

THE MANAGEMENT OF THE THIRD STAGE OF LABOUR

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The problem of postpartum haemorrhage is considerable amongst a population whose average haemoglobin level is 10 g. per 100 ml. and amongst whom about 5 percent of the pregnant women have a haemoglobin level of less than 6.5 g. per 100 ml.

In Western countries the traditional "hands off" conservative attitude to the third stage of labour has changed in the past 20 years. Following the papers of Davis and Boynton (1942), Lister (1950) and Martin and Dumoulin (1953) increasing numbers of obstetricians have used an injection of intravenous ergometrine, given as the anterior shoulder of the baby was born, to stimulate a uterine contraction and placental separation. Embrey and Garrett (1958) have shown that such an injection causes a firm contraction of the uterus in 41 seconds, a tonic spasm lasting about 45 minutes and an oxytocic effect lasting up to 3 hours.

Unfortunately, intravenous therapy is not always easy to administer and Kimbell (1954) suggested that intramuscular ergometrine, with hyaluronidase to enhance its more rapid absorption, was effective and could be used routinely, especially by midwives. Using this method Kimbell reduced the incidence of postpartum haemorrhage considerably. He admitted, however, that the injection took longer to act than intravenous ergometrine. This was subsequently confirmed by Embrey (1961) using an external tocograph.

Intramuscular oxytocin (pitocin) had its advocates, but had fallen into disfavour be-

cause although it acted quickly, the duration of its effect was short (averaging 20 minutes, Embrey, 1959) and delayed bleeding could occur from a relaxed uterus when the patient had returned to the lying-in ward.

In an effort to combine the rapid action of oxytocin with the prolonged action of ergometrine and to avoid the more complicated intravenous approach, "Syntometrine", a combination of 5 units of syntocinon and 0.5 mg. of ergometrine, was introduced. Several workers in the United Kingdom (Embrey *et al.*, 1963, Kemp, 1963, Chukudebelu *et al.*, 1963, and Stearn, 1963) have commented favourably upon its action and have compared it with intravenous, and intramuscular, ergometrine in clinical trials. The consensus of opinion is that intramuscular Syntometrine is more efficient than intramuscular ergometrine, with or without hyalase, and almost as efficient as intravenous ergometrine. Embrey (1961) has shown that Syntometrine acts on the uterus, on an average, in 157 seconds and the duration of the effect is long, owing to its ergometrine content.

Expulsion of the Placenta.

In the papers referred to discussion persisted over the proper management of the third stage of labour after injecting Syntometrine intramuscularly. Embrey, *et al.* (1963) and Stearn (1963) attempted to expel the placenta from the uterus with the first contraction, Stearn using the Brandt-Andrews technique. Kemp (1963) used intermittent cord traction from the moment of delivery of the baby in

TABLE 1.

To show the blood loss related to the management of the third stage of labour, after the use of Syntometrine intramuscularly.

Author	No. of patients	Blood loss %		Manual removal placenta (%)
		20 oz.	10 - 20 oz.	
McGrath and Browne	80	5.0	—	5.0
Chukudebelu <i>et al.</i>	500	4.6	22.8	3.4
Embrey <i>et al.</i>	590	2.9	12.3	1.6
Stearn (from)	448	2.9	9.6	2.0
Llewellyn-Jones	100	2.0	6.0	2.0

addition. McGrath and Browne (1962), and Chukudebelu, *et al* (1963) watched for signs of placental descent and then expelled the placenta either by fundal pressure or by cord traction. The differences in the results of these two methods can be seen in Table 1. These findings indicate that an active third stage after injection of intramuscular syntometrine will reduce the blood loss, and the incidence of retained placenta.

This is perhaps because an active third stage, by removing the placenta from the upper uterine segment, prevents its incarceration above a constriction ring. Oxytocin has been found to produce such a muscular contraction and this was one of the reasons for it falling into disfavour as a third stage oxytocic.

Method.

In the present study 100 healthy patients were studied (primigravidae 30; gravida 2 - 5, 60; gravida 6+, 5). All had attended the antenatal clinics regularly and were attended in labour by the author. All came from the higher socioeconomic groups and although 32 were delivered by forceps and 63 required an episiotomy, labour was otherwise normal.

An ampoule of Syntometrine was injected intramuscularly as the head of the baby was being born. The remainder of the delivery was controlled and took one minute to complete. The uterus was then palpated gently to await the first contraction, when the placenta was delivered by suprapubic pressure, lifting the uterus upwards and backwards, with the left hand, cord traction being practised with the right hand. The total blood lost from the time of delivery to the completion of the repair of the episiotomy (including that blood lost from the perineal wound) was collected and measured.

Results.

In Table 2 the *time* taken from the injection of Syntometrine to the expulsion of the placenta is noted. The mean was 157.84 seconds, which compares closely with Embrey's (1961) tocographic studies. In only two patients did the time exceed 10 minutes and in both of these women the placenta was removed manually, one after 60 minutes and the other after 40 minutes. Neither of these women lost more than 10 ozs. (285 ml.) of blood.

In Table 3 the *blood loss* can be seen. The mean loss was 134 ml. (4.8 ozs.) and in 74 percent of patients less than 150 ml. (5 ozs.)

TABLE 2.

To show the time interval between the injection of Syntometrine and the delivery of the placenta

Time in minutes	Gravida			Total
	1	2-5	6+	
Less than 3	23	43	3	69
3 - 5.59	8	12	2	22
6 - 8.59	4	3	—	7
9 or more	0	2	—	2
	35	60	5	100
Mean 157.84 seconds.				

TABLE 3.

To show the blood loss after the injection of Syntometrine

Blood loss in ml.	Gravida			Total
	1	2-5	6+	
0 - 149	26	44	4	74
150 - 299	6a	13	1	20
300 - 449	2a	2b	—	4
450 - 570	—	—	—	—
+ 570	1	1ab	—	2
	35	60	5	100
Mean Loss 134 ml.				

a — In one patient of each group, intravenous ergometrine given because of further bleeding (3 patients).

b — Traumatic bleeding in addition (2 patients).

blood was lost. In two patients traumatic bleeding was considered to have added significantly to the blood lost, (one patient losing a total of 420 ml., the other 700 ml.). Two patients had a postpartum haemorrhage and intravenous ergometrine 0.5 mg. was given to these two patients and to one other (blood loss 370 ml.).

Discussion.

The results in this clinical trial confirm those of the British workers that Syntometrine is a useful oxytocic drug in the third stage of labour and that its action is rapid (mean 2 minutes 38 seconds). The controlled method

of delivery together with an active third stage was associated with a postpartum haemorrhage rate of 2 per cent (2 patients) and in only 6 per cent of patients was the blood loss more than 10 ozs. (270 ml.). Manual removal of the placenta was required in 2 patients.

These results can be compared with those of Embrey, *et al* (1963). In a series of 590 patients (208 primigravidae) blood loss exceeded 20 ozs. in 2.9 percent, and 10 ozs. in 9.5 percent; manual removal of the placenta was required in 2.4 percent of patients.

It must be confirmed that in the third stage of labour Syntometrine is the best available intramuscular oxytocic and is almost as effective in its action as intravenous ergometrine. Its use should be accompanied by a slow controlled delivery of the baby (30 to 60 seconds being taken) and by using the Brandt-Andrews technique with cord traction for delivery of the placenta with the first contraction, which occurs about 2½ minutes after the injection.

In several series using this method of management of the third stage of labour the postpartum haemorrhage rate was less than 3 percent, and the incidence of manual removal of the placenta did not exceed 2 percent.

Since blood loss can be disastrous in anaemic women, the routine use of intramuscular Syntometrine with an active third stage is recommended in all Maternity Units.

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ADDENDUM

Since submitting this paper a further 100 patients have been treated with intramuscular syntometrine. The results of the 200 patients are as follows:

- Blood loss more than 20 ozs.—1.5 percent.
- Blood loss 10-20 ozs.—9.5 percent.
- Manual removal of the placenta—1.5 percent.
- Mean time interval between injection and delivery of placenta—164.4 seconds.
- Mean blood loss—127 ml.

The results of treatment of the second 100 patients confirmed the value of intramuscular syntometrine combined with an active third stage in the prevention of postpartum haemorrhage.