

MENSTRUAL DISORDERS AFTER STERILISATION WITH SPECIAL REFERENCE TO OVARIAN ACTIVITY

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Introduction

Tubal ligation is an effective method of birth control but it has its drawback, for once such an operation is performed its effects are permanent. In a country like ours where the infant mortality rate is still so high and adolescent deaths by tropical diseases are not uncommon the question of subsequent recanalisation may pose a problem and also the question of ovarian functions for subsequent fertility would naturally arise.

It is essential that the problems connected with tubectomy and vasectomy, both immediate and late, should be studied thoroughly so that we are able to use this method on mass scale without fear of criticism and complications.

Material and Methods

This study comprises of 125 cases after tubal ligation. These cases were divided into two main groups, (1) Symptomatic (2) Asymptomatic.

A detailed clinical study was done comprising history, general examination and systemic examination followed by per vaginal examination with special reference to any inflammation.

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Investigations done. (1) Vaginal smears. (2) Cervical mucus. (3) Endometrial biopsy.

Vaginal smears were stained by Papanicolaou stain. Evaluation of the smear was done by following criteria: (1) Maturation Index. (2) Karyopyknotic Index. (3) Maturation Value.

Maturation Value

It is oestrogen dependent quantitative value which is calculated by giving weight to each cell type and is obtained by multiplying the percentage of the each cell type by its specific value. The sum of the results falls between 0-100.

Parabasal cell	0.0
Intermediate cell	0.5
Superficial cell	0.9

Endometrial Biopsy

These were taken in premenstrual phase. Haematoxylin staining was used.

Cervical Mucus Test

It was done to see the cervical mucus pattern.

Observations

In the present work, menstrual irregularities in relation to ovarian activity after sterilisation were studied in 125 cases by means of premenstrual vaginal smear, cervical mucus and endometrial

biopsy. Premenstrual biopsies were possible only in 42 cases.

Age and Parity

The average age at the time of operation was 31 years. The youngest was 20 and oldest 40 years. Maximum number of cases were in the age group 20-30 years. The majority of the patients were 3-4 para.

Follow-up Period

The maximum number of patients were those who had tubal ligation done 7 year back.

Timing of Ligation

Maximum number of the patients were ligated for multiparity. 56% of cases were sterilised during puerperium. Maximum number of cases were ligated by the abdominal route (92%). Cases of vaginal ligation were only 8 per cent.

Analysis of Symptomatology

88.8% of cases were symptomatic.

It is evident from Table II that the maximum shift towards right in mean maturation index was in cases of 1 to 6 months after sterilisation. It appears to drop down from six months to one year and then has a gradual rise which stabilizes itself from a period of 12 years or so.

TABLE I
Complications After Tubal Ligation

Complications	No. of cases	Percentage
Menstrual irregularities	73	66.6
Chronic pain	49	39.2
Obesity	13	10.4
Psychosis	24	19.2
Acute retention of urine off & on	2	1.6
Failure	2	1.6
Ventral hernia	1	0.8

TABLE II

Mean Maturation Index in Relation to Interval After Tubal Ligation in Cases with Menstrual Irregularities

Interval after study	Mean maturation index
1 to 6 months	0/21.2/77.7
6 months to 1 year	0.5/41.8/56.8
1 year to 5 years	0/38/61.2
5 years to 12 years	6.6/34.4/66
12 years to 20 years	0/23.3/75

The mean maturation value found in a period of 1 month to 6 months was 81.4. It dropped a little from 6 months to 1 year and continued almost on a similar level.

Amenorrhoea was present in 5 out of 125 cases. Mean maturation value was 82.3 ranging from 82 to 87.6 to shift to right in mean maturation index showing 0/13/87.

In seventeen cases of oligomenorrhoea, all showed a high oestrogenic activity.

In 27 cases of menorrhagia after sterilisation, premenstrual endometrial biopsies were taken in 13 cases, 12 showed proliferative phase and one secretory phase. These findings correlated with cytological findings. Cervical mucus findings of 3 cases did not coincide with vaginal smears and endometrial biopsies. Out of 27 cases, 21 were anovular. In all these cases karyopyknotic index was high.

Out of 10 cases of dysmenorrhoea, 3 were ovulatory as shown by vaginal smear cervical mucus and endometrial biopsy. There was a shift to the right in 7 cases. Cervical mucus of 2 cases did not reveal the same oestrogenic effect.

Twelve cases of polymenorrhoea were found in post ligation cases. There was high oestrogenic activities revealed by shift to the right in maturation index high maturation value and proliferative phase in 7 cases out of 12. One case was suf-

fering from irregular bleeding on account of a polyp. Early menopause in 1 case was encountered.

Amenorrhoea was present in 5 out of 125 cases.

TABLE III

Mean Maturation Value in Menstrual Disorders in Relation to Interval after Tubal Ligation

Interval after tubal ligation	Mean maturation value	Range %
1 to 6 months	81.4	65.2-88.8
6 months to 1 year	74.4	48.6-87.6
1 year to 5 years	75.9	59 -89.3
5 years to 12 years	75.1	53.8-87.6
12 years to 20 years	77.9	70 -86.8

It is evident from the Table IV that there was shift to the right in maturation

TABLE IV

Mean Maturation Index in Different Menstrual Disorders

Menstrual disorders	Mean maturation index	Mean maturation value	
		MMu	Range
Amenorrhoea	0/13/87	82.3	82-87.6
Oligomenorrhoea	2/24.4/74.7	80.4	53.8-89.3
Menorrhagia	0/32/68.4	77.4	60-87.6
Dysmenorrhoea	0/39.6/61.4	75.4	54-88.8
Polymenorrhoea	0/39.7/60.2	75.2	62-87.4

index in all the cases of menstrual disorders after tubal ligation and high karyopyknotic index. Maximum shift to right in mean maturation index was in cases of amenorrhoea, least in polymenorrhoea.

Mean maturation value was high also in cases of amenorrhoea and oligomenorrhoea. The above would indicate that the menstrual irregularities were in no way connected with hypoeoestrinism. In fact they showed hyperoestraemia.

It is observed from the Table V that mean maturation value 76.0 is maximum

TABLE V

Mean Maturation Value in Different Group of Cases

Group of cases	Mean Maturation value
Cases with menstrual disorders	76.0
Cases without menstrual disorders	71.8
Cases with lactational amenorrhoea	65.7

in cases of menstrual disorders after sterilisation in comparison to other group of cases.

Having a look at Table VI, it would be evident that the mean maturation value is lowest 7 days to 7 month after ligation. It gradually goes on rising till at 6 months to 1 year it was 71.8

Discussion

In the present series of 125 patients, 111 (88.8%) presented with specific symptoms.

In our series incidence of various complications is much higher than those found by earlier authors. This can be justified by the fact that most of the patients usually came with specific symptoms. They did not come as follow-up cases.

Menstrual irregularities were common in age group 20-30 years while dysfunctional uterine bleeding occurred at or

TABLE VI

Mean Maturation Value in Relation to the Interval after Tubal Ligation with Lactational amenorrhoea

Interval after tubal ligation	Mean maturation value	Range
7 days to 1 month	59.6	9.3-88.2
1 month to 3 months	63.2	63.2
3 months to 6 months	68.6	52-78.1
6 months to 1 year	71.8	66-86

about 40 years of age. It appears that there may be some relationship between the irregularity and ovarian function. Shift of the maturation index towards the right indicates hyperovarian activity. Such over activity may be due to hyperovarian function per se or due to clinical or sub-clinical inflammation.

Menorrhagia

Menorrhagia was present in 27 (22.4%). Out of 27 cases of menorrhagia, vaginal smears showed karyopyknotic index above 70% in 20 cases. Cervical mucus test showed ferning and 11 endometrial biopsies out of 13 were in proliferative phase. One case showed proliferative phase with cystic dilatation of glands. In one case endometrial biopsy was of early secretory phase. There was clinical evidence of inflammation in two cases.

Oligomenorrhoea

It was encountered in 17 cases (13.6%).

Out of 17 cases, pelvic inflammation was present in 2 cases. In cytological examination, 13 cases showed shift to right with high percentage of karyopyknotic index. Karyopyknotic index was 71-90% in 6 cases, 9-100% in 5 cases, 51-70% in 3 cases. Four out of 5 premenstrual endometrial biopsies showed proliferative phase. Other was of secretory phase.

The suggestion, therefore, that there is reduction in ovarian activity because of reduced blood supply does not appear to be true as there was no evidence of lack of ovarian activity in vaginal smears.

Polymenorrhoea

It was present in 12 (9.6%), out of 125 patients. In all cases of vaginal smear, cervical mucus test and endometrial biopsy, a high oestrogenic activity was found. All vaginal smears were showing high karyopyknotic index with proliferative phase in corresponding endome-

TABLE VII

Comparative Incidence of Different Complications

Complications	Present series	Dawn 1968	Shah 1969
Menstrual irregularity	66.6	45.6	28
Chronic pain	39.2	10.0	.57
Subsequent pelvic pathology	39.4	8.56	—
Mental conflicts	19.2	33.8	1.4
Ventral hernia	00.8	04.7	.57
Obesity	10.4	—	—
Failure	01.6	00.4	—

TABLE VIII
Comparative Incidence of Different
Menstrual Disorders

Menstrual disorders	Present series	Bisney et al 1968
Menorrhagia	22.4%	18.0%
Oligomenorrhoea	13.6%	4.7%
Polymenorrhoea	9.6%	13.8%
Dysmenorrhoea	8.0%	3.0%
Amenorrhoea	4.0%	—

trial biopsies. Pelvic inflammation was present in 1 case.

Dysmenorrhoea

It was present in 10 cases. Pelvic inflammation was present in 3 cases.

It has been suggested that dysmenorrhoea, in the absence of any clinically detectable pathology is likely to be of psychogenic or neurogenic origin. But on examining vaginal smear cervical mucus and premenstrual endometrial biopsies, in 4 cases out of 10, 3 were ovulatory. In the remaining 7 there was a shift to the right in maturation index varying from 0/32/68 to 0/3/97. It would, therefore, indicate that in the absence of ovulation and pelvic pathology the dysmenorrhoea could be explained on psychogenic or neurogenic ground.

Amenorrhoea

It was present in 5 cases out of 125 cases. In all cases the karyopyknotic index was high. Mean maturation index was 0/13/87 varying from 0/33/69 to 0/5/95. Mean maturation index was maximum in cases of amenorrhoea in comparison to other menstrual disorders after sterilisation.

There was evidence of mild inflammation only in 1 case. The above finding

showed that amenorrhoea after sterilisation is due to hyperoestronaemia. It is therefore suggested that amenorrhoea is due to superthreshold levels of oestrogen.

From the results obtained in the present study it is obvious that ovarian activity after sterilisation was either found to be normal or increased. Such increased activity could be psychological, neurovascular or may be due to the presence of inflammation.

Clinical inflammation was found only in 10 cases in the present series, out of which 2 had hydrosalpinx and in the remaining 8, thickening or an adenexal mass. Out of 10 cases of pelvic inflammation 9 cases were associated with menstrual disorders.

The general belief that menstrual irregularities, specially oligomenorrhoea were due to hypooestronism seems to be contradictory.

From the findings in the present series, one might conclude that ovarian activity is not reduced after tubectomy operation.

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