OBSERVATION ON BLOOD-COAGULATION—FACTOR CHANGES IN SEPTIC ABORTION*

by

J. MISRA,** D.G.O., M.D., M.S., M.R.C.O.G. (London)

Medical termination of pregnancy is being done frequently in hospitals after liberalization of the Abortion Act of 1971, but despite the preferences and facilities given to patients in hospitals abortion induced in rural areas by unqualified persons in unhygienic surroundings is not uncommon. While many of the cases of abortion referred to hospitals and institutions turn out to be septic, some cases of septic abortion are also encountered in hospitals and institutions.

During 1975 and 1976, 43,200 cases of Obstetric admissions were registered in the Department of Obstetrics and Gynaecology, P.M.C.H. and termination of pregnancy was done in 2532 cases. During the same period 260 cases of septic abortion were admitted from outside and 50 of these cases were managed in unit VI of the Department of Obstetrics and Gynaecology. Changes in blood coagulation factors were investigated in these 50 cases.

The cases were analysed according to age, parity, marital and socioeconomic status, period of gestation and method of interference.

Thorough investigations of the cases were done soon after admission. The general condition of the patients was assessed by pulse rate, blood pressure, temperature, abdominal examination and blood loss. The cases were then grouped according to clinical findings as mild, moderate and severe cases of septic abortion.

According to the above mentioned parameter 15 cases were graded as mild with history of interference, bleeding and pyrexia and 25 cases as moderate with history of interference, high pulse rate, pyrexia and signs of pelvic peritonitis. The remaining 10 cases were graded as severe on the basis of history of interference, bleeding, high pulse rate, features of general peritonitis, shock and oliguria.

Estimation of haemoglobin, total and differential count, blood culture, urine culture high vaginal swab culture and sensitivity tests were done. Blood electrolyte estimations were done in the patients showing features of peritonitis, oliguria or anuria.

Regardless of bleeding tendency of the patients, blood fibrinogen level, bleeding time, coagulation time, prothrombin time and platelet count were estimated at the time of admission and repeated thereafter in all these 50 cases in order to ascertain the changes in coagulation factors in septic abortion. In none of the cases, however, could the above mentioned investigations be done before the interference of pregnancy.

Details of the cases together with results of investigations are given in Tables I to XII.

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**Associate Professor of Obstetrics & Gynaecology, Patna Medical College.

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TABLE I
Age

Age groups in years	No. of cases	Percentage
15—24	30	60%
25—34	10	20%
35—40	10	20%

TABLE II
Parity

Parity	No. of cases	Percentage
Nulliparous	17	34%
Multiparous	33	66%

TABLE III
Marital Status

Marital status	No. of cases	Percentage
Unmarried	17	34%
Married	20	40%
Widow	13	26%

TABLE IV
Socio-economic Status

Socio-economic status	No. of cases	Percentage
Poor	18	36%
Average	30	60%
Above average	2	4%

TABLE V
Method of Interference

Method of Interference	No. of cases	Percentage
1. Fetex paste	12	24%
2. Laminaria tent	8	16%
3. Introduction of some solution through the catheter into the cervix	17	34%
4. Dilatation of cervix and rupture of membrane	7	14%
5. D & C	5	10%
6. Vacuum aspiration	1	2%

TABLE VI
Duration of Pregnancy

Duration of pregnancy in weeks	No. of cases	Percentage
8	10	20%
10	20	40%
12	6	12%
14	6	12%
16	8	16%

TABLE VII
Bleeding Time

Bleeding time in minutes	No. of cases	Percentage
1-2	18	36%
2-3	20	40%
3-4	10	20%
5-6	2	4%

Normal value (Upto 6 minutes).

TABLE VIII
Coagulation Time

Coagulation time in minutes	No. of cases	Percentage
2-3	20	40%
3-4	10	20%
4-5	12	24%
5-6	8	16%

Normal value (Lee and Whites method 5-11 minutes).

TABLE IX
Platelet Count

Platelet count per cu. mm. of blood	No. of cases	Percentage
25,000-270,000	20	40%
230,000-240,000	12	24%
210,000-220,000	8	16%
180,000-190,000	10	20%

Normal value (250,000-400,000/cmm.).

TABLE X
Plasma Fibrinogen Level

Plasma fibrinogen in mgm. range	No. of cases	Percentage
208-230	10	20%
235-240	10	20%
345-430	10	20%
435-450	20	40%

Normal value (250-450 mgm.).

TABLE XI
Prothrombin Time

Prothrombin time in seconds	No. of cases	Percentage
10-12	15	30%
12-14	25	50%
14-16	10	20%

Normal value (10-14 seconds).

It is apparent from Table IV that 96% of the patients belonged to the low or average socio-economic group.

As regards the method of interference fetex paste was used in 24% of the cases. Patients in this group had a number of complications like peritonitis, oliguria or anuria. In cases, there was sloughing of vaginal wall and cervix also and blood fibrinogen levels were 208 and 210 mgm. There was bleeding from mucous membranes of mouth, nose and gums. Fetex paste contains iodine, thymol and benzoin in fat free saponified vegetable oil paste base.

The bleeding time and coagulation time showed no significant change in mild and moderate cases. But they were slightly raised in the severe type as compared to the other 2 groups.

TABLE XII
Fibrinogen Level, Prothrombin Time, Bleeding Time, Coagulation Time and Platelet Count

Types of septic abortion	Plasma fibrinogen level	Prothrombin time	Bleeding time	Coagulation time	Platelet count
Mild cases (15)	435-450	12-12	1-2	2-3	250,000-270,000
Moderate cases (25)	235-450	12-14	2-3	4-6	230,000-240,000
Severe cases (10)	208-230	14-16	3-4	3-6	180,000-190,000

Discussion

The Tables presented above reveal that the majority of the patients belonged to the younger age group of 15 to 24 years and that the multiparous patients were most often the victims of septic abortion. The period of gestation varied between 8 to 16 weeks.

Inspite of facilities available in the hospitals, unmarried girls and widows are not inclined to get termination of pregnancy done in the hospitals. The reason may obviously relate to maintenance of secrecy. Unfortunately in a few cases ignorance regarding liberalization of abortion rules was also noted.

The plasma fibrinogen levels also ranged within normal limits. The fibrinogen level in 10 severe cases, however, were on the lower side (ranging between 208 to 230 mgm.) as compared to the mild and moderate cases. According to Hakim and Apte (1976) low plasma fibrinogen levels (160 to 260 mgm.) are present in cases of septic abortion.

Mackay and Corey (1964) studied fibrinogen level and fibrinolytic activity in 21 cases of septic abortion. In 11 treated and 10 untreated cases the levels were not very different from the normal.

According to Mehta and Anjaneyulu

(1976) the fibrinogen level and fibrinolytic activities in the patients with septic abortion were 209 mgm. and 90.9% respectively. The increased fibrinolytic activity was seen to fall when the patients were treated with antibiotics and blood transfusion.

As regards the platelet count and prothrombin time, the prothrombin time was within the normal limit in all the cases. In 10 severe cases, however, the prothrombin time ranged between 14-16 seconds. Platelet count ranged between 180,000 to 190,000 per cu. mm. in severe cases of septic abortion. Recent studies have shown that abnormality of platelet count is commonly present and this plays a major role in causing bleeding in cases of oliguria and anuria (De Gruchy and Dacie, 1973) and with the rising blood urea level there is a bleeding tendency with marked nitrogen retention.

The patients admitted in shock were given blood transfusion 1,500 to 2,000 mls.) as a resuscitative measure in 24 hours. Excessive blood transfusion also causes depletion of platelet count. It has been observed by Miller, *et al* (1972) that 20 units of citrated and stored whole blood administered to patients for emergency replacement, helped develop bleeding tendency. The resulting bleeding defect is related to platelet depletion.

The high vaginal swab report revealed E. coli in 30 cases, Staphylococcus in 8 cases, Bacillus proteus in 4 cases, and Bacillus pyocyanius in 8 cases. No correlation could be established with the type of infection and severity of the cases, and coagulation changes. An upset in the clotting mechanism has been observed in Clostridium Welchii infection by Reid (1963) presumably from accompanying haemolysis which somehow, disturbs the clotting mechanism, not unlike that which may occasionally follow incompatible blood transfusion or the infusion of foreign substances into the circulation.

Summary

Fifty cases of septic abortion were studied, with reference to blood coagulation factors.

Except in 10 severe cases of septic abortion, no significant changes in coagulation factors were observed.

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