

HISTOPATHOLOGICAL CHANGES IN FALLOPIAN TUBE FOLLOWING FALOPE RING APPLICATION†

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Introduction

Laparoscopic sterilisation by Falope ring application is being used extensively and has more or less replaced the other conventional methods of female sterilisation. With the increase in number of women undergoing tubal ligation, there will be increase in number of women seeking recanalisation. There is hardly any report available on the effect of falope ring application on fallopian tubes. To know these effects a study of histopathological changes in fallopian tube following falope ring application was carried out in the State Zenana Hospital, Jaipur in Rajasthan.

Material and Methods

The study comprised 30 patients of middle class income group and who were in reproductive age. Out of 30 cases, 24 were Hindus and rest 6 were Muslims. 40.0 per cent of the patients were illiterates, 20.0 per cent were literate upto primary standard and 30.0 per cent upto the high school level, and rest 10.0 per cent were collegiates.

Out of these 30 cases, 12 had other gynaecological problems and wanted ligation. Ten women intended to have tubal ligation by other conventional methods but at least not laparoscopic, 4 had come for MTP and re-sterilisation (failed ligation) and rest 4 came for recanalisation.

Ten cases were those who came only for tubal ligation and they wanted other conventional methods, but not the laparoscopic. They had some vague complaints of pain in abdomen and backache, but, on clinical examination, no abnormality could be detected. These women were motivated for laparoscopic examination before sterilisation. When laparoscopic examination was done, Falope rings were applied on the fallopian tubes and later on that is, after 1-2 weeks re-

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removal of the segment of tube with falope ring was done by a minilaparotomy.

Those 12 cases who had other gynaecological problems (II and III uterovaginal prolapse—10, complete perineal tear—2) wanting ligation with repair operation had no adnexal pathology clinically and on laparoscopy. In all these cases, sterilisation was done on 2nd or 3rd day of admission by laparoscope and falope ring applied. Later on, the segment of the fallopian tube with falope ring in situ was removed by doing colpotomy when repair operations were done after 3 to 4 weeks of falope ring application.

Four cases were those who came for medical termination of pregnancy and re-sterilisation whose sterilisations were done in the camp about 3-4 months back and they had failure. In these patients, MTP and minilaparotomy was done and the fallopian tube segment with falope ring in situ was resected out.

The last 4 cases came for recanalisation. These cases also had laparoscopic sterilisations in camps and came within 3-4 months for recanalisation, because 2 of them had lost their male children—one lost both her children and the other had become psychic after ligation and wanted recanalisation at any cost. In all these cases also the segment of the tube with falope ring was resected out and studied (Table I).

Complete history taking, general physical and local examination was done. Routine investigations were also carried out.

Observations and Results

In all the 30 cases the resected segments of the fallopian tube with falope ring in situ were studied grossly when they were removed and then those segments were preserved in formal saline for histopathological examination. For the study, gross as well as histopathology, each segment was divided into 3 portions—distal, middle and proximal as shown in Figure I.

Distal—which was distal to the loop formed after ring application.

Middle—portion of the tube where ring was applied.

Proximal—Fallopian tube left behind on either sides of the ring.

Table II shows the gross pathological changes in the resected segments when removed at different times.

The segments resected after 1-2 weeks showed marked oedema, congestion and were giving strangulated look at the distal portion. There was slight oedema in proximal portion also. After 3-4 weeks oedema and congestion were less and blood in lumen started organising while after 3-4 months the distal portion was white, cord-like hard with complete

TABLE I
Distribution of Cases According to Resection of Segment at Different Intervals

No. of cases	Group	Other Problems	Segment Resected
10	I	Vague backache, Pain abdomen	1-2 weeks
12	II	Utero-vaginal prolapse/ complete perineal tear	3-4 weeks
4	III	Failure of sterilisation	3-4 months
4	IV	Wanting recanalisation	3-4 months

TABLE II

Gross Pathological Changes in the Resected Segment When Removed at Different Intervals

Group with Interval	No. of cases	Distal portion of Fallopian Tube	Middle	Proximal
I (1-2 weeks)	10	Markedly congested, swollen, oedematous, lumen filled with blood clot giving strangulated appearance	White, constricted, lumen obliterated	Slightly congested, oedematous
II (3-4 weeks)	12	Oedema and congestion less blood in the lumen organized	-do-	Congestion disappeared, look normal
III & IV (3-4 months)	8	Cord-like knuckle No oedema. No congestion, Lumen obliterated	-do-	-do-

obliteration of the lumen but the proximal portion looked normal.

Histopathological Changes in Fallopian Tubes Resected at 1-2 Weeks Interval

(a) *Distal Portion* (Photograph 1)

Lumen—Occupied by haemorrhagic fluid containing large number of acute inflammatory cells and necrotic material.

Muscle coat and mucous membrane—Showing proliferation of vessels and fibrous tissue with infiltration of acute inflammatory cells; the vessels showing congestion with some areas of interstitial haemorrhage.

(b) *Middle Portion* (Photograph 2)

Lumen—Completely obliterated by necrosed material, infiltrated by acute inflammatory cells.

Muscle coat and mucous membranes—congested and infiltrated by chronic inflammatory cells (plasma cells, eosinophils).

(c) *Proximal Portion* (Photograph 3)

Lumen—Unremarkable.

Muscle coat and mucus membrane—showing slight infiltration with acute and

chronic inflammatory cells. Vessels were showing marked congestion.

Histopathological Changes in the Fallopian Tube Resected at 2-3 Weeks Interval

(a) *Distal Portion* (Photograph 4)

Lumen—filled with organised blood and small amount of necrotic tissue.

Muscle coat and mucus membrane—showing congested vessels and few acute inflammatory cells (lymphocytes, eosinophils and occasional giant cells).

(b) *Middle Portion* (Photograph 5)

Lumen—filled with organised blood.

Muscle coat and mucus membrane—showing slight necrosis, congestion and infiltration with few inflammatory cells, mainly eosinophils.

(c) *Proximal Portion* (Photograph 6)

Lumen—Epithelium unremarkable.

Muscle coat and mucus membrane—showing haemorrhage and collection of inflammatory cells (lymphocytes).

Histopathological Changes in Fallopian Tubes Removed at 4 Weeks Interval(a) *Distal Portion* (Photograph 7)

Lumen—completely obliterated by fibrotic material.

Muscle coat and mucus membrane—showed increase in fibrous tissue and infiltration with few chronic inflammatory cells; vessels showed congestion.

(b) *Middle Portion*

Lumen—obliterated by hyalinised fibrous tissue and few chronic inflammatory cells.

Muscle coat and mucus membrane—showing slight increase in fibrous tissue and few chronic inflammatory cells.

(c) *Proximal Portion*

Lumen—Unremarkable.

Muscle coat and mucus membrane—slight increase in fibrous tissue.

Histopathological Changes in Tubes Resected at 3 Months and 4 Months Interval

Changes were same in both groups.

(a) *Distal Portion*

Lumen—completely obliterated and occupied by hyalinised mass of fibrous tissue.

Muscle coat and mucus membrane—showing slight increase in fibrous tissue and few chronic inflammatory cells.

(b) *Middle Portion* (Photograph 8)

Slight increase of fibrous tissue and congestion of vessels.

(c) *Proximal Portion* (Photograph 9)

Lumen—unremarkable.

Muscle coat and mucus membrane—showing collection of inflammatory cells and histiocytes. Slight increase in the fibrous tissue.

See Figs. on Art Paper IV, V, VI