BLOOD LOSS DURING INDUCED ABORTION

by

K. PREMA*

With the liberalisation of the Medical Termination of Pregnancy act (MTP) the number of abortions being performed is on the increase. The most common complication following MTP is bleeding (Population Report Series 1973). The amount of blood lost during MTP varies widely (Lewis *et al* 1971; Vladov 1967; Buckle *et al* 1970; Hall 1971) and depends upon a number of factors such as the method used, the period of gestation, type of anaesthesia, other concurrent surgery and the skill and experience of the operator. It is also possible that part of the reported variations are due to differences in the methods used for assessment of blood loss, which have ranged from subjective clinical impressions to objective laboratory estimations. In many studies which have used, vacuum suction for MTP, the total volume of aspirate has been equated with volume of blood loss—clearly an over estimate since the variable placental and liquor volumes are also added. A simple and reliable method for the estimation of blood loss was therefore standardized and using this method the contribution of various factors on blood loss during MTP was evaluated.

Materials and Methods

Blood loss was accurately determined in women undergoing MTP—mainly by vacuum aspiration during various periods of gestation. Only those women who knew the date of last menstrual period and whose uterine size corresponded to the period of amenorrhea were investigated. The effect of the following factors on blood loss were studied:

(a) gestational age—225 cases.

(b) method used for cervical dilatation —laminaria tent 21 cases; manual dilatation 27 cases.

(c) degree of dilatation achieved—40 cases and

(d) operators experience—52 cases.

To estimate the blood loss during vacuum aspiration an appropriate quantity of an anti-coagulant mixture of K and Na oxalate (10 to 20 ml) was aspirated through the tubing into the suction bottle, to prevent the aspirated blood from clotting. After completion of vacuum aspiration, 20-40 ml of water was used to flush the cannula and rubber tubing. The total volume of fluid in the bottle was measured and the haemoglobin in it determined by the cyanmethhaemoglobin method. Haemoglobin concentration in blood was simultaneously estimated and the extent of dilution of the aspirate was calculated. Using these data the actual blood loss was determined.

Results

The mean blood loss in different periods of gestation is shown in Table I. There was a progressive rise in the amount of blood lost with increasing period of

*Assistant Director.

National Institute of Nutrition, Indian Council of Medical Research, Jamai Osmania (P.O.) A.P. Hyderabad-500 007, India.

Accepted for publication on 10-7-79.

TABLE I

Blood Loss in Relation to Period of Gestation

Period of gestation (weeks)	No. of cases	Blood loss (ml)
I 6	28	31 ± 16.3
II 8	49	56 ± 20.6
III 10	52	67 ± 30.1
IV 12	48	80 ± 38.2
V 13-16	27	138 ± 68.7
VI 17	21	172 ± 102

Values are mean ± SD

Test of significance	t	P
I x II	5.51	<0.001
II x III	2.13	<0.05
III x IV	1.90	NS
II x IV	3.86	<0.001
IV x V	4.71	<0.001
V x VI	1.38	NS
IV x VI	5.47	<0.001

gestation. Blood loss in the second trimester abortion was twice as high as in the first trimester MTP.

Mean blood loss was estimated in a group of 48 women who had vacuum aspiration done at 10-12 weeks. Among 27 women who had manual dilatation of cervix done blood loss was 87 ± 38.7 ml. Mean blood loss in the laminaria tent group (21 women) was lower 70 ± 36.1 ml but the differences between the two groups was not statistically significant.

The mean volume of blood loss was lower (58 ± 20.4 ml) in a group of 20 women who had vacuum aspiration for 8 weeks pregnancy after manual dilatation upto 8 mm as compared to matched controls (20 women) who had 6 mm dilatation (69 ± 24.2 ml). However, these differences were not statistically significant.

The mean blood loss when four different obstetricians performed vacuum suction for 10 weeks pregnancy following manual dilatation upto 10 mm using the same suction apparatus is shown in Table II. There are wide variations in

TABLE II

Blood Loss in Relation to Different Operators

Operator	No. of cases	Blood loss (ml)
A	14	43 ± 16.3
B	12	75 ± 30.7
C	10	63 ± 26.7
D	16	59 ± 22.6

Values are mean ± SD

	t	p
A x B	3.39	<.01
A x C	2.28	<.05
A x D	2.19	<.05
B x C	0.97	NS
B x D	1.59	NS
C x D	0.41	NS

the mean amount of blood loss between obstetricians but significant differences were seen only in relation to obstetrician A vs all others.

Discussion

The effect of four variables—gestational period, degree of cervical dilatation, method used for cervical dilatation and the person doing the MTP—on blood loss during MTP was evaluated using an accurate method for the determination of blood loss.

Of these, the factor which influenced blood loss the most, was the gestation period. The larger the uterine size, larger is the placental volume, and detachment of placenta over a larger area from the vascular placental bed may be expected to result in greater blood loss. One of the reasons for large variations in blood loss even at the same gestational period may be differences in placental size and volume of liquor which are known to occur in the same period of gestation.

The degree of cervical dilatation appeared to have some effect on the mean blood loss, but because of wide variations

between individuals, differences were not significant.

Laminaria tent which had gone out of use has come back into vogue, because of the argument that a slow gentle dilatation of the cervix will minimise sequelae such as cervical tears and cervical incompetence. It has also been speculated that slow cervical dilatation may provoke uterine contractions with consequent changes in the placental bed leading to greater ease with which the products of conception become detachable. Easy aspiration may be further facilitated by the relatively greater dilatation achieved by the laminaria tent. There was some reduction in the mean blood loss in cases where the laminaria tent was used for cervical dilatation, but this was not statistically significant.

The influence of the operator factor has also been demonstrated in the study. This confirms the finding demonstrated in several other studies on MTP, that there are some operators who consistently achieve lesser complication rates, when compared to their colleagues of matched training and experience.

One of the most important problems in evaluating the effect of any factor eg. type and degree of cervical dilatation, procedure or instrument used for during first trimester MTP, has been to get objective data to support clinical impressions. This is mainly because so far, complication rates whose incidence is very low have been used to measure differences. Data presented here suggest that the effects of some of these variables can be objectively measured by determining the quantity of blood lost during MTP. It is possible that the inclusion of this simple test as a part of the protocol for comparing established procedures or testing newer methods may be helpful in objective assessment of these procedures.

Using the method described here it is possible to directly measure the placental volume and indirectly arrive at the volume of liquor with some degree of accuracy in early weeks of gestation. The calculated amount of liquor using this method is shown in Table III. These

TABLE III

Quantity of Liquor Amnii in Various Period of Gestation

	Period of gestation (weeks)	No. of Cases	Liquor amnii (in ml)
1.	8	25	16 ± 8.6
2.	10	34	35 ± 14.8
3.	12	30	60 ± 30.9

1 vs 2, 2 vs 3 } P <0.01

values compare favourably with those reported by actual and ultrasonic measurements of liquor volume (Abramovich, 1970; Gillibrand 1969; Nelson 1972; Rhodes 1966; Wagner and Fuch 1962; Robinson 1975). A wider use of this method may thus help in obtaining data in relation to vital parameters such as placental and foetal volume in normal early pregnancy in addition to the accurate estimation of blood loss during MTP.

Summary

Blood loss during MTP was measured in 365 women using simple colorimetric estimation of haemoglobin in the aspirated material. Mean blood loss increased progressively with increasing period of gestation. Optimal manual dilatation and slow dilatation of cervix using laminaria tent were associated with lower mean blood loss. Some operators achieved consistently lower blood loss. It is possible that inclusion of this simple test in a pro-

tocol for comparing established procedures or testing newer methods may be helpful in objective assessment of these procedures.

Acknowledgement

The author thanks Dr. S. G. Srikantia, Director, National Institute of Nutrition, Hyderabad 500 007, for his interest and guidance.

References

1. Abramovich, D. R.: J. Obste. Gynec. Brit. C'wlth. **77**: 865, 1970.
2. Buckle, A. E. R., Anderson, M. M. and Loung, K. C.: Brit. Med. J. **2**: 456, 1970.
3. Gillibrand, P. N.: J. Obstet. Gynec. Brit. C'Wlth. **76**: 527, 1969.
4. Hall, R. E.: Am. J. Obstet. Gynec. **110**: 601, 1971.
5. Lewis, S., Lal, S., Branch, B. and Beard, R. W.: Brit. Med. J. **4**: 606, 1971.
6. Nelson, M. M.: J. Obstet. Gynec. Brit. C'Wlth. **79**: 50, 1972.
7. Population Report Series, F No. 3, 1973.
8. Rhodes, P.: J. Obstet. Gynec. Brit. C'Wlth. **73**: 23, 1966.
9. Robinson, H. P.: Brit. J. Obstet. Gynec. **82**: 100, 1975.
10. Vladov, E.: Am. J. Obstet. Gynec. **99**: 202, 1967.
11. Wagner, G. and Fuch, F.: J. Obstet. Gynec. Brit. C'Wlth. **69**: 131, 1962.