

INFERTILITY AND AMENORRHOEA FOLLOWING ABORTIONS

by

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Introduction

Infertility following abortion is not an infrequent clinical symptom. Association of secondary amenorrhoea makes the problem more complex. The exact etio-pathological factor responsible for these complications is not always clear. The objective of the present paper is to probe into the possible factors responsible for such hazards, emphasising particularly on the factors leading to secondary amenorrhoea.

Materials and Methods

Four hundred and ten cases have been followed through and in all of them, the previous pregnancy ended in abortion either in the first or in the second trimester. Some of these cases had more than one consecutive abortions.

These cases were selected from those attending the gynaecological out patient's department of N. R. S. Medical College, Calcutta, during the period from 1st January, 1970 to 31st March, 1973. Out of 410 cases, 95 (23.2%) complained of infertility. Period of infertility varied from 1 to 13 years. Of these, 18 had secondary amenorrhoea and 12 oligomenorrhoea.

Grouping of Cases

For the purpose of analysis of etiolo-

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gical factors separately, these cases were grouped into two categories:

Group A: Amenorrhoea and oligomenorrhoea were the presenting symptoms and infertility, of course, was the secondary one. This group consisted of 30 cases.

Group B: The remaining 65 cases had infertility as the primary symptom. Some of these cases had associated menstrual abnormalities, but none had amenorrhoea or oligomenorrhoea.

Both these groups have been further correlated to the clinical history relating to the number and nature of abortions and the palpable pathological lesions that could be felt by abdominopelvic examination.

An attempt has been made to find the cause of amenorrhoea and infertility on the basis of histological report of endometrial curettage and hysterosalpingographic observation. Cytological examination of vaginal smear was carried out in a few cases of secondary amenorrhoea.

Results of Analysis

TABLE I
In Relation to Number of Abortions

No. of abortion	Group A	Group B
1	21 (70%)	38 (58.56%)
2	7 (23.33%)	14 (21.54%)
3	1 (3.33%)	8 (12.31%)
More than 3	1 (3.33%)	5 (7.69%)

From Table I, it is apparent that the incidences of infertility and secondary amenorrhoea do not increase with increasing number of abortions. These hazards are rather more after one than following more than one abortion.

The incidence of amenorrhoea and oligomenorrhoea was more frequent with advancing age of the patient (31 years and above), while the incidence of infertility without amenorrhoea was commonly observed in the age group 21-30.

TABLE II
Nature of Abortion

Nature of abortion	Group A	Group B
Spontaneous	25 (83.33%)	50 (76.93%)
Induced	5 (16.67%)	15 (23.07%)

Classification of induced and spontaneous abortion was based on patients' history. The figures in Table II do not, however, represent a true incidence because in many cases, history of deliberate interference has been denied. How-

ever, from the available data it follows that incidences of both amenorrhoea and infertility were higher after spontaneous than following induced abortion.

Pelvic pathology in the form of adnexal lump or parametrial thickening was most commonly observed in cases of infertility without amenorrhoea or oligomenorrhoea (Table III). Three cases with amenorrhoea or oligomenorrhoea had hypoplastic uterus; 2 of them had endometrial tuberculosis and 1 had features of partial Sheehan's syndrome.

Endometrial curettage was performed in 70 cases. It will be observed from Table V that endometrium was fibrotic in 5 (Fig. III) and scanty and atrophic in 7 cases. Introduction of sound and dilator was difficult in 5 cases who had fibrotic endometrium indicating thereby that they had intrauterine adhesions. When such difficulty was experienced, curettage was postponed and hysterosalpingogram was performed. Subsequently under anaesthesia endometrium was obtained by Sharman's curette, and thorough curette was avoided in these cases.

TABLE III
Pelvic Findings

Pelvic Findings	Group A	Group B
No abnormality	27 (90%)	39 (60%)
Adnexal lump	—	16 (24.62%)
Parametrial thickening	—	8 (12.31%)
Hypoplastic uterus	3 (10%)	—
Uterine fibroid and others	—	2 (3.07%)

TABLE IV
In Relation to Endometrial Curettage (70 Cases)

Nature of endometrial curettage	Group A	Group B
Secretory	3 (14.29%)	18 (36.74%)
Non-secretory	4 (19.05%)	31 (63.26%)
Tubercular	2 (9.52%)	—
Fibrotic	5 (23.81%)	—
Scanty or atrophic	7 (33.33%)	—

It appears that scanty and atrophic endometrium was commonly observed in advanced age group; but this was not true with fibrotic endometrium. Study of vaginal cytology revealed oestrogen deficient smear in those cases who had scanty or atrophic endometrium. Cases with fibrotic endometrium, had normal cytological pattern.

Further correlation with subsequent uterine exploration shows that the incidence of fibrotic endometrium was common when post abortal exploration of uterus was done for retained bits of placenta or persistence of bleeding. No such relationship existed with the finding of scanty endometrium.

Hysterosalpingogram could be performed in 61 cases. Cases with pelvic lump were deliberately excluded. In the amenorrhoea group, 7 showed filling defect of uterus. 5 of these cases were surely due to uterine synechiae (Figs. I and II) and 2 cases although not conclusive but appeared suggestive of fibrous adhesions at the fundal region. Incidence of tubal block (12 cases) was more in the other group of infertility, of which 6 had neither any subjective symptom nor any objective sign.

TABLE V

Tubal Block and Filling Defect in Relation to Postaborted Exploration

	Tubal block	Filling defect
Exploration done	2	6
Exploration not done	10	2

From Table V, it appears that filling defect or uterine synechia had a definite relationship to postabortal exploration of the uterus while no such correlation existed in cases of tubal block.

Comments

It has been generally accepted that major contributory factor for infertility following abortion is postabortal infection leading to tubal occlusion. Halbrecht (1965) has undoubtedly found it as the most frequent cause of secondary sterility. Rohatgi (1971) has found postabortal infection responsible for pelvic inflammatory disease in 51.85 per cent of cases. Analytical data of the present series, however, suggests that this factor may be one, but cannot be considered as the major cause of infertility. In this series pelvic inflammatory lesion was responsible for infertility in only 25.3% (24 out of 95 cases).

The other group of infertility in the present series had no menstrual abnormality and they had no gross palpable pelvic pathology. Conception failure in these cases was either due to asymptomatic tubal block or due to nonovulation. A few cases, however, failed to conceive in spite of everything being 'normal'.

Asymptomatic tubal block was detected in 6 cases, 4 of them following spontaneous abortion. Tubal block of this nature without any evidence of apparent infection could perhaps be due to reflux of blood at the time of abortion from the uterine cavity into the fallopian tube. Dykova *et al* (1960) corroborate this view and further affirm that organisation of this tubal haematoma may take place without acute clinical signs or even without subjective symptoms.

Nonovulation was found to be responsible for infertility in 63.26% of Group B cases. Ganguli *et al* (1972) observed non-secretory endometrium in 36.4% of secondary infertility. Cause of nonovulation following previous conception is not clearly understood. It may be possible that some of these cases did not conceive

at all and in fact, they were cases of primary infertility. Amenorrhoea of one or two months followed by heavy bleeding, sometimes with passage of clots is frequently stated by the patients as due to abortion, but often these episodes are purely functional in nature.

A few cases had neither tubal occlusion nor the problem of nonovulation and yet they failed to conceive. These cases could perhaps be explained by the condition which is known as "silent abortion". Bonachera and Llusia (1953) have stated that many conceptions are eliminated before the first "missed period" and even before nidation. Though this is a cause of apparent primary sterility, it is no wonder that this could as well be a factor of apparent secondary infertility.

Both mechanical and endocrine factors may be responsible for secondary amenorrhoea and oligomenorrhoea following abortion. Uterine synechiae is one of the major mechanical factor responsible for postabortal amenorrhoea. Foix *et al* (1966) have observed intrauterine adhesions in 92.7% cases following abortion. Our figures (23.3%) however, are not so high. Formation of intrauterine adhesions is perhaps more common following secondary exploration for persistent bleeding and is not specifically related to post abortal infection. This is perhaps due to the vigorous curettage with mechanical avulsion of basal layer of the endometrium and sometimes the myometrium. The raw areas thus produced in the succulant and hyperaemic walls of the recently pregnant uterus appose against each other and thereby have a fair chance for conglutination.

Mukherjee *et al* (1972) are of opinion that the basic lesion of Asherman's syndrome is not just a local mechanical de-

fect but is perhaps due to hypogonadotrophic hypogonadism; or in other words a less severe variety of Sheehan's syndrome. But the very fact that most of these patients of Asherman's syndrome respond favourably with simple adhesionolysis and majority of them conceive without induction of ovulation perhaps does not corroborate Mukherjee's views. The encouraging results of this simple technique of treatment was presented by one of us (B.N.C.) at the XVI All India Obstetric and Gynaecological Congress held at Delhi.

It is possible that some of the cases who had severe blood loss or shock due to any cause at the time of abortion may have features of pan or selective hypopituitarism leading to amenorrhoea and infertility. Only one such case has been recorded in the present study and she had no intrauterine adhesions.

Premature ovarian failure may be another cause of secondary amenorrhoea. Some cases in the age group of 31 and above in the present series were found to have scanty endometrium and they had oestrogen deficient vaginal smears. These were perhaps cases of premature ovarian failure. Estimation of gonadotrophins would have further corroborated this observation.

Genital tuberculosis was found to be the cause of amenorrhoea in two cases. This was not a coincidental finding and Sutherland (1952) has reported that in at least 10% of cases the infection might develop in pregnancy, puerperium or in the postabortal period.

Summary and Conclusion

1. Four hundred and ten cases with history of previous abortion either in the first or in the second trimester have been followed up.

2. Ninety-five cases complained of infertility. Eighteen of these had secondary amenorrhoea and 12 had oligomenorrhoea.

3. Postabortal pelvic inflammation was found to be one, but not the major cause of subsequent infertility.

4. Asymptomatic tubal occlusion as a result of reflux of blood into the lumen of the tube could be responsible for infertility in quite a considerable number of cases.

5. Definite causal relationship with abortion could not be established in the remaining cases of infertility unassociated with the symptom of amenorrhoea or oligomenorrhoea.

6. Secondary amenorrhoea following abortion was most frequently due to either a mechanical or an endocrinal defect. One of the major mechanical defects was uterine synechia.

7. Partial pituitary necrosis, premature ovarian failure and endometrial tuberculosis were other factors responsible for postabortal secondary amenorrhoea and oligomenorrhoea.

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See Figs. on Art Paper II