

MANUAL REMOVAL OF THE PLACENTA WITHOUT GENERAL ANAESTHESIA*

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It has been generally accepted that manual removal of the placenta requires a general anaesthetic. However, it is proposed to show that this was found to be superfluous in a series of 102 cases. Anaesthesia carries its own inherent dangers and complications, with particular regard to manual removal. The procedure was safe and easy under a variety of circumstances and, on occasions, in all probability life-saving. No reference to placental removal without anaesthesia was found in the voluminous literature on the subject. The two main complications pertaining to retained placenta and manual removal in general are sepsis and shock, singly or jointly.

It is largely because of sepsis that teaching traditionally disapproves of manual placental removal. The more modern text-books, however, advise that the procedure today is safe, when performed where the proper indications exist, because of the strict asepsis, antiseptics and antibiotics now available. Macafee¹ can '... state emphatically that it is a safe operation carried out at the right time and with due aseptic and antiseptic precautions.' There are many American papers²⁻⁴ advising routine manual exploration (under anaesthesia) without an increased rate of sepsis or morbidity. Sepsis, therefore, need no longer be a deterrent factor, whether an anaesthetic is used or not.

SHOCK

In retained placenta there are two main principles with regard to shock both conforming with basic surgical tenets:

1. The best treatment is preventative.
2. If present, shock should, wherever possible, be corrected before manual removal is undertaken.

Shock in retained placenta may be due to: (1) Postpartum haemorrhage, (2) Credé's manoeuvre of placental expression, (3) the administration of anaesthesia or its complications, (4) complications of blood transfusions, (5) retained placenta.

1. *Postpartum Haemorrhage.* Macafee¹ states: 'Many generations of obstetricians have stressed the great danger of this procedure (manual removal) and have advised that it should only be employed as a last resort. This has, in the past, brought the operation into disrepute as it was quite true that it is dangerous when used as a last resort. It is now recog-

nized that when carried out at the proper time it is not a dangerous or difficult operation and is definitely life-saving'. This confirms the surgical axiom of prevention of shock. However, the corollary is not stated, that manual removal can safely be performed forthwith without waiting for anaesthesia, i.e. can truly be a first and not a last resort. In Hagberg's recent survey of the University of Cape Town Flying Squad Service,⁵ 60 of the 165 cases of postpartum haemorrhage had retained placenta, and a few more had completed the 3rd stage between the time of the call and the arrival of the squad. Two patients died with the placenta still in the uterus and almost all the others suffered from shock to a varying degree, with haemorrhage as the aetiological factor. This state of affairs need not develop if the placenta is safely removed in good time.

2. *Credé's Manoeuvre of Placental Expression.* Complete agreement has not been arrived at regarding the value of this procedure. It is stated to cause shock, and to be a procedure to be tried only once and never in the presence of shock. It is painful and often fails even in patients of less than average build; in my experience it is not a highly efficient or successful manoeuvre. In comparison, manual removal does not cause shock, is certain of success, is not often painful, and is not associated with a significant increased rate of sepsis. Hour-glass constriction is certainly handled more effectively *per vaginam* than abdominally.

3. *Anaesthesia and its Complications.* Dugald Baird's views⁶ on general anaesthesia for manual removal are '... that there is no obstetrical operation in which it is more desirable to have the assistance of an anaesthetist or colleague *skilled and experienced in giving anaesthetics,*' for the difficulties to be faced are legion even if a trained anaesthetist is in attendance at every birth as suggested by Macafee.¹ This in general is an impractical ideal; certainly anaesthesia is not invariably necessary, carrying with it all its inherent disadvantages, as follows:

- (i) Unavoidable delay or difficulty in anaesthetizing.
- (ii) Lack of premedication.
- (iii) Induction vomiting, resulting from the presence of gastric contents.
- (iv) Associated heaving, straining, restlessness, cyanosis, coughing, laryngeal spasm, or inhalation of acid gastric contents. These factors may make the manual removal a difficult and trying operation and are often enough to

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precipitate a state of shock. Even ruptured uterus may occasionally result from manual removal under these circumstances.

(v) Anaesthetized cases need special nursing care and are often a source of anxiety for some hours.

(vi) Delayed effects, e.g. atelectasis or inhalation bronchopneumonia, may ensue.

(vii) Chloroform, especially, and ether and trilene prolong the 3rd stage and have a relaxing uterine effect.

4. *Blood Transfusion.* Macafee¹ states: 'The ideal to arrive at is that no patient should need blood transfusions. Manual removal at an early stage in treatment of postpartum haemorrhage will remove the necessity for many transfusions.' The dangers and complications of blood transfusion, even with compatible blood, include rigors and shock.

5. *Retained Placenta.* Sheehan⁷ found that, in his series of almost 150 cases of maternal death with obstetrical shock, 30 had had retained placenta for 2 hours or more with little or no haemorrhage. He suggests manual removal after 1 hour as a routine procedure. Most writers agree on this; few placentae separate spontaneously after that time.

EVOLUTION OF MANUAL REMOVAL WITHOUT ANAESTHESIA

When on Flying Squad duty I regularly encountered heavily shocked patients with retained placenta and the full list of anaesthetic troubles. The patients had usually been given tea etc. before the squad arrived; there was generally only an inexperienced anaesthetist available, or none at all. These cases were all given morphine, $\frac{1}{2}$ gr. intravenously, as part of the treatment for shock as suggested by Mayer.⁸ One day severe haemorrhage forced me to remove the placenta manually without anaesthetic. The ease and speed of the procedure and absence of complications prompted the present series of manual placental removals, carried out under varying circumstances by different registrars and house-surgeons, skilled and unskilled.

BASIC TECHNIQUE

After treatment of shock, when necessary, the patient was, in all cases, left in the dorsal position and catheterized. It is generally agreed that movement may precipitate a drop in the blood pressure,⁸ and, in this series, the dorsal position was as effective as the lithotomy one.

Manual removal was effected by the usual bimanual technique, the hand always being reinserted even if the placenta and membranes were apparently intact on inspection, since the latter is not always reliable.

Blood-pressure and pulse readings were taken on arrival (Flying Squad cases) or on admission (hospital cases), immediately before and immediately after manual removal, and again 30 minutes later, for comparative studies. The patient's opinion was also recorded both just after and 30 minutes after manual removal. In this way objective and subjective views were both obtained.

It was not found necessary to wait for the blood pressure to rise even to 100 mm. Hg systolic in shocked cases before effecting removal, so long as it was definitely rising on anti-shock treatment—a point of some importance where haemorrhage recurs as the blood pressure is being restored (Case 1).

Case 1

Age 30. Parity 8. A Flying Squad case.

Indications for Removal: Haemorrhage 80 oz. +. Retention 190 minutes.

Treatment before Removal: Blood Transfusion, $3\frac{1}{2}$ pints; morphine, $\frac{1}{2}$ gr. I.V. 40 minutes before.

Condition: On arrival, B.P. 0/0 and pulse not felt. Immediately before removal, B.P. 80/30 mm. Hg and pulse 140 per minute. Immediately after removal, 90/50 and 128. 30 minutes later, 130/90 and 105.

Patient's Remarks. Immediately after removal, 'Much easier than childbirth.' 30 minutes later, 'Feels much better.'

Total Quantity of Blood given: 4 pints.

Ergometrine administered before removal was not regarded as a contra-indication. It is not generally accepted that this increases the frequency of hour-glass constriction rings, as borne out by Flew⁹ *et al.* who, in 500 consecutive cases in which ergometrine was given before the completion of the 3rd stage, had met no case of hour-glass constriction nor any case in which manual removal was required. In our series hour-glass constriction *per se* did not prove a major difficulty in manual removal without anaesthesia. It was treated by amyl nitrite inhalation under a towel placed over the face (case 2).

Case 2

Age 17. Parity 1. A Flying Squad case.

Indications for Removal. Haemorrhage: \pm 42 oz. Retention 220 minutes.

Treatment before Removal. Blood Transfusion $1\frac{1}{2}$ pints. Morphine, $\frac{1}{2}$ gr. I.V. 20 minutes before.

Condition: On arrival, B.P. 70/45 mm. Hg and pulse 140 per minute. Immediately before removal, 95/65 and 132. Immediately after removal, 115/75 and 100; hour-glass ring; amyl nitrite. 30 minutes later, 105/70 and 120.

Patient's Remarks. Immediately after removal, 'Abdomen feeling better. It was not sore.' 30 minutes later, 'I.V. drip needle hurt more than removal.'

Total Quantity of Blood given: 2 pints.

No morphine or other sedation is necessary to prevent shock if the patient's condition is good (case 3). This is illustrated by the 17 cases in the control group (table I).

Case 3

Age 30. Parity 1. Not a Flying Squad Case.

Indications for Removal. Haemorrhage 26 oz. Retention lasted some minutes. Difficult forceps delivery under local anaesthetic, followed by haemorrhage.

Treatment before Removal. Blood transfusion, *nil*; morphine, *nil*.

Condition. On admission, B.P. 110/80 mg. Hg and pulse 96 per minute. Immediately before removal, 140/80 and 100. Immediately after removal, 130/80 and 110. 30 minutes later, 120/80 and 76.

Patient's Remarks. Immediately after removal, 'Not painful.' 30 minutes later, 'As before.'

Total Quantity of Blood given. *Nil*.

Manual removal effected in the manner described, must perforce be gentle, and rupture of the uterus should not occur as a result of the procedure.

Refinements of Basic Technique

Intravenous Morphine, though not part of the basic technique, was of great value in shocked patients to allay the associated restlessness and anxiety which form a neurogenic basis for shock.⁸ When given subcutaneously in profound shock it may fail to be absorbed because of the poor peripheral circulation. Adams¹⁰ states that intravenous morphine in therapeutic doses is a very safe, very potent hypnotic and analgesic which also depresses the attention and weakens the impression of external stimuli. The blood pressure is

essentially unchanged, although respiration is depressed to some extent in some cases. It is particularly valuable where '... one desires to obtain the effects quickly, and it is very useful in cases in which a short trying procedure has to be borne.' It is suggested that a well diluted dose of 1/6 gr. should first be slowly administered, to eliminate sensitivity and overdosing. In our cases $\frac{1}{4}$ gr. undiluted was slowly administered intravenously in the 78 cases which were given morphine—all successfully. This is a big dose and, although it proved to be quite safe, it is felt that 1/6 gr. should probably suffice. No fatal case is quoted under these circumstances in the British and American pharmacopoeias.

Intravenous pethidine is held by most authorities to cause at least as much respiratory depression as morphine, to cause a definite drop in blood pressure (rare and minimal with morphine), to give more sensitivity reactions, and to produce considerably less analgesia, dose for dose, than morphine. It was therefore not used.

Trilene via the self-inhaler mask was an additional safe and useful feature in occasional cases. In this way minimal intermittent doses only were administered.

Daptazole, the antidote to the respiratory depression of morphine, was never indicated, nor Lephidrone, even in severely shocked cases.

ANALYSIS OF SERIES

The series reported here constitutes 102 fully recorded cases, of which 72 were multiparous (15 in their 7th or more

and steady gentle separation and traction. It was often diagnosed in advance by the physical signs of separation without expression. In 2 hour-glass cases in the series manual removal was carried out without difficulty after transfer to hospital following failure on the part of the intern to effect manual removal in the patient's home.

2. *Morbidity.* Only the 68 hospital cases could be followed up. 20 had to be placed on antibiotics on account of prolonged labour or repeated vaginal examinations. Antibiotics were not given as a routine measure. Two patients were definitely ill and another 4 ran high temperatures (9%), which is not considered excessive for this type of case.

3. *Apprehension.* The patients invariably cooperated by relaxing and breathing deeply, sometimes with the aid of the Trilene mask. Some of the control group were very apprehensive, yet removal was easily effected. In no case did much difficulty arise or failure occur because of apprehension on the part of the patient.

4. *Significant Pain.* In 72 cases adequate follow-up notes on this point are available: 6 patients stated that the pain was worse than that of childbirth, which was the criterion selected for the purpose of comparison (see Case 4), 8 said it was approximately the same, and in the other 58 (even in the control group where morphine was not given) it was appreciably less. Even where the manoeuvre was very painful and difficult, there was no evidence of shock.

Case 4

Age 34. Parity 4. Not a Flying Squad case.

TABLE I. MANUAL REMOVAL WITHOUT ANAESTHESIA. ANALYSIS OF SERIES OF 102 CASES

Group	Description	No. of Cases	Sedation	No. with Hour-glass Constriction	Comment and Reason for Removal
I	Hospital Cases (Control Group)	12	0	1	Retention or PPH Prophylactic after forceps under local anaesthetic
		5	0	0	
II	Flying Squad Cases	34	Intravenous Morphine	10	Very shocked—25, Less shocked—5, Not shocked—4, Retention 1-4 hours Haemorrhage gross in all cases
III	Hospital Cases	38	Intravenous Morphine	18	Retention 5 min.-2 hrs. Haemorrhage up to 70 oz. Eclampsics 2, Pre-eclampsics 5. 20 of these cases had trilene self-administered
		7	Already heavily sedated	0	
IV	Hospital Cases	6	Morphine	0	Prophylactic removal after forceps delivery under local anaesthetic

Sedated cases: 85 (with 28 hour-glass constrictions). In 78 of these i.v. morphine was given.

Non-sedated cases: 17 (with 1 hour-glass constriction).

Total: 102 (with 29 hour-glass constrictions).

pregnancy). The cases were divided into 4 groups, the first being the basic control group, which had no sedation whatsoever at any stage. In addition the procedure was used in nearly 40 more cases (without any failures), which are not included because of incomplete records (Table I).

COMPLICATIONS

1. *Hour-glass constriction ring* developed in 29 cases. It is not a serious matter and always yielded to amyl nitrite

Indications for Removal. Haemorrhage 40 oz. Retention 70 minutes.

Treatment before Removal. Morphine, $\frac{1}{4}$ gr. I.V. 6 minutes before. No blood transfusion.

Condition. On admission, B.P. 130/85 mm. Hg. Pulse 80 per minute. Immediately before removal, 150/100 and 85. Immediately after removal, 150/95 and 90 (placenta extremely adherent). 30 minutes later, 130/80 and 90.

No blood transfusion given in hospital.

Patient's Remarks. Immediately after removal, 'Very painful; more so than childbirth.' 30 minutes later, 'Not at all pleased.'

Careful analysis confirms the basic safety and ease of the manual removal procedure.

CONCLUSIONS

A series of 102 cases of manual removal without anaesthesia under varying circumstances is presented with illustrating case records.

1. It is considered that the method is easy and non-shocking even in inexperienced hands; is not unduly liable to lead to sepsis under modern circumstances and may be of life-saving significance in some cases. Basic surgical principles should be observed, especially that shock is better prevented than treated, which principle confirms the value of the method.

2. Intravenous morphine is suggested as a safe and valuable refinement in the procedure. Trilene given by the standard self-inhaler mask is another successful refinement.

3. A case is made out in favour of omitting the anaesthetic when manual removal is practised, thus avoiding the frequent undesirable sequelae and dependence on an anaesthetist, who may not be available at the time of need. The omission of the anaesthetic converts a relatively major operation into a relatively minor one.

SAMEVATTING

'n Reeks van 102 gevalle van manuele verwydering van die plasenta onder wissellende omstandighede en sonder algemene narkose word aangebied, met sorgvuldige ontleding van die gevalle ter staving van die stelling dat narkose vir dié doel onnodig is, indien nie byna altyd ongewens nie. Die volgende gevolgtrekkings word bereik:

(1) Die prosedure blyk veilig, maklik en sonder skok (vergeelyk hier *Credé se manoeuvre*) te wees selfs al sou die verloskundige ongeoeffend wees in plasentale verwydering. Dit kan lewensreddend wees en is nie gepaard met noemens-

waardige voorkoms van infeksie nie, maar sjiurgiese grondbeginsels moet gehuldig word, o.a. dat dit beter is om skok te verhoed as te behandel—welke feit die waarde van die prosedure beklemtoon.

(2) Binnearse Morfiene is 'n veilige hulpmiddel beide as verdowings- en skokmiddel. Die Trilene-masker waardeur die pasiënt haarself van gas bedien, verskaf verdere verdowings indien nodig.

(3) Daar word daarop gewys dat narkose in plasentale verwydering waarskynlik skielik en onverwags is en die pasiënt onvoorbereid, en dus ook vol gevare en komplikasies, al sou die narkotiseuse ervaring en beskikbaar wees. Deur plasentale verwydering sonder narkose uit te voer, word tydverspilling, moontlike skok en komplikasies van die narkose grotendeels uitgeskakel.

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