until some complaints occurred to them.

Twenty-two of the 42 cases came for menorrhagia for more than 6 months. Irregular vaginal bleeding for more than 2 months, excessive white vaginal discharge for more than one year occurred in 4 cases each and chronic pelvic pain and backache for more than 2 years were also the complaints in 5 cases. Apprehension for development of genital carcinoma due to long term presence of loop in uterus compelled 4 cases to come for removal of loop. Three cases had no complaint yet insisted on removal of loop. These 3 cases had the IUCD in situ for 5 years only.

Histologically there were certain distinct features (Tables I and II).

TABLE I  
*Histology of Endometrial Tissue*

Endometrial Glands	Proliferative	10 Cases
	Mixed	2 "
Stromal Cells	Normal	30 "
	Plumpy	12 "
Micropolyp Formation	Present	31 "
	Absent	11 "
Squamous Metaplasia	Present	6 "
	Absent	36 "

(a) The bulk of the material mostly composed of blood clot and endometrial material was very scanty.

(b) Endometrial glands were scanty in number (less than 5 in low power field) in most of these cases. The glands were in proliferative phase in 40 cases (Fig. 1) and 2 cases showed mixed picture i.e. some of the bits showed glands in the proliferative phase where as some other bits of the curetage material showed glands in early or late leutal phase (Fig. 2), in spite of the fact that not all cases had the loop removed in the first half of the menstrual cycle.

(c) The stromal cells were normally stellate in 30 cases (Fig. 1) and plumpy in 12 cases. There was no pseudodecidual change in the stroma. These 12 cases were treated with a short course of progestogens for menorrhagia.

(d) Micropolyp formation was seen in 31 cases out of 42 cases (Fig. 3). These polypi were formed mostly by stromal cells and scanty endometrial glands and lined by surface epithelium. These polypi could very well be called stromal polypi (Hynes and Taylor 1975).

The surface epithelium showed squamous metaplasia in 6 out of 42 cases (Fig. 4).

(e) Stromal oedema was a very prominent feature in 30 cases out of 42 cases (Fig. 1). Fibrotic and hyalinised stroma

TABLE II  
*Histology of Endometrial Tissue*

Stroma	Oedematous	30 Cases
	Hyalinised	7 "
	Fibrotic	5 "
Foamy Histiocytic Cell Collection in Stroma	Present	33 "
	Absent	9 "
Giant Cell Reaction in the Stroma	Present	4 "
	Absent	38 "
Inflammatory Cell Infiltration in Stroma	Diffuse	10 "
	Focal	32 "



was observed in 5 cases and 7 cases respectively (Table II).

(f) Inflammatory cell infiltration was seen in all these cases. These cells were mostly lymphocytes and only occasionally plasma cells. Leukocytes and mast cells were conspicuous by their absence. There was diffuse lymphocytic cell collection in only 10 cases and these cases had their loop in the uterus for 5-6 years. Rest 32 cases showed focal lymphocytic cell collection and that too appeared to be within normal limit, (Fig. 1).

It is evident that chronic inflammatory cell collection was not the very striking feature in spite of the fact that a foreign body was inside the uterus, intimately in contact the endometrium for a long period.

(g) Focal mononuclear giant cell reaction was seen in 4 cases only.

(h) Focal foamy histiocytic cell collection was seen in large number of cases (33 out of 42 cases), (Fig. 5). This histiocytic cell collection was a more distinct feature in the endometrial histology than any other inflammatory cell collection i.e. focal lymphocytic cell collection.

#### Discussion

The patients in the present study were all in the child bearing age group and all of them had the loop in the uterus for more than 5 years and a majority of them had the loop in situ for about 10 years. They were oblivious to the loop and some complaints like menometrorrhagia made them conscious about the loop.

The endometrial glands in the present study were scanty showed proliferative change only. No evidence of secretory change of the endometrium was seen in spite of the fact that not all cases had the loop removed in the first half of the cycle. This does not corroborate with the previous studies evidencing the participation of

the endometrium, with the loop in situ, in the cyclic hormonal change (Singh *et al* 1980 and Kher *et al* 1976).

The proliferative glands in the present study could suggest that the endometrium had become refractory to progesterone due to long term irritation by the foreign body and this again could be the cause of menometrorrhagia due to loop (Annonymus, 1982).

The micropolypi present in a large number of cases in the present study could be the effect of long term foreign body irritation by Lippes loop and also be the cause of menometrorrhagia. The occurrence of micropolypi in the endometrium due to Lippes loop has not been reported previously which could be due to the fact that the cases studied by previous workers had their loop in situ for less than 3 years, not allowing sufficient time to develop the polypi (Moyer and Mishell, 1971; Sahani and Kothari, 1972; Ishihama and Plakino, 1971; Singh *et al* 1980; Sharma *et al* 1981 and Ghose and Mukherjee, 1981).

This micropolyp formation probably points to oestrogenism and/or refractoriness of the endometrium to progesterone or the low supply of progesterone by the ovary (Hynes and Taylor 1975; Anonymus, 1982).

Squamous metaplasia of the surface epithelium of endometrium, in the present study was not a very frequent feature contrary to the observations of Ghose and Mookherjee, 1981.

Stromal oedema was conspicuous in the present study as was observed by other authors (Singh *et al* 1980; Ghose and Mukherjee, 1981; Sahani and Kothari, 1972 and Ishihama and Plakino, 1971).

Inflammatory cell population, in the present study, comprised mainly of lymphocytes distributed mostly focally. The neutrophilic leukocytes and plasma cells



which were significant in the reports of previous authors (Myer and Mishell, 1971; Singh *et al* 1980 and Sharma *et al* 1981) were conspicuous by their absence in the present study. The focal lymphocytic collection found in the endometrial stroma in the present series, were also not very prominent rather were within normal limit. Achari *et al* 1967 had a similar observation.

This insignificant round cell infiltration in the endometrium could be due to the fact that due to the long term presence in the endometrium Lippes loop was well tolerated by the system and could no longer excite foreign body reaction as it could do initially after insertion.

The foamy histiocytic cell collection also cater for the well tolerated long term presence of a foreign body in the uterus.

Thus the present study points to the fact that the Lippes loop after 5 years is well tolerated by the endometrium and it can not evoke much of inflammatory response in the endometrium which becomes atrophic and probably refractory to the progesterone.

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See Figs on Art Paper II, III