ABNORMALITIES OF THE THIRD STAGE OF LABOUR

BY

H. N. RAY, M.B. (Cal.); F.R.C.O.G. (Lond.)

Professor-in-charge of Obstetrics and Gynaecology,
Calcutta National Medical College.

Before I speak on the abnormalities, I would say a few words about the third stage of labour. The cause of initial separation of the placenta, as we all know, is that, after delivery of the child, the uterus retracts. This does not cause complete separation of the placenta even when retraction takes place to the fullest extent of which the uterus is capable resulting in diminution of the placental site from 7" x 7" to 4" x 4". The separation is due to the contraction of the uterus superadded to maximum retraction. There are other views namely of Barbour and Berry Hart about the separation of placenta.

Guidance of the Third Stage

With the patient in the dorsal position the fundus should be guarded with the hand placed flat on it over a sterile cloth. Some deprecate such guarding as they say it leads to dangerous "man handling" of the uterus. While guarding the fundus by the hand placed upon it, one will notice that the uterus alternately contracts and relaxes every 5 or 10 minutes. Here two temptations must be resisted: (a) to knead the uterus during relaxation and (b) to squeeze the uterus during a contraction, unless it is known that the placenta is separated.

Now I shall pass on to the abnormalities of the third stage of labour.

I. *Post-partum Haemorrhage*

Number of total deliveries— 3,959

No. of cases of P.P.H.—109

(A) Before the birth of the placenta—46

(B) After the birth of the placenta—56

(C) Traumatic—7 (To be described later on)

Management

Definition of post-partum haemorrhage—loss of blood more than a pint or sufficient enough to give rise to symptoms.

Routine management of the third stage:—

(1) With the patient lying on her back, a hand guards the fundus. If the uterus becomes distended, it is gently compressed.

(2) When the placenta has separated and is in the upper vagina (judged by the classical signs and symptoms) it is expressed by using the retracted uterus as a plunger.

(3) Ergometrine 0.5 mgm. is then given intramuscularly if the loss is excessive.

(4) If an excessive loss occurs, prior to the delivery of the placenta, a manual compression (Crede) is performed without an anaesthetic.

(5) If this fails, Crede's method is repeated under anaesthesia.

(6) Failing this, manual removal is carried out at once.

(7) If at any time the patient's condition deteriorates, intravenous fluid is given.

(8) Bimanual compression together with oxytocic, if not given already, may have to be resorted to.

(9) Plugging of uterus and vagina is the last resort.

Control of Fundus

This procedure has been criticised because it is said people cannot or will not refrain from manipulation of the uterus, and thus cause partial separation of the placenta with consequent haemorrhage. Its dangers are admitted, but it is considered that emphasis should be placed on its correct employment. Indeed its critics cannot really abandon it themselves.

Oxytocic Drugs prior to Delivery of Placenta

The advocates of this regime state that it has two advantages, that the third stage is shortened and that the amount of blood lost is reduced and the necessity for transfusion diminished. Sometimes it may precipitate contraction ring involving difficult removal.

The decision to use ergometrine will thus depend on the attitude of the obstetrician to manual removal. If he believes it is a safe procedure in view of antibiotics and is confident a contraction ring is of no serious consequence, he will favour ergometrine. If he believes that manual removal is still a dangerous manoeuvre and the complication of a contraction ring hazardous, he must refrain.

Crede's Expression

This method of expression of placenta is largely condemned now-a-days and rightly so if it is wrongly used. It should not be employed if shock is already present, nor if the placenta appears to be adherent, nor used with too much force nor for too long. Provided these precautions are observed there is still a place for expression of the placenta from the uterine cavity, provided that the bleeding is not so severe that delay and further blood loss will allow time for shock to develop.

Manual Removal

The indication for manual removal has already been described. Arguments for its frequent use are discussed in connection with retained placenta. (*Table I*).

II: Retained Placenta

    (I) Total number of cases—23
    (a) Uterine inertia in the third stage—18
    (b) Hour-glass contraction—2
    (c) Morbid adhesions: (i) Simple (ii) Placenta accreta

A few words on etiology would not be out of place here.

The incidence of retained placenta in various statistics ranges between 1 in 200 and 1 in 100.

TABLE I

Post-Partum Haemorrhage

Total No. of cases	Number of cases			Parity		Method of treatment			Mortality	Morbidity
	Before birth of placenta	After birth of placenta	Traumatic	Primipara	Multipara		Attempted	Successful		
109	46	56	7	61	48	Crede's expression	37	23	2	8
						Manual removal	23	23		
						Plugging	5	5		
						Ordinary oxytocic	63	45		
						Bimanual compression	18	13		

In most cases of adherent placenta we find that partial separation has occurred, that separation of the remaining part is easy if the right plane of cleavage is found, and that the uterus contracts down well after the placenta has been removed. The condition is well described by the expression "atonic non-detachment" used by Sheehan. True morbid adhesion of the placenta or placenta accreta is rare. There does not appear to be general agreement as to whether a placenta can be morbidly adherent over part of its area only or whether there are degrees of morbid adhesions between the normal state and true placenta accreta. Gibberd considers that focal placenta accreta does occur. This does occur occasionally, especially with placenta and may be responsible for causing retained cotyledons.

The so called "contraction rings" are often said to cause placental retention, but they have been only infrequently found. When the placenta is removed many hours after delivery of the foetus, the closing down of the lower part of the uterus may sometimes give rise to some difficulty in the operation. The improper use of oxytocic drugs prior to the expulsion of placenta may certainly cause the retention of placenta after separation by causing contraction ring to hold it up.

Cornual contraction rings which hold up the placenta are, however, certainly important, and are described by Joyce & Lennon. In the present series, no such case was found.

The functional and structural deficiencies of the cornual region as a site for placental attachment is to be thought of seriously while it is difficult to be dogmatic on the evidence available; it appears that cornual implantation is usually secondary to malformation of the uterus. It is interesting to note the recent work of Granjon and Bean who have shown by a series of hysterograms that the so called "angular pregnancy" is in reality a pregnancy in a horn of a bicornuate uterus. The high incidence of uterine deformities in these cases suggests that a defect of some degree in the fusing of the Mullerian ducts may give rise to a structural and functional disturbance which may not show itself till the third stage and then be an important factor in causing non-detachment of the placenta. There has been an increasing recognition in recent years of the frequency and importance of these developmental abnormalities. Way has stressed the obstetrical importance of minor abnormalities and more recently Hunter has reported a series of major abnormalities. It is probable that these deformities, especially those of minor degree, are of great frequency, and are a still adequately recognised cause of abortions and premature labours, malpresentation, delayed engagement of the presenting part, slow labour and inertia, and the third stage complications.

The view is advanced therefore that the most important cause of "atonic non-detachment" of the placenta is a developmental deformity of the uterus, commonly of minor degree, with a cornual implantation of at least part of the placenta.

Dangers of Retained Placenta

Sheehan had directed attention to "the menace of the placenta left too

long in utero". The cause of shock is unknown. Possibly it is due to some toxic substance absorbed from the placenta, but if this is so, it is strange that shock does not occur when a foetus and placenta are retained in the uterus after foetal death, as they may be for some days or weeks. Neither does it occur when in full-time extra-uterine pregnancy the placenta is sequestered, that is left *in situ* in the abdomen after removal of the live foetus. This is now the accepted method of treating such cases; yet no case is recorded in which shock occurred. However, Prof. Sheehan had shown that shock is likely to appear when placenta is left in situ more than two hours and the dangers of shock increase more and more as the time passes beyond two hours even in the absence of haemorrhage.

Another danger is infection, it also increases as time passes on.

Management

In the past the operation of manual removal of the placenta was looked upon as a fearsome one, and a high mortality and morbidity were reported. It tended, therefore, only to be carried out at a late stage. Now-a-days it has become a much safer operation, partly as a result of availability of better resuscitation methods and antibiotics and more specially because the operation is done at an earlier stage. In spite of the change of attitude, however, present day practice and teaching do not go far enough yet in setting a limit to the length of the normal third stage. We now know that time is not on our side in the third stage. Sheehan has shown the danger of any third stage

prolonged over two hours and found no deaths from shock or haemorrhage when it lasted less than one hour, whatever the method of delivery of the placenta. The partly separated and partly adherent placenta is undoubtedly responsible for some shock-producing mechanism as shown by the remarkable way in which the blood-pressure rises after a manual removal. Attempts at what is thought to be Crede's expression also tend to aggravate the shock. There is hardly an intermediate manipulation between a gentle expression of a fully separated placenta and a manual removal, with the exception, perhaps, of the injection of saline into the cord, which was successful in some cases.

If the normal limit of the third stage is set arbitrarily at one hour, any placenta which cannot be easily expressed by that time is manually removed. Most cases of post-partum shock can be avoided. The operation itself is sometimes described as being difficult and dangerous and carrying a risk of serious complications such as perforation of the uterus. In practice these are rare and no major complication has occurred in my experience.

III. Acute Inversion of Uterus.

Number of Cases. One (brought to the hospital 18 hours after occurrence).

Etiology. Many writers assume that there is an abnormal condition in the uterine musculature when it underlies the placental site. Zangmeister speaks of local atony or paralysis; Miller describes a congenital weakness, while according to McCullagh the increased local vascu-

TABLE II.
Retained Placenta

Total no. of cases	Time	Cases of Uterine inertia	Hourglass contraction	Morbid adhesion Simple	Accreta	Parity Primipara	Multipara	Method of treatment	Attempted	Successful	Mortality	Morbidity
23	Longest 10 hours	18	2	2 (?)	1	14	9	Injection of normal saline	20	11	1 (4.3%)	3 (13%)
	Average 1¾ hours							Manual removal	11	11		
								Hysterectomy	1	1		

larity produced by fundal attachment of the placenta so undermines the muscle fibres and destroys their tonicity that weakness results. Attachment of the placenta at the fundus seems to be of prime importance. There can be no question that relaxation of the uterus either partial or general must be an essential factor. The mechanism of inversion described by Murphy, Dudley and Ashton is usually accepted as correct. According to them the underlying musculature fails to contract while placenta is still attached. Owing to the weight of the afterbirth the fundus becomes indented and the remainder of the relatively more relaxed uterus contracts and attempts to expel it as it would do a foreign body.

Management.

As the patient was severely shocked, no manipulation could be thought of. All possible resuscitative measures could not save the patient from immediate shock already precipitated.

IV. *Obstetric Shock.*

Apart from post-partum haemorrhage, retained placenta and inversion of uterus it did not appear singly in our series.

V. *Traumatic Haemorrhage from Genital Tract* (Extra-Placental site)

No. of cases 7; of which
Cervical tear   2
Episiotomy   1
Third degree perineal tear   4
Diagnostic points:—(i) P. P. H. with a contracted uterus, after the complete expulsion of placenta;

(ii) Visualization of the injured part.

Management:—Immediate suturing of the part after exposing it fully in good illumination.

Conclusion.

It is no credit to meet abnormalities of the third stage of labour. The third stage of labour is the shortest stage of labour. Because the separation and expulsion of the placenta may be accompanied or followed by severe haemorrhage it also is the most hazardous. For this reason the control of bleeding from the placental site should be included in the mechanism and should be the dominant factor of the stage. The following points should be followed particularly in the management of the third stage of labour:—

(1) Deliver the shoulders and the body of the child slowly to favour retraction of the uterus.

(2) Look for change in the shape of the uterus from a discoidal to a globular form which occurs when the placenta is separated.

(3) Avoid massage and other manipulation of the uterus before the placenta is separated.

(4) Express the placenta artificially as soon as it has separated to favour retraction and avoid trapping of the placenta.

(5) Examine the placenta immediately after it has been expressed to make certain that no fragments have been torn off or retained.

(6) Manually remove any frag-
ments that have been retain-
ed.

(7) Give oxytocic drugs imme-
diately after the placenta is
delivered.

(8) If the separation of the pla-
centa is accompanied by pro-
gressively increasing bleeding,
hasten the separation by mas-
sage of the uterus and try the
Crede procedure. If the lat-
ter fails, remove the placenta
manually before the bleeding
becomes excessive.

(9) If the placenta is not separated
within one hour after the child
is born, try the Crede's proce-
dure. If it fails, remove the
placenta manually.

References

1. Beek: Obstetrical Practice

2. Bowes Kenneth: Modern Trends in
   Obstetrics and Gynaecology: 1950

3. Browne F. J.: Post-graduate obs-
   tetrics and Gynaecology: 1950.

4. Bryan Williams: The Journal of
   Obst. & Gyn. of B. E.; Vol. LIX,
   P. 220, 1952.

5. Geoffrey Hammond: Jour. of Obst.
   & Gyn. of B. E.; Vol. LIX, P. 493,
   1952.

6. Gibberd G. F.: Proceedings of
   Royal Society of Medicine, P. 40,
   371, 1947.

7. Granjon A. and Bean A. M.:
   Gynae. et Obstetrics, 49, 1950.

8. Hunter W.: J. Obst. Gyn. B. E.;
   57, 721, 1950.

9. Joyce J. B. and Lennon, G. G.:
   British Medical Journal; 2, 740,
   1948.

10. Sheehan H. L.: Lancet 1, 1, 1948.

11. Way S.: J. Obst. Gyn. B. E.; 52,
    325, 1945.

12. Way S.: J. Obst. Gyn. B. E.; 54,
    469, 1947.