Thesis

on

"Internal Uterine Haemorrhage
during the latter end of pregnancy and
the first stages of labour."

by

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as

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List of Books Consulted

These have all been mentioned as far as possible in the text, but the following is a list of the more important ones:

Feinberg - Arch. f. Gynaek. 27 Bd. 3. Hft.
Kening - Arch. f. Gynaek. Vol. VIII
Baudeloque - S. K. L'art des accouchements

Baudeloque A.C. - Traité des naissance hospice internes
Leake - Practical observations on children fever uterine haemorrhages
Lovel - Suites des observations

Mauriceau - Observations sur la presomme et l'accoucheur de femmes
Lee - Clinical midwifery; Lecture on midwifery
Smellie - Smellei's midwifery, edited by Dr. Cl son
Cageaux - Cageaux's midwifery, edited by Damer
Belpaire - Belpaire's midwifery, translated by Kings
Duncan - Mr. Mechanism of natural desobir parturition
Barbaud - The anatomy and relations of

Duncan - An essay on uterine hemorrhages

Ingleby - A practical treatise on uterine hemorrhage
Ingerman - A synopsis of the various kinds of difficult labor
Kelly - An essay on uterine hemorrhage. Germain. (Haut de l'Hotel Royal, 1770.)
Introductory.

When in the summer of 1856 it was my lot for the first time to meet with a case of what is usually termed concealed accidental haemorrhage, I felt that I was face to face with one of the gravest emergencies of obstetric practice. This feeling was rendered somewhat unpleasant by the consciousness that I had not formulated my rules for practice in this class of cases in the same definite way that I had done for the other varieties of haemorrhage occurring during pregnancy and labour. In my first encounter with post partum haemorrhage, as well as in my first case of haemorrhage depending on placenta previa, I had felt that much depended on the way the case was conducted, but the importance of having a clear and definite notion of the management of these cases had been impressed on me by my text books & emphasized by my teachers, so that, being forewarned,
I was forewarned. In the case referred to, however, I felt I was treading on less familiar ground and was confronted with dangers to which my attention had not been pointedly called. The adage "misfortunes never come singly" holds in medical experience as well as in other mundane affairs, and within a week I met with a similar case. A few days later a third case, resembling the other two and yet differing in some particulars, came under my care. My attention was thus called to the subject in a pointed manner and rather painfully from the fact that the end of my second case was disastrous. Feeling not altogether satisfied with the treatment I had adopted, I referred to the subject in all the text-books at hand. As the result of my reading I found that my treatment was in accordance with that recommended by most of the text-books which dealt with the subject, and, further, that the information given by many of the most popular
authors was meagre and confused and based as a rule more upon theoretical knowledge than upon actual facts. This would be excusable if the complication were one that is fraught with little danger to mother and child, but surely it is advisable that greater stress should be laid on what is termed by one writer "by far the most difficult and appalling of the more serious complications of gestation." Leishman makes no mention whatever of this form of haemorrhage in the earlier editions of his "System of Midwifery," and in the third edition merely makes a passing allusion to it, and this although he admits that "the management of these cases involves in some instances no less anxiety than placenta praevia itself."

Pluquet discusses the whole subject of accidental haemorrhage in four pages, and although he recognizes the grave nature of concealed haemorrhage gives but a scant account of it.

(1) System of Midwifery, p. 455
(2) The Science & Practice of Midwifery, vol. 11, p. 99
Just contents himself with giving a very brief abstract of Cordell's paper, and loosely enumerates causes and symptoms given in that paper, but differs somewhat in his account of the treatment.

The continental authors give a more important place in their text-books to this form of haemorrhage and also distinguish between the different varieties more explicitly.

Turning from text-books to the special literature of the subject, I found that this was by no means so voluminous as one might expect, and that, although the one or two monographs on the subject contained much that was excellent, there was the greatest diversity of opinion on most important practical points. That there was also much that was confused.

In this paper I embody opinions which I have based on my own experience and on a careful study of cases recorded by others. I hope they may not be deemed

(1) The Science and Art of Midwifery, p. 652.
presumptuous if I talk with some little
decision on a complication of which my
experience, in view of the small number
recorded cases, is relatively large.
I shall confine my remarks to in-
ternal haemorrhage during the later
months of pregnancy and the first and
second stages of labour. I do not enter
on the subject of this kind of haemorrhage
during the earlier months, as that is
a complication that is rarely serious,
probably not more than a dozen cases
of a serious nature having been ob-
derved. The subject of internal haem-
orrhage during and after the third
stage of labour falls more properly
under post-partum haemorrhage.

Historical Sketch.
The obstetric literature of the 17th & 18th Centuries
contains many references to haemorrhages
occurring during pregnancy and labour, and
much attention seems to have been devoted
to this subject. Still, the ideas at that time
were greatly lacking in precision, as may
be inferred from the fact that it is not till 1760 that we have the distinction clearly drawn by Levest between those haemorrhages in which the placenta is situated over the os uteri and those in which the placenta has its normal position. The subject of internal haemorrhage is not one to which much attention was devoted until nearly the end of the 18th Century, although considerably before this period we have stray cases recorded and passing allusions made to this condition.

James Prinsep in his work "De mulierum morbis et symptomatibus" published in 1655, (a book which I have been unable to refer to), mentions that internal haemorrhage may occur during pregnancy. Levest noted that blood may accumulate between the placenta and uterus during pregnancy, giving a case in illustration; and that internal haemorrhage may happen during labour.

Mauriceau, to whom we owe the practice now so commonly followed, of rupturing the mem

1. Lapse de l'accouchement p. 70
2. Observations sur la procreation et l'accouchement des femmes
Graves in accidental haemorrhage, also notes that we must have internal flooding during pregnancy and labour. A. C. Baudeloque says that he narrates 8 or 10 examples of this complication, but I have only been able to find 5 cases in his "Observations" where the internal flooding was at all considerable. Albinius (1) "the accurate Albinius" as he is styled by Burton - furnishes us with the details of a case which has been so often quoted in connection with this subject, as to have become quite classical, and makes some very pithy remarks on the treatment.

De l'Homme (2) chronicles the first of a number of reported cases of internal haemorrhage during labour from rupture of the umbilical cord, a class of cases which has given rise to much discussion.

Pajon (3) recognized that internal haemorrhage may occur into the cavity of the uterus when that organ has been partially emptied.

Levron (4) was aware that blood may accumulate in the uterus during delivery. He also narrates a case similar to Delamotte's, in which the bleeding came from a rupture of the fetus.

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(2) Mémoire sur la partie de Sang.
(3) Doctrine complet des accouchements p. 362.
(4) Suites des Observations. p. 199.
Burton (1) is the first in this country, so far as I can discover. He makes mention of internal haemorrhage occurring during delivery. A case he gives is so typical of its class that I shall quote it further.

Smellie (2) makes no special mention of internal haemorrhage in the systematic part of his work. That he was aware of the fact that it may occur during labour is shown by an account he gives of a case amongst his "Collection" in which he feared that "there might be an internal flooding dammed up by the child's head", so directed woman to bear down while he raised the head with his fingers and allowed coagula to escape.

Paste (3) refers to internal haemorrhage during pregnancy only to deny its existence.

Leece (4) refers to this complication and quotes the case narrated by Albinus and also one reported by Dr. Cole. He also notices internal haemorrhage during labour in the following sentence: "When the child's head for a time shuts..."
up the oo uter, the patient may continue to lose blood at none of equally appear.

He mentions rupture of the vessels on the concave surface of the placenta and rupture of the funis as causes of internal haemorrhage.

That these cases were still over looked is evident from the fact that Rlijey (1) who wrote a treatise on uterine haemorrhage in 1775, and who was the first to introduce these unfortunate terms "accidental" and "unavoidable" into obstetrical vocabulary, quite ignores them. He inclines to make light of accidental haemorrhage, as he says he has never met with a case in which rupture of the membranes was not sufficient. In this opinion he is corroborated by Chases White (2) (one of the founders of the Manchester and Salford Lying-in Institution) who states that he is very clear that few if any cases of accidental haemorrhage require turning or delivery by art.

Dinman (3) is better informed - in his works we find the following under uterine haemorrhage: "Any judgment formed upon the quantity of blood discharged.

(1) An essay on uterine haemorrhage which preceded the delivery of the full grown fetus, p. 17.
(2) ibid. p. 17.
(3) An essay on uterine haemorrhage depending on pregnancy, p. 27.
will be liable to gross errors as concealment or accident may deceive us - not to mention that cases sometimes occur in which there may be a greater quantity of blood lost than can be known - either by its being cooked up behind the child when the waters are broken or by its being effused into the amnion when that has an appearance of being whole. He refers to the case under Dr. Samnarey.

J. L. Rambaudque is very precise in his statements on this subject, observing that we may have blood retained in the uterus by the edges of the placenta, by contractions of the neck of the uterus, and by the blood being effused into the amnial cavity from rupture of the cord. He gives cases in support of his statements. Dr. Burns's work on uterine haemorrhage

we find internal haemorrhage referred to but no special account is given of its treatment.

Seurin [3] has little to say on the subject. He notes a case in which he believes the

1) *L'art des accouchemens*, p. 370 (3). Palefs, de Sang, p. 75

2) *A uterine haemorrhage*
placenta to have been separated during labour owing to the shortness of the cord. This caused internal haemorrhage, evinced in a sensation of obscure fluctuation on palpating the uterus. He sees in this, as in all other varieties of internal haemorrhage, only another indication for his favourite remedy—The plugging. He regards internal haemorrhage as rather advantageous than otherwise, as his aim was to produce it in cases of external haemorrhage.

About this time we have a number of cases of internal haemorrhage during pregnancy and labour reported by numerous observers, amongst whom we may mention Balme, Brockman, Chevalier, D'Alonzi and Delaforêté. That the subject was exciting some little interest is evident from the fact that in 1815 the French Academy offered a prize for the best essay on the subject. The first competition drew forth none. Bovin's essay. It is a matter of some astonishment that a person of his vast experience did not previously remark that a person of her Carpet. 

\[\text{\textsuperscript{(1)}}\]

\[\text{\textsuperscript{(2)}}\]
venir of practical midwifery should never have seen a case of internal haemorrhage during pregnancy, and it is perhaps on this account that she denies the possibility of such a complication in the face of numerous cases related by trustworthy observers. A. C. Baudelocque entered the lists in the second competition, and his elaborate work on internal haemorrhage still serves as a storehouse of information and seems to have influenced the opinions of French obstetricians even to the present day.

About the same time or soon after we have several English authors directing attention to what had now come to be known as concealed accidental haemorrhage.

Stewart refers to the subject but only incidentally. Herremann is more definite in saying that the blood may accumulate between the placenta and uterus, and he alludes to a case in which death occurred without any external haemorrhage. (Summary)

Ingleby also mentions this case of one
of Dr. Coley's, and says that blood may accumulate between the uterine and placenta to the extent of 2 lbs.

Even as late as 1831 we still have a sceptic in us less a person than Dr. Velperrau, who doubts the possibility of grave internal haemorrhage occurring during pregnancy. He thinks that the blood may have accumulated after death in the cases recorded. He notes Coley's case as quoted by Duplezey and remarks: "This is a new example of internal flooding which proves more than the fact that this kind of haemorrhage is rarely dangerous before it changes into another variety." Gendrin gives a case of his own in which death occurred from internal haemorrhage.

Mr. Downham in a very careful paper on ursine haemorrhage points out the importance and danger of this complication of pregnancy and labour.

Cazeneuf treats of this subject at some length but altogether from a theoretical stand point.

(1) Velperrau, p. 385
(2) Traité des maladies des dents, p. 180
(3) Traité de l'asystole et des évanouissements
(4) Traité de l'asystole et des évanouissements

Extracted from a journal of medical literature.
Mr. Crouse of Chorley gives an account of a very typical case which happened in his own practice. He remarks that haemorrhage of this kind is much more dangerous than that from placental abruptio as it is more insidious, and when strongly suspected is less amenable to active treatment.

Coming down nearer to our own time we find Murphy referring to internal haemorrhage as a complication of pregnancy. Lee in his report of his consultation cases mentions several of this class of great interest, and in his lectures on midwifery draws attention to them. Johnson and Smellie in their "Practical Midwifery" give one case of internal haemorrhage during pregnancy, 2 one during labour. Dr. Clinkock & Hardy mention a case which was communicated to them by Dr. Johnson.

Dr. Jenner makes the first effort in this country to collect cases but only succeeds in gathering the history of ten cases. In 1860 Dr. Braxton Hicks communicated to the Obstetrical Society of London outline families.
of Thirty-three cases (exclusive of Dr. James' tea). It is curious that, although he
mentions A. C. Baudelocque's Essay and has evidently referred to it, he says that in
this Essay there is only one case recorded. When the fact is that there are a dozen
or more cases carefully given.
Three cases of Jannen's, Hecto's, and
Baudelocque's are incorporated in a
large collection of cases compiled by
Dr. Goodell and published in the
American Journal of Obstetrics Vol II.
He has succeeded in finding records of
106 cases of latent haemorrhage during
pregnancy or during labour.
Kernig in a paper on this subject in the
"Archiv für Gynäkologie" (Vol VIII) speaks
of 110 cases being recorded but does not
give a list of these.
Brunt * read a paper before The Obstetrical
Society of London in 1875, but
gives notes of five cases in his own practice
which he adds to Dr. Braxton Hicks' list. Curiously enough, he omits any
mention of Goodell's paper.

Since then we have a few cases scattered about in the various medical journals and quite recently Freudenberg has a paper on "Metrorrhagia Gravidae Interna" (Arch.f. Gynekelologie Vol 27, p. 3) and Winter read an account of three cases of internal haemorrhage during pregnancy to the Obstetrical Society of Berlin in January 1885.

**Classification**

Before narrating my cases or going into the subject of internal haemorrhage more fully, it may be well to try to obtain as clear a view as possible of the nature of this complication, and by a comparison of cases to see if we can group them in any way. To convince one that it is advisable to do so one need only refer to the various memoirs or graphs on the subject. In many of these no attempt has been made at classification, but cases which differ essentially have been arranged together and conclusions arrived at from the mixed group thus formed.
in others very arbitrary distinctions have been drawn. The term "concealed" haemorrhage which has been so generally employed in this country has, I believe, done much to hinder the study of the subject. This term, it seems to me, absolutely conveys to most minds the idea of hidden or even unsuspected haemorrhage. This may be applicable to a certain number of cases, but there is a still larger, and not less important class, in which together with an external loss of variable quantity we have an internal accumulation of blood. We find, however, that many authors having this idea of concealment in their minds have rejected cases in which there has been any but the very slightest external loss. "Internal" haemorrhage seems to me a more accurate term, as not conveying the impression of complete concealment, and as being more in accordance with general medical and surgical phraseology. Some writers have suggested the name "pure" internal haemorrhage to denote those cases in which the loss is
entirely latent, and in contradistinction to those cases in which we have internal and external haemorrhage combined. The "demi-latent" haemorrhage of Mr. Gendrin. This distinction appears to me of no importance save in the matter of diagnosis, & even here I think its value is not great. The careful observer will find little additional difficulty in coming to the conclusion that there is an internal bleeding simply because no blood flows externally, while the less careful will often be led into a sense of security and comparative inactivity when he sees blood escaping, since he may then regard the case as one of ordinary accidental haemorrhage — a complication which he is too often taught is of little importance.

Another division is that into "primary" and "secondary" internal haemorrhage (Freedenberg)*. It has long been recognised that external and internal haemorrhages are closely related, and that each may be preceded or followed by the other. These terms therefore are of value as indica...
eating a fact the importance of which cannot be too strongly emphasized, but we can hardly form a classification on them.

On looking over the collected cases the most casual reader can hardly fail to notice that they arrange themselves into two groups. A typical case of the one group has a history something like the following: a woman in the latter months of pregnancy is suddenly seized, usually without any obvious cause, with grave symptoms of collapse, with little or no hæmorrhage externally, and in many instances dies unattended. At the autopsy, the placenta is found detached in its centre, which is occupied by a large quantity of fluid or coagulated blood. While its margin is adherent in whole or in part, and the membranes are entire. Contrast this with a case recorded by Dr. Braxton Hicks (Lond. Obst. Trans. Vol. 17 Case 14.) In this case the patient had been in labour for two hours, during
Which no abnormal symptoms were observed. The membranes ruptured and the woman seized with alarming collapse. The os was dilated and the head was in the pelvis, the uterus being firm and tense. On delivery, an enormous quantity of blood followed a dead child, and at the post-mortem examination the uterus was found greatly distended by blood.

In the first of these cases the symptoms came on during pregnancy; in the second the woman had been in labour for two hours and the membranes had ruptured before any serious symptoms set in. Here, then, we get a broad line of classification into those cases that occur before and those cases that occur during labour. In many cases it is difficult or even impossible to say whether the uterine contraction or the haemorrhage occurred first, nor is it of very great practical importance to settle the point in these cases. The difference is marked, however, between cases in which there haemorrhage...
occurs before and those in which it occurs after the rupture of the membranes, and it is a distinction of practical moment. It is on this basis that I shall form a classification. Let us just note briefly here a few of the points— to be considered more fully afterwards—in which these conditions differ: In the first place, the causes which induce internal haemorrhage at the time the waters escape or after the rupture of the membranes are different and their mode of action is more easily understood than those which induce haemorrhage before labour. The conditions of the two cases, — once the haemorrhage has occurred— vary much. In the second group (i.e. after the rupture of the membranes), the counter-presence of the liquor amnii is removed and the blood soon becomes effused into the uterine cavity generally, since it is difficult to see how the membrane unsupported can form a limitation to, or resist the force which tends to strip them from the uterine wall.
the first group, on the other hand, the adhesion of the placental margin or of the membranes at any point, aided by the counter-pressure of the Lie. Amnio, tends to limit the haemorrhage to one portion of the uterine surface. In many of the cases described a localized swelling is seen as one of the signs. This can only occur in one first group of cases. The stretching of the uterine muscle is confined in this instance to one portion of variable extent. In the second group the fibres of the uterus may not be stretched further than they were at the commencement of labour. When the Liege Amnio was present, and yet a fatal haemorrhage take place. It is obvious from these remarks that the signs, symptoms, and diagnosis of the two groups are sufficiently distinct as to make it expedient to consider them separately. The treatment also is different: in the second group we have not to discuss that all-important point when to rupture the membranes, since
this has already been decided for us. It is possible also that we may find that the prognosis is not exactly alike in each class. Notwithstanding all this, we find that Braxton Hicks, Goodell, and others have treated the two classes of cases as if they were absolutely identical. That what was said of one must necessarily apply to the other.

Many writers who are silent as regards internal haemorrhage during pregnancy have described cases occurring during labour, as is indicated in the historical sketch. For example, Burton gives a most typical example of our second group. It is so well put that I am induced to quote it in his own words. At the woman's falling into labour every thing went on at first very well. The waters broke. The pains were proper and the head of the child advanced. But the shoulders were very large, as I found at my arrival; they had actually in part entered the os uteri. Then they stuck near 30 hours before the
midwife could be prevailed upon to have any other person called in, alleging there was no danger because the patient did not bleed; in proof of which she took cloths from the woman to show the company that no blood appeared. In this obstinate way the midwife remained till the patient began to faint, to have cold clammy sweat, and in short to have the usual symptoms of a woman flooding to death which frightened the patient's friends and I was then sent for; I told them they had deferred sending too long for the woman was bleeding to death although none of it got out to stain the linen for the child entirely filled the os uteri that no blood could pass. I delivered the woman immediately and such a quantity of blood was collected within the womb that I was amazed the woman was alive, for I brought away a great many clots of blood bigger than my fist.
Cases

I shall first of all give any cases of intermestral haemorrhage during pregnancy as briefly as is possible without missing any particulars which may throw light on this complication.

Case I. E. D — viii — para. act. 35.

Patient's circumstances had been of the poorest all through her married life. She had to work hard as a boot and shoe machinist. Her habits as far as one could learn were regular. Her previous confinements were normal, except the 3rd and 7th. A portion of the placenta was removed a week after her third confinement, and she had an attack of "inflammation" afterwards. At her seventh confinement she had very some flooding after labour. Her health for some years previous to her 8th pregnancy had been very poor. On the 27th June 1803, patient being then near her term, without any very obvious cause she suddenly became faint and dizzy, and the movements of the child, which, up to that time
had been very marked, were no longer felt. She took to bed, and on the morning of the 29th she was seized with irregular, sharp, cutting pains in the abdomen. One of the hospital midwives was sent for and on arrival found that the os was somewhat dilated. There was no external haemorrhage but the general condition of the patient was so bad that she at once sent a messenger to the hospital. On my arrival I found the patient in an excited restless condition, very exsanguine; pulse rapid (120 per minute) and compressible, tongue dry, furred and tremulous. On palpation the uterus was found ready to the os uniform cartilage. It was of a somewhat globular shape and so tense that it was impossible to make out the parts of the fetus. On vaginal examination the os was found to be about the size of a crown, dilatable, and the membranes were protruding. There was a slight oozing of blood. The severe nature of the con-
Statistical symptoms lead me to sus-
pect internal hæmorrhage. I ruptured
the membranes & applied forceps to
the head which presented in the 1st
position. The soft parts being rather
curryy I completed the delivery easily
in little more than 10 minutes. Im-
mediately the child was born and
the hand was pressed on the uterus
through the abdomen, the placenta came
away accompanied by some huge clot
and a quantity of fluid blood. As
there was a tendency to ooze, the
uterus was injected with hot carbol-
ized water, and a draught of ether was
given hydropneumatically. The uterus prac-
tically contracted firmly, but patient was
in a precarious state for some hours.
She made a complete though tardy re-
covery.

Case II. M. A. IV. para. Age 26. Employed
as a mill worker. Circumstances fairly
comfortable, but habits somewhat irregular.
Her first two confinement were normal.
The third came on about the 5½ month.
of pregnancy, it was preceded and followed by considerable haemorrhage, and her recovery was slow. During her fourth pregnancy she seems to have had a dread of flooding and repeatedly said she was sure she would die from it, although her general health at the time seemed good. At 6 a.m. on the 1st July, while in bed, she became suddenly faint and was seized with severe cramp-like pain in the abdomen. An hospital midwife was summoned an hour or two later. On her arrival the os was quite undilated and she delayed sending to the hospital for some time in the hope that the symptoms would pass off. As the patient got gradually worse and fainted several times she at last sent, but so little did the midwife suspect haemorrhage, (though a midwife of large experience and well-trained), that she marked the card despatched to me as "convulsions before labour." I arrived at noon and found the
patient exceedingly pallid & anxious, and tossing about restlessly in bed. Her pulse was 130 per minute. The tongue was dry and covered with a brown film. The uterus was large and tense, and the fetal parts could not be felt. The os was about the size of a shilling and somewhat rigid. The membranes had been ruptured ten minutes before I came by. The Cough, one of the Resident Medical Officers at the Hospital, and the head was felt presenting. There was not the slightest external haemia, but the marked general symptoms together with the cramp-like pains and the enlargement and firm feeling of the uterus led us both to the conclusion that there was an internal flooding. As the patient quietly was growing worse and the os was undergoing no alteration I deemed it advisable to hasten delivery. After stimulating the patient with a hypodermic injection of ether, a Barnes' bay
was introduced and the co dilated to the size of a crown. During this time the greatest difficulty was experienced in keeping the patient quiet as she kept throwing her arms about and explaining she was dying. Two fingers were then introduced into the uterus - the hand being in the vagina and podalic version was performed by the bipolar method - a knee being brought down. While the fingers were in the uterus the foetus was felt as if floating in a mass of clots. The child which was dead, was delivered in about 20 minutes - (about 40 minutes after my arrival). Immediately the placenta followed & a large quantity of fluid and coagulated blood. After delivering the uterus refused to contract. A slow coating went on for which all the usual remedies were tried - including compression, & other instillations, & intra-uterine injection of hot water. Nettle of J. J. Ferris Perenbor, but in vain. The
Patient never rallied but died about 1:30 p.m.

Case III. A.H. age 32. 18. para. - All her previous confinements had been normal. During this pregnancy she became large than usual. Her general health was fairly good previously but her circumstances were very poor. During the last month of her pregnancy she experienced much discomfort from the great distension of the abdomen. On the 12th January 1876 she was suddenly taken with great abdominal pain & she felt very faint & weak. On my arrival her general condition resembled much that of the two previous cases - save that the symptoms were hardly so marked. The uterus was very large and of a spherical shape. The foetal parts could not be felt owing to the tense, unyielding nature of the uterus. Per vaginam, the membranes were felt to be very tense, the os being small and rigid. There was no external haemorrhage but the symptom...
were so characteristic that I had little doubt but that some internal flooding was going on. Still, the volume of the uterus was so very great, and according to the woman's statement had been remarkable for some months, that I concluded there was something in addition to an internal accumulation of blood causing the great distension, and this I thought was most probably the draining. Judging it best to hasten delivery, I introduced successively three sizes of Baines' dilators until the os was three-fourths dilated. Then I ruptured the membranes. A very large amount of Syr. Aminie escaped but no blood. On examining again the breech was found to be presenting; one leg was pulled down. The child, which was dead, was delivered in about 15 minutes by traction & abdominal compression. A large firm clot then escaped & on compressing the uterus slightly, the placenta came
away, along with several clots of much fluid blood. A hot intra-uterine douche
was then given and the uterus contracted well. The woman remained very weak
for some time. On the 3rd day she was attacked with perineal desquamation
from which she recovered in about a month after a very critical illness.

The placenta in each of these three cases presented much the same appearance.
In no case could any sign of disease or degeneration in it be found. In each
it showed signs of having been compressed over a larger or smaller area. This was
most noticeable in the second case in which only a small portion of the placental
margin seemed to have escaped the flattening. Nearly the whole of the uterine
surface of the placenta was covered by a firm clot.

I shall now give brief notes of a severe case of internal flooding during the
Second Stage which came under my notice and also one that has been com-
municated to me by Dr Barratt of
Campsall Workhouse Hospital.

Case I. E. B. VI, par. age 41.

Patient had been flooding for 24 hours before I was sent for. As the pains had ceased, & she was getting worse everywhere, it was evident that unless something was done quickly she would sink in no very long time. The membranes had been ruptured by the midwife some hours before without any effect on the haemorrhage. The breech was presenting. The os, which was about the size of half a crown, was dilated by fluid dilators to about twice that size and then a leg was brought down. The os still remained very rigid and great difficulty was experienced in completing delivery. It was quite an hour before the child could be extracted, during which the patient showed all the signs of extreme haemorrhage. As the trunk was born, the uterus did not seem to diminish much in size. This was explained by the tremendous push.
of fluid & coagulated blood which occurred when the head was extricated. The blood had evidently been dammed up in the uterus owing to the os being completely filled by the body of the foetus. The placenta followed at once. The child was dead. The mother only survived a few hours.

**Case II.** M.K. - ii. para. alt. 35. Admitted into Crumpall Workhouse. Labour proceeded naturally until the os was fully dilated and the membrane broke spontaneously. Shortly after this Dr. Barrett’s attention was called to the woman by her becoming suddenly faint. Her face became blanched and her pulse from 100 rose to 130 per minute. She became restless and anxious, but complained of absolutely no pain. Forceps was quickly applied & a dead child delivered in a few minutes. At once there was a great rush of blood followed by some larger clots. On introducing the hand into the uterus Dr. Barrett found the placenta quite de...
tached. She woman died two days afterwards.

These two cases along with the one from Dr. Burton's midwifery which I have quoted serve as examples of severe cases of internal haemorrhage during the second stage. Another case, very similar in its nature to these, is given by Johnson and Sinclair in their Practical midwifery, (case 4 of Acc. Fœnic.) and no less than 15 of Goodell's collected belong to this category.

I introduce here three tables bearing on the subject. (pp. 36, 37, 38)

Table I. is based on the list of cases collected by Goodell. Which affords a ready means of referring to cases published. Of the 106 cases which he gives I have rejected 24, 9 as having occurred in the early months of pregnancy, 15 as having occurred after the membranes had ruptured.

Table II. is composed of cases which I have collected.

Table III. gives cases of internal haemorrhage occurring after the escape of the water 15 are from Goodell's list, the other 4 I have referred to in the text.
Frequency

Most authors who have written on this complication have called attention to the rarity of its occurrence. It is necessary to keep in mind here one two groups. That cases of internal haemorrhage which happen during pregnancy in which the placenta is bulged in by a large corpus al are rare. I nearly admit, since cases of this kind when they happen are almost sure to be reported. On the other hand, I believe that cases of internal haemorrhage during labour are by no means so rare and that many of these cases are apt to be overlooked, or, to put it more correctly, that in accidental haemorrhage the internal haemorrhage is often overlooked. If we only reckon those cases in which there is no external flow or only a slight one but the internal accumulation is great then the complication is somewhat common. We not infrequently meet with a note in the record of some obstetrical case that after the delivery of the
<table>
<thead>
<tr>
<th>Case</th>
<th>Stage at Which Membranes Parted</th>
<th>Further Treatment</th>
<th>Outcome</th>
<th>Remarks</th>
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child the placenta followed almost immedi-
ately, accompanied by clots. This is most commonly attributed to the rapid contraction of the uterus after the expulsion of the child causing separation of the placenta. No doubt in many cases we do get haemorrhage from this cause, but in many others I am persuaded that the haemorrhage has occurred before the expulsion of the child and that the blood has been retained in the uterus on account of its exit being prevented by the fetal parts. The fact of the blood being congealed goes to prove this, and we have further evidence in many cases by finding the placenta compressed in part. In these cases we are on the border line of a very grave condition; only let the outflow of blood be sufficiently difficult and the blood which may accumulate during the intervals between pains may prevent the uterus from contracting firmly, and thus tend to produce further
Haemorrhage

The difficulty of giving statistics as to the frequency of this complication is thus apparent; it is not easy to say which cases should be included and which rejected. In the cases collected by Goodell we find the line drawn very arbitrarily. For example, Lee in his Clinical Midwifery gives 8 or 9 cases in which after the birth of the child there followed clotted blood in great quantity and the placenta showed marks of compression in parts. Of these Goodell has only included two in his collection, apparently because the other 6 or 7 cases were attended by rather more external haemorrhage. Nevertheless, it is most probable that the external haemorrhage in all of these cases was insufficient either to produce the grave symptoms at the time or the death of the mother subsequently. Many cases are missed, no doubt, from the fact that medical men do
<table>
<thead>
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<td>Breech, caesarean rupture of membranes</td>
<td>A</td>
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<td>Normal labour, pain ceased</td>
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<td>Devereux, Case 7, Third</td>
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<td>Card tonus across during labour</td>
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<td>Secret, Case 12, Third</td>
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<td>Head wedged in pelvis</td>
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<td>Crossfoot, Case 14, Third</td>
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<td>Arm shoulder passes in pelvis</td>
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<td>McHenry, Case 22, Third</td>
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<td>Tucking feeble labour</td>
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<td>Balme, Case 25, Third</td>
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<td>8</td>
<td>Arm shoulder wedged in pelvis</td>
<td>D</td>
<td>Thomas, Case 41, Third</td>
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<td>At rupture of memb.</td>
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<td>Hardy, Case 52, Third</td>
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<td>Buxton, Heals, Case 58, Third</td>
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<td>At rupture of memb.</td>
<td>A</td>
<td>Bell, Case 79, Third</td>
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<td>Hydramnios, inertia of umbil.</td>
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<td>Bell, Case 80, Third</td>
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<td>At rupture of memb., Pl. ruptured</td>
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<td>Barton, Labour, Case 300</td>
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<td>17</td>
<td>Ex. haem. during 1st stage</td>
<td>A</td>
<td>Johnson, Sinclair, Pearl, Midwife</td>
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<td>18</td>
<td>At rupture of memb.</td>
<td>D</td>
<td>Barnett, v. text</td>
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<tr>
<td>19</td>
<td>External haemorrhage converted into internal</td>
<td>D</td>
<td>G. Donald, v. text</td>
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not been amid the possibility of internal haemorrhage occurring. This is shown by the fact that at periods when attention has been more specially drawn to internal haemorrhages we have comparatively many cases recorded, while at other times very many years elapse without a single case being reported. It is stretching one's faith considerably to believe that out of 156,000 labours not one case occurred and yet in that huge number not one case has been noted. (Dublin Lunatic Hospital, v. Goodall, op. cit.)

In St. Mary's Hospital, Manchester, from January 1879 up to present date there have been as nearly as possible 21,500 deliveries. Amongst these 6 cases of severe internal flooding during the first stage of labour are recorded. This gives an average of 1 in 3,583 deliveries. This average is about twice as large as that furnished by Guy's Hospital where there occurred 3 cases in 22,495 labours. I believe that
of attention be more closely directed to the
subject, any figures will not be found
to give an average very wide of the truth.

As regards our second order
we cannot fix any number. I have
already stated that I believe that
minor degrees are not uncommon.
The important point is that it may
occur in any case in which the os
is plugged after the occurrence of
external haemorrhage and in tedious
preterm labour.

Seals of Haemorrhage:

1. Between placenta and uterus. That
the haemorrhages in most instances come
from a rupture of the utero-placental
sinuses there can be no doubt. In
a group of cases it is confirmed within the circle covered by
the placenta. In these cases the
edges of the placenta are adherent. If
blood is poured into the cul-de-sac.
In many cases of this kind death
has occurred, and on post-mortem
Examination a large quantity of blood has been found behind the placenta. These cases have been reported by several distinguished authors, and it is the more surprising to find that others deny the possibility of death being caused by a haemorrhage of this kind. - Mrs. Brown and Mr. Jelpeau for example.

2. In most cases at an earlier or later period the placental margin becomes detached at one or more points and the blood finds its way between the uterus and membranes. It will then appear externally unless it reach a point where the adhesion of the membranes is sufficiently great to resist the pressure. In a case given by M. Cendrini (Traité philos. de med. prat. p. 175) there was found after death a zone of chorioon which had acted as a dam. In the earlier months of pregnancy when the decidua vera is thick and vascular it is possible for blood
be effused directly into its layers. After
the placenta has developed, however, the
vessels of the decidua vera are com-
paratively so small that it is ex-
ceedingly improbable for blood to
be thrown out in an alarming quan-
tity from them.

3. The blood may be effused into the
tissue of the placenta. These so-called
placental apoplexies are seen some-
times as small, yellowish-grey,
solid masses on the surface or in
the substance of the placenta. They
have been described and figured
by M. Cruveilhier. (Path. Anat. Bk. 16
p. 1.) They are said by M. Cruveil-
tier to be very common. It is possible
that many of these masses are due
not to effusion but to disease or
degeneration of a portion of the pla-
centa. Many of them, however, are
undoubtedly effusions of blood and
may be seen in various stages in
the same placenta. It is easy
to conceive that these effusions,
once they set beyond a certain limit, may cause disruption of the placenta & dangerous or fatal haemorrhage from both its maternal and foetal portions.

2. On the foetal surface of the placenta.
It is possible that one of these placental apoplexies may be situated deeply in the placenta & may dissect off the chorion from its foetal surface. We may also get haemorrhage in this position from rupture of one of the umbilical vessels. Cazeaux reports a case in which there was effusing blood between the placenta and chorion. But suggests that the haemorrhage came from the utero-placental vessels at the edge of the placenta and made its way by separating the chorion.

The same author mentions a case in which there was haemorrhage from one of the umbilical vessels, where the cord had a velamentous insertion.

3. Inside the membranes. In some cases the placenta or membranes
have given way at some point under the pressure of extravasated blood, and the blood has become mixed with the liquor amnii. Blood may also be effused inside the membranes owing to rupture of the umbilical cord or one of its vessels. This has been denied by some, especially Jumeau. Bouvier, who prefers to doubt the statements to this effect by Baudelot and Lerret. Delamotte and Frægøle also narrate cases in which it occurred.

I merely mention these two latter seats of haemorrhage, but do not intend to go more fully into them. It is evident that in both the haemorrhage compromises the life of the foetus alone, save when there is detachment of the placenta.

After the liquor amnii has escaped or when the haemorrhage occurs during labour, if the placental margin be detached, the blood will most probably be expelled more generally into the uterine cavity. If it does not rupture...
the membranes, it will most likely
strip them from the uterine wall, un-
less the uterus become tightly con-
tracted upon the fetus.

Aetiology and Pathology

A. Before the Rupture of the Membranes

It is evident that there are two factors
concerned in the production of internal
haemorrhage: 1. The cause of the haemor-
rhage; 2. The cause of its remaining
internal

I. The Cause of the Haemorrhage. It is
not my intention to consider in detail
all the alleged causes of this accident.
Such a proceeding would occupy much
larger space than I have at my disposal.

It will be sufficient to try to obtain
a correct view of the immediate cause
acting through which many condi-
tions may produce it.

Authorities are agreed that the source
of bleeding in accidental haemorrhage
is from the utero-placental vessels.

The very large utero-placental
vessels
are merely enormously dilated capillaries and communicate with the cuticular arteries on the one hand and with the large uterine veins on the other. When the placenta is detached during a normal labour, the muscular coat of the uterus is not laid bare; a portion of the serotina is left clothing the uterus. The utero-placental sinuses lie partly in the deciduous serotina and partly in the non-deciduous serotina, so that they are of necessity torn across when separation of the placenta occurs.

The literature on the subject of placental separation is very scant, and but little attention seems to have been paid to the accurate observation of this point. One great difficulty in the way is the scarcity of specimens, which makes it all the more necessary that when these are obtained they should be used to the fullest advantage. Dr. Babour has given an excellent account of the anatomical relations of the men. Branes and uteri, based on two

He shows that the cleavage of the membranes occurs in the spongy layer of the decidua, but makes no special mention of where the placenta separates. The line of cleavage for the placenta is shown in a diagram of Leopold's as being marked by a more spongy layer of the serotina.

It follows from the anatomical considerations above that there are two immediate ways in which the haemorrhage might be produced: 1. Direct separation of the placenta from the uterus and consequent tearing through of the intra-placental vessels; 2. Rupture at one point of line of the intra-placental vessels.

The former of these two seems to be the cause which is most popular amongst obstetricians, by some of whom the occurrence of accidental haemorrhage is styled premature separation of the placenta. It seems to be regarded
as simply a physiological process taking place sooner than usual. Do those who believe that the way nature separates the placenta in normal labour is by the formation of a retro placental clot, thus will seem a ready and obvious solution of the question. The weight of evidence however is decidedly against this mode of separation and Dr. Barboni's specimens will, I think, satisfy most people that nature does not employ this means. Freedenberg, in a recent paper, regards the separation of the placenta as the immediate cause of the haemorrhage. He says: "Internal haemorrhage during pregnancy can only occur through partial separation of the placenta and only when the blood is expelled with sufficient force to overcome the uterine tension." He says further that the "Horror Vacui" which nature has prevented the occurrence of haemorrhage even although a partial separation of the placenta be produced, and he re-
says the extent of the separation of the placenta (which, in turn, depends on the causal injury) of the power of resistance of the uterine walls as the two factors to be considered. I fail to see how this "Horror Vaevi" of nature has anything to do with the case here. The blood pressure in the uterus is very markedly subject to variations from the very nature of the organ, and the utero-placental vessels no doubt contain at different times very varying quantities of blood. Blood will flow where there is least resistance, and this holds as well for the interior of the uterus as for the brain or other tissues of the body. An effusion of blood between the uterus and placenta is therefore as comprehensible as a cerebral apoplexy, or a pelvic haematocoele from rupture of a vessel in the broad ligament or, to take a still nearer illustration, as an extravasation into the substance of the placenta. Freudenberg quotes H. Berger who says that separation of

(1) C. C. Schmiedt, Jährbürner 1853. B. 194. S. 296
(2)
a normally situated placenta before the escape of the waters is not an uncommon circumstance, but that internal haemorrhage accompanying this is. It puzzles me to know how Herr Berger recognises a separation of the placenta before the rupture of the membranes of the uterus and placenta still retain their exact relations and no haemorrhage occur between them.

In more than half the cases of internal (or external) accidental haemorrhage no cause has been mentioned by those by whom they have been reported, and in those cases in which a cause has been assigned it is usually of the nature of a fall, or strain from lifting a weight, coughing, etc. That direct violence may produce a separation of the placenta I by no means deny, but I think its frequency as a cause has been greatly overestimated. We all know how liable one is after any event of this kind to search about for evidence of external injury...
The placenta is often spoken of as if it were a ripe fruit which the slightest breath would cause to fall. This mode of speaking seems to have been fashionable since the days of Hippocrates who tells us how he directed a dancing girl who had conceived to "take a pretty high leap down to the ground, which when she had done seven times the conception dropped from her on the earth with a considerable explosive sort of a noise." This idea is not confirmed when we think of the many shocks which women near their time are liable to meet with and the comparative rarity of accidental haemorrhage. Cases have been reported in which pregnant women have met with severe injuries to the abdomen and yet the placenta has not been separated. It seems to me that Freidenberg's allusion to the "Horror Vaci" which nature possesses has a more fitting place here.
and occur recent as a whole outside injuries, and it is difficult by direct violence to separate the one from the other.

Irregular uterine contractions are noted by many authors as being a powerful agent in producing directly separation of the placenta. That they should do so — apart from disease of the placental tissues — is not in accordance with our knowledge of the faculty which the placenta possesses of adapting itself to very considerable contraction of the uterus. In a specimen described by Dr. Babone*, the placental site had undergone considerable diminution, — probably at least one-third, as it measured only 4 inches by 4½ inches — and yet the placenta was not detached at any point.

Dr. Robert Barnes talks of "circumscribed putrefactions of the uterine globe." I do not understand how these can occur to any great extent while the uterine contents are undiminished.

That irregular uterine contractions may cause the separation of the placenta...
indirectly I well believe. It has been pointed out by Jacquesvier* that the blood flows from very large venous sinuses into much smaller veins. Hence it follows that there is a great tendency to stasis in these sinuses, and that very slight causes may produce engorgement of the venous system & even rupture of one of the vessels. Further these veins are devoid of valves and run obliquely through the muscular tissue of the uterus, and are embraced by the muscular bundles. This—a circumstance of the greatest importance in the prevention of post partum haemorrhage—is one which may tend to produce haemorrhage before labour, since contraction of the muscular coat at one point will produce increased blood pressure in the sinuses underlying it.

The great immediate cause of the haemorrhage—"causa sine qua non"—of the Ccsticians—seems to be the rupture of a utero-placental vessel and...
the effusion of blood between the uterus and placenta. This is in fact simply a haematoma in a position where we have many circumstances favouring its occurrence. The walls of the uterus are of great delicacy and the sinuses are so large and so numerous that there is no difficulty in accounting for the haemorrhage, however great. In two of the cases which I have described the symptoms of severe anaemia occurred during the night or in the early morning. It is possible that involvement of the uterine vessels was favoured by the heavy uterus pressing on the large abdominal veins - the patient being recumbent - or it may have been produced by an action on the vasomotor centre of the spinal cord.

In the third of my cases there was marked excess of Rig. amnii and it is possible that this may have had a causal relation to the haemorrhage. Matthews Duncan refers to the fact that hydramnios sometimes causes placenta hem.
Francacorte may cause separation of the placenta during pregnancy by dis-
tending the uterine walls. That an alter-
tation in the relations of the placenta and the area over which it is attached
may thus be produced is quite con-
celvable. Hydramnios is related to
external haemorrhage in other ways,
which we shall mention later on.

We thus have as the two direct
causes of the haemorrhage:

1. Direct separation of the placenta. We
have already said I believe to be a
rare occurrence.

2. Effusion of blood between uterus
and placenta— from rupture of arteries
placental vessels.

We have many things which in their turn
will act as predisposing causes to this
effusion of blood. We need not enumer-
ate all these. It is evident that
any disease which affects the uterus-
placental vessels will predispose to
it—as in disease or degeneration of
the placenta. Also the numerous blood
dyspareunia which predisposes to haemorrhage generally. In my first and second cases there was a history of dangerous flooding at a previous labour. Dr. \text{Writers} reports three cases of intravascular haemorrhage during pregnancy in which nephritis was also present and believes that this is an important and frequent cause, but does not explain how he believes it to act. Whatever tends to increase the blood tension in the utero-placental vessels may indirectly cause the effusion to be increased, producing increased back ward pressure; obstruction to blood return through vena cava or other veins; uterine contractions; and many other less definite causes as mental emotions, cough, etc.

II. The Cause of the Haemorrhage remaining internal.

A haemorrhage being started between the uterus and the placenta it does not necessarily follow that it should
become very severe. If the rupture were to be a small one or if the tissue surrounding the rent of rupture be comparatively dense, the effusion may not be large. A coagulum will be formed separating the uterine placenta over a small area, but no more serious consequences may ensue, and we may discover this haemorrhage for the first time after the labour is over by seeing a firm clot in a depression on the maternal surface of the placenta. Further, when the effusion has occurred, no very long time may elapse before it becomes external. It is evident that we have here to do with two factors: (1) Powers tendency to expel the blood; (2) Resistance offered to outflow of blood.

The powers which tend to expel the blood are (2) force with which blood is expelled; ('celtis patientis' the higher the blood pressure the more likely is the blood to separate the placenta and
membranes from the uterine wall. These contractions must have a most potent effect in rendering the latent haemorrhage external manifest. The fluid blood will be forced by them between the connecting tissues until it appears externally, and the more powerful the contractions the more quickly will this occur. It is here, I believe, that we find an explanation of why external haemorrhage before delivery is regarded as a complication of no great danger, and as one which may usually be treated successfully by rupturing the membranes. The external haemorrhage is an indication that uterine contractions are going on, or, at any rate, that the uterine muscle is firm and unyielding. On rupturing the membranes, the uterine contractions are strengthened or awakened, the haemorrhage is checked and labour advanced. Conversely,
absence of strong uterine contractions.

That haemorrhage from the utero-
placental vessels should have occurred
is not necessarily a very grave accident,
but if we add inertia to this we
get a very dangerous combination.

Thus, all the causes which produce inertia
of the uterus may "ipsa facto" be concerned
in the production of internal haemorrhage
and in this connection we must not
forget that hydramnios by overstretched
the uterine fibres may weaken their con-
tractility.

2. Resistance offered to the escape of the
blood is due in this stage to the adher-
ence of the placenta and membranes
to the uterus.

This factor is not unimportant. If
the quantity of blood poured out be con-
siderable and if the margins of the placentas be firmly attached, inertia of
the corresponding portion of the uterus
may be induced. There are many cases
recorded in which this condition is
found. It has been often stated that
the margin of the placenta is more firmly adherent than its centre. But I am not aware that this has been conclusively proved to be the normal condition. Sometimes one portion separates and sometimes another. The whole placenta may be separated and the blood fail to force a way between the membranes and the uterus. This may be due to the greater resistance of the membranes to the detaching force or to the fact that uterine inertia has become more complete by the time the blood has separated the placenta.

B. After the Rupture of the Membranes

The causes which produce the haemorrhage after the rupture of the membranes differ considerably from those above described in the fact that in this stage we are more likely to have the haemorrhage produced by primary separation of the placenta. If the continence of the liquor amnii be suddenly removed, it is easy to conceive that the sudden contraction of the
items may be sufficiently great or sufficiently sudden as to detach the placenta. This is especially the case if the items have been previously subjected to great distension. Hence we would expect in cases where the liquor amnii has been present in excess or in quantity, that the liability to the placenta separating when the membranes rupture would be greater. This is undoubtedly the case (v. cases 75, 76 in Goddell's Collection). Similarly in cases of twins, the placenta may be separated after the birth of the first child by the sudden contraction of the uterus. Heister notes a case in which the placenta, although normally situated, preceded the second child.

The placenta may also be detached by the irregular and spasmodic contractions of the uterus, such as are liable to occur in tedious labour, especially when accompanied by mal-presentations.

* Bm. aegypt. Intellig. 1771. No. 17.
Further, the placenta may be detached during labour by the hand of the accoucheur in performing version. It may also be detached in cases where the cord is absolutely or relatively short and the child is delivered by forceps or traction. This last clause does not touch the debatable question as to whether separation of the placenta can be caused by shortness of the cord. When the child is delivered by the natural powers, as to the means by which the haemorrhage is prevented from flowing externally, this is generally due to the presenting part of the foetus tightly fitting the lower uterine segment and so plugging the os interno. It may also depend on means used by the accoucheur—such as the tampon, India-rubber dilators, or his own hand.

The accumulation inside the uterine is further favoured by (or, more properly speaking, is allowed to...
occur by the coexistence of inertia. This coexistence of haemorrhage & inertia is not unlikely to happen here, as the latter is apt to be produced by some of the causes which favour the occurrence of the former, e.g. previous over-distension, tedious and preternatural labour.

**Pathological Appearances.**

These are pretty much what we would expect to find. I have been mostly indicated in the previous remarks. In patients who have died undelivered the blood has been found sometime retained by the margin of the placenta, sometimes by the membranes, and sometimes by the foetal parts. The quantity of the blood has varied much in different cases. It has sometimes been so small as to seem almost inadequate to produce death. We must remember, however, that a given quantity of blood lost will affect different patients very variously. Goodell believes that the
fatal result is often produced by the collapse due to distension of the uterine walls. But this will add to the collapse is no doubt true, but in order for it to produce death surely the distension would require to be great. Therefore a considerable quantity of blood would have to be poured out.
The amount of stretching of the uterine fibres has been enormous in some cases. Fissures in the peritoneal surface of the uterus, unaccompanied by escape of blood into the abdomen have been observed by Goodell.

Proctor Hicks. The former considers that rupture of the uterus is not infrequently caused by internal haemorrhage.
The placenta is usually compressed in part or whole, and may be cupped.

**Symptoms**

I. Before the Rupture of the Membranes
The various symptoms will best be considered by grouping them under
different leads, as their relative value will be thus better made out.

1. Symptoms of Haemorrhage will necessarily be present - usually in a
marked degree. The pulse here gives us an indication of great value. Its
strength is diminished and its frequency increased. There are also
changes in respiration, which become shallow and sighing, with frequent
gawning. Syncope may occur early,
with cold and clammy surface of
body. Later, there is great mental
agitation with extreme restlessness
and jactitation. There may be an
External show of blood, more or less
copious. Great stress is laid by some
on a serous discharge owing to the
Serum being squeezed out of the clot.
All of these symptoms were present in
my three cases. In the second case the
tongue was very dry & brown and the
patient complained of great thirst.

2. Symptoms of internal distension

3. Subjective. A sense of unreasoness and
...weight in the abdomen is complained of in most instances. Pain is ranked by Goodell as the second most important symptom. It may vary greatly in degree, however, and cases are reported in which it is distinctly stated that there was no pain. Irregular uterine contractions may be present. These may resemble pains of colic. Abdominal tenderness has been noted as a symptom by some, but it was not present in a striking degree in any of my cases. Where there is marked stretching of the uterine fibers no doubt more or less shock will be produced which will add to the constitutional symptoms produced by the hemorrhage.

B. Objective - Some observers have stated that the uterine distension was so marked on abdominal inspection as at once to attract attention, and Dr. Dewees mentions that in one case the woman began to distend in a manner visible to the midwife and bystanders. 

* Dewees' Midwifery, p. 252.
we can determine by abdominal palpation a distinct difference after the haemor-
rhage. There can be no doubt. The uterus feels tense and firm with none of the
alternate contraction and relaxation met with in ordinary labour, and the foetal parts cannot be distinctly made out. Some authors have described
a localized bulging or accessory tumour as having been observed. This can
only occur when the placenta is adhered at its margin and it will only be
felt if the placenta be towards the front of the uterus. Seizunzi mentions
that this accessory tumour was felt in a case of his and that after
labour more than 2 lbs. of blood came away and the tumour disappeared. Some discussion has taken
place as to shape of the uterus in internal haemorrhage (Rabel, Heimig, Seizunzi,
Freundenberg). This point seems to me of little practical importance. It will
vary to a large extent with the position of the placenta. Servoy says that

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he observed an obscure sense of fluctuation in a case of haemorrhage during labour I am unable to confirm this from personal observation. Such a sensation might be equally well conveyed by the liquor amnii. Absence of the foetal pulsation will of course occur if the death of the child be caused or if a large cordum intervene between the child and the uterine wall. Tense ness of the membranes has been given as a symptom of great importance by Brunton. Theoretically we would expect to have this, but still it has not been sufficiently striking in the majority of cases, and Dr. Olshan has noted that the membranes were fluid in one of his cases. If the diastasis be very great, we will have the respiration still further embarrassed by the pressure on the diaphragm.

C. Symptoms of uterine inertia.
Complete absence of labour pains can hardly rank as a symptom in cases occurring before the commencement of
labour. During labour, a negative evidence; in the presence of strong uterine contractions we are justified in denying the existence of severe uterine haemorrhage.

II. After rupture of the membranes.

In the majority of cases occurring after the rupture of the membranes we are more apt to meet with an external show. The most important indications in this stage are:

1. Onset of grave symptoms and at the same time diminution of the labour pain. These symptoms may arise immediately after the waters break. On pressing up the presenting part we may get clots escaping. The class of symptoms produced by uterine distension is obviously not so important here; it is possible for internal flooding to go on to a dangerous degree without distending the uterus to a greater capacity than it possessed before the membranes were ruptured. This is a point which I wish to impress, as it is one which I particularly noticed. In my first case of haemorrhage during labour, the woman complained of no pain whatever.
Diagnosis

The diagnosis of this condition is chiefly difficult because as a rule it is not one which is apt to suggest itself to the medical attendant. It is almost impossible for a careful observer to avoid coming to the conclusion that the case is one of haemorrhage of some kind. There is nothing which can produce the same characteristic train of symptoms: the rapid, weak pulse, cyanic appearance, coldness of surface, and sighing respiration. In my 2nd example the "besoin de respire" was as marked as in any severe case of post partum flooding. The condition when it occurred before the onset of labour has often been mistaken for many general conditions which produce collapse, such as severe colic etc. An indication of the greatest value which I have not seen noted by any author is the state of the pulse. Shock is characterized by a slow small pulse, in haemorrhage the pulse is small but
Frequent. In all of my cases the pulse was over 100 and in my 2nd case was 130 per minute.

Being satisfied on the point that the symptoms are those of haemorrhage, one will have little difficulty in deciding that it is intra-uterine from the physical signs which are present.

When hydramnios co-exists with the internal haemorrhage the diagnosis will be more difficult, since the local signs are somewhat alike in both these conditions. Thus, we may have the great uterine distension, the tenesmus of membranes, the irregular and feeble pains in a case of uncomplicated hydramnios. We must be guided entirely by the constitutional symptoms, and should we suspect any internal coagulity we must be especially guarded in our prognosis, as this dual condition is one which is most likely to produce inertia of the uterus after the waters escape.

The differential diagnosis from rupture
of the uterus is not a point calling for re-

view in talking of internal haemorrhage

before the membranes rupture.

If during labour we have slight exter-

nal haemorrhage, and the symptoms

be more severe than can be accounted

for by the amount of blood lost, and

if the os be tightly plugged by the

presenting part, or by other means

then we must be suspicious of in-
ternal accumulation of blood. Also

if during a tedious labour, especially

if accompanied by malpresentation, we

find the pains from being strong &
frequent becoming feeble and at
long intervals, along with an acceler-
ated pulse-rate and symptoms of
jaintness, then we must be on the alert.

This condition will require to

be differentiated from rupture of
the uterus. Pains will give us an
indication, as it is not likely to
be present unless the haemorrhage be
profuse and the uterus distended.
If great distension of the uterus be pr
duced. This will suffice to distinguish the internal haemorrhage from a rupture of the uterus.

**Prognosis**

Most writers on this subject have brought forward statistics, and the conclusions arrived at have been very similar. It is of some importance that the cases collected should be discriminated as far as possible, into those occurring during pregnancy and before the membranes rupture and those which occur in the second stage of labour. The statistical argument is one which requires great caution in its application. Failing the broad facts however, there can be no two opinions as to the extreme danger of internal haemorrhage. Thus, Goodell gives 106 cases with 54 maternal and 101 foetal deaths. Henning states that of 110 cases 56 women died and that of 111 children 104 were stillborn. If we refer to the tables which...
I have drawn up (p. 36), we find the result is much the same. Thus, in Table I (which is Goodell's list with certain cases rejected on grounds that have been explained), we get 82 cases with 43 maternal and 77 foetal deaths. In Table II (cases which I have collected from various sources) we have 35 cases with 18 maternal and 35 foetal deaths. Adding tables I & II together we get 117 cases with 61 maternal and 112 foetal deaths, being a mortality of about 5-2 per cent. and 9-5 per cent. respectively.

In all cases of internal haemorrhage during pregnancy or the first stage of labour, the prognosis is therefore a grave one, but there are certain points which will tend to make us take a still more gloomy view of the case. In the first instance of course we will form our judgment according to the severity of the constitutional symptoms of the condition.
be diagnosed at an early stage and before the collapse has become manifest. Then we are justified in being more hopeful than when we are called to a patient who manifests all the signs of extreme anemia and collapse.

Again, it is noticed that where there are uterine contractions present, the mortality is not so great. The most grave cases are those in which there are serious constitutional symptoms, indicating profuse hemorrhage, and not a sign of labor pain. The effect of uterine contraction is to be judged by the change produced on the cervix. It is often stated that in these cases of internal flooding the os becomes dilated, even in the absence of uterine contractions. This seems to me one of those ill-founded but ingenious theories which, evolved from an author's inner consciousness, find their way into obstetric manuals and are carefully reproduced by successors.
generations of writers who do not stop to enquire how far they agree with fact. There are cases reported - said numerous - in which the uterus has been enormously distended with blood and still the cervix has remained undilated. This theory probably takes its origin from that more general and equally false one which says that in all cases of severe uterine haemorrhage the cervix becomes soft whereas an exceedingly firm and rigid cervix is not unknown in women who are on the point of death from profuse bleeding before labour. When the os dilates spontaneously therefore this is undoubtedly the result of uterine contractions, although labour pains may not be distinctly present and in these cases the prognosis is somewhat more hopeful than in those in which the os remains firmly closed. In addition to the amount of blood
lost, there is no doubt that the great distension of the uterus offers in itself an additional danger. The collapse produced by this distension may determine the fatal result, apart from the fact that rupture of the uterus may be caused. The dangers to the mother apart from these are the continuance of the haemorrhage after delivery and the evil effects which severe haemorrhage is apt to bring in its train, such as puerperal septicaemia, tonic collapse of various venous etc. The cause of death of the foetus is no doubt asphyxia, owing to the functions of the placenta being interfered with. Some of the foetal vessels in the placenta may be ruptured by the effused blood, and the foetus thus bleed to death.

Internal haemorrhage after the rupture of the membranes.

If we take the cases given in Table III, we will find that the normal
amongst these differs little from that of internal haemorrhage previous to the rupture of the membranes. If anything, it would tend to show that the former was the more serious complication. Thus, we find that there are 19 cases with 11 maternal deaths (nearly 58 per cent.), and 18 foetal deaths.

I have already stated, however, that I believe this complication to be not unfrequent. Certainly, much more frequent than the small number of recorded cases would lead us to suspect; and I do not think that these statistics give us a correct view of its mortality. This kind of haemorrhage occurs in all degrees and I believe that the slightest degrees are often overlooked, and only those cases reported in which great anxiety has been caused,—a class of cases in which as might be expected, the mortality is great.
The haemorrhage occurs often after the uterus has been called into active contraction, and is in fact often caused by that contraction. That it may be so great as ultimately to produce complete uterine inertia is shown by many cases reported. Still, I believe that it is only in a few cases that the haemorrhage is so great as to paralyse the uterine muscle, and that in the majority of cases labour will be terminated by the natural powers. In other words, I believe that in the majority of cases the uterine contractions will hold the haemorrhage in check, but that in some few cases the haemorrhage may destroy the contractions. In cases where this latter event happens, or in cases in which inertia has been present from the first, the progress is so very slovenly. In fact, uterine contractions are the only thing we can rely on to restrain the haemorrhage.
in this stage, since the merely passive resi-
sitance of the uterine wall will only come
into play after a very large quantity
of blood has been lost.

Treatment.

A. Before the Rupture of the Membranes.

Let us first glance at the proper care
of this condition. Great stress has been
laid on this point by A. C. Baudelocque,
who has laid down so many rules to
women in the latter months of pregnancy
that, if these were carefully observed,
life to these women would be hardly
worth living. This is but the natural
outcome of the belief that the placenta
is easily detached from its uterine at-
tachments. Considering the rarity of
accidental haemorrhage and the still
greater rarity of internal haemorrhage,
I think too much has been made of
of these preventive measures. Still, it
is no doubt advisable that all during
the latter months of pregnancy should
avoid as far as possible everythin
which is liable to produce wanted congestion of the uterine vessels. This caution applies more especially to women who have borne many children and to those who have suffered from uterine haemorrhage in previous confinements.

In considering the treatment of this complication when it has actually occurred we come upon a point of vital practical importance, and one concerning which the greatest diversity of opinion exists. There is no class of cases in the whole field of Obstetrics which involves greater anxiety or requires in a higher degree the exercise of judgment and skill. Early training and the traditions of schools are sometimes fetters which it is difficult to shake off, but we must endeavour to take an unbiased view of these distressing cases, and avoid all measures which are founded merely on theory and not on observation and experience. The whole mechanism of parturition is so wondrously arranged that one cannot
fail to admire the way in which nature lends a solution to the complex problem set before it. It is probably on this account that authors are tempted to add something to nature's powers by describing functions which, no doubt, they consider it ought to possess.

Thus, J. L. Baudeloque states that internal haemorrhage of necessity induces uterine contractions, and procures expulsion of the ovum. It is only necessary in refutation of this statement to point to cases in which the woman has floated to death without a sign of uterine contraction. These cases are sufficiently numerous, and show that the uterus may yield sooner than the adhesions of the placenta or membranes to certain portions of the uterus give way. It is perhaps a little difficult to imagine the uterus as a limp body; we are too apt to think of it always as a firm and rigid organ. Any one, however, who has introduced the hand into a placenta uterus after labour and

* L'art des accouchements, p. 1085.
has been suddenly alarmed at the obvious distention which the shape of his hand can be seen through the abdominal walls, will not be so hard to convince that the uterus may yield readily to a distending force. The acceptance of Baudeloque's dictum may lead to our standing passive at a time when active assistance might mean the preservation of the patient.

The numerous sad cases of death before delivery caused most to perceive that Baudeloque's theory is quite erroneous in many cases and a dangerous one to follow in practice. It came to be almost universally recognized that the only safety lies in speedy evacuation of the uterine contents. Here again, the ways diverge. One class, represented largely by Gower and embracing the majority of English Obstetricians, advocates a course of treatment which is that of extreme dissent from Baudeloque's view. Just as Baudeloque was
confident in the value of the expectant treatment, so they repose their faith in immediate active interference by rupturing the membranes. This, in their opinion, will almost certainly lead to uterine contractions, which may be further assisted by compression of the uterus by means of a bridge (Goddell). Should it fail in producing the desired contractions and should the haemorrhage not be checked, recourse should at once be had to forced delivery. If the os be not dilated this must be accomplished by forced dilatation or by incision of the cervix (Schröeder). Brunton and a large number of German authorities, on the other hand, while believing that speedy delivery is the end to be aimed at, consider that the means advocated above is not the one which will best accomplish that end. They think that the "short cut" of Goddell may often turn out to be a "long road." They counsel

(Schröeder's midwifery, translated by Carter p. 310)
an expectant and stimulating plan of treatment until the os be fairly dilated, and then they advocate prompt measures. It is thus seen that they tacitly accept the doctrine that if they wait the os will open in face of the many cases in which this has not happened. Let us look for a moment at the statistical argument, taking our 117 cases (Tables 132) as a basis. Out of this number we find that 28 women died undelivered or were delivered when moribund by Caesarean section. When we consider that this means that of the women in whom internal haemorrhage during pregnancy or the first stage of labour has occurred nearly one-fourth have died undelivered, the statement comes to us as unexpected and appalling. Surely in some of these the expectant plan has been carried too far. Let us now take the other side of
the question, lest in avoiding the Scylla of procrastination we fall into the Charybdis of precipitate action.

In 26 cases of the 117 it is stated distinctly (or we may reasonably infer from the description of the case) that the membranes were ruptured early. Of these 26 cases 16 died, being a mortality of 61 per cent. or 10 per cent more than the aggregate mortality.

Again, in 45 cases the membranes were ruptured late, (either spontaneously or by act), and of these 7 died - being a mortality of 16 1/2 per cent.

It may be said, with some show of truth, that the cases in which the membranes were ruptured early were probably those in which the os was firm and rigid and in which no uterine contraction existed; and hence, that being the most serious class of cases the mortality is naturally heavy, and would
have been equally heavy. Whatever line of treatment had been adopted, these figures, however, show conclusively that rupture of the membranes is far from being a certain mode of inducing uterine contractions as those who admire it assert. Further, if we read the individual cases we will find that in nearly all the symptoms become greatly aggravated after the rupture of the membranes. I was greatly struck with this in my 2nd case: the woman's condition was certainly very bad when she was seen, but it was after the rupture of the membranes that the extreme signs of haemorrhage first manifested themselves. The reason of this is not far to seek: as long as the liquor amnii is contained in the bag of membranes, if there is resistance to the effusion of blood after a certain point, and the effusion can only continue by
stretches the uterine walls. When the membranes are ruptured there is a
danger that the uterus, paralysed
by overdistension, will not con-
tract on the foetus, and that the
place of the 
Liquor Amnii will
be taken by freshly effused blood.
The lessons taught by a consider-
ation of the statistics and a careful
study of individual cases are clearly
two: 1. delay is dangerous;
2. rupturing the membranes before
the os is dilated is most injurious.
We will find a useful rule of action
in this complication, as in many
other affairs, in the maxim
"in medio tenuissimi orbis." Clearly
the indication is to dilate the os
as quickly as possible, while at
the same time, by leaving the mem-
'"branches intact, we avail ourselves
of the counter pressure of the 
Liquor Amnii, not forgetting also to
stimulate and support the strength of
our patient as far as possible.
When the os is fairly dilated we may then rupture the membranes. Any temporary contraction of the uterus we may now hope to keep up, as no long time will elapse before the foetus is extracted.

It is gratifying to find the principle here enunciated recognized by so great a master as Smellie. Referring to accidental haemorrhage generally he says, "It is happy for the woman in this case when she is so near the full time that she may be sustained till Labour is brought on, and this may be promoted if the head presents by gently stretching the mouth of the womb, which being sufficiently opened the membranes must be broke." And again he says: "If in time of labour she is seiz'd with labour pains, or if by every now and then stretching with your finger the os interval you bring on Labour by which either the membranes or the head..."
of the child is pushed down and opens the os internum. The membranes ought to break. "This may be done sooner in women. Those have had children formerly than in such as have not been in labour before."

That this method of dilating the os previous to rupturing the membranes has been put into practice much is shown by the fact that there are only 4 cases, including my 3rd case, in which it was adopted out of the 117 cases tabulated. This forms a small but very interesting group; one only of these cases died.

As to the mode of dilating the cervix this may be done either by the digital method or by Barnes' bags. The latter I think are to be preferred, as in using them one is not so liable to rupture the membranes when the os is quite incompetent. He says dilators might be used to start the dilatation.

* op. cit. p. 324 (vol I)
In reference to Barnes’ bags, I must express my conviction that, while their use may be attended with great benefit before the membranes are ruptured, they must on no account be used after the rupture of the membranes in cases of concealed haemorrhage. We are too apt to forget that in order to dilate the cervix they must effectually plug it. I believe their use was attended with evil effect in my 2nd case & in Dr. Her. Warren’s case a great rush of blood took place on removing the bag.

The tampon is contraindicated in these cases from their very nature.

As to the means of extracting the child this will depend on the individual case. Bipolar version is probably the best as a rule, as being accompanied with little shock and as securing the more rapid diminution of the uterine contents than the forceps. Of these be very
rigid we must be careful not to perform version before it be well dilated otherwise the breech and head may shake and give rise to great delay. If there exist any pelvic contraction we need have little trouble in perforating on account of the child - since the chances of its being born alive are exceedingly small.

In the worst class of cases Cæsarean section has been performed when the mother was unwise and. As the child nearly always succumbs at an early stage of this complication this can be of no good.

In nearly all of those cases if not all - the anxiety is not relieved by the birth of the child - but as a rule the uterus still refuses to contract properly and more or less haemorrhage persists. We must be prepared for this and have all the means at hand which are calculated to check it.
Amongst these the hot intra-uterine douche, and, failing this, the perchloride of iron solution are the most useful remedies locally, and sulphuric ether given hypodermically is of great value.

After the Rupture of the Membrane

As we have elsewhere remarked the cases in this group vary much in severity. We have cases at the one extreme which require little if any active treatment, and at the other extreme are cases of the greatest severity, in the treatment of which we are comparatively helpless. If we suspect internal haemorrhage, the great point is to prevent if possible the blood accumulating inside the uterus to such an extent as to distend and paralyse its walls. It is better therefore than in slight cases to deliver soon either by forceps or version.

When called to a case of haemorrhage...
Before delivery every medical man should bear two facts strongly in mind: 1st, that the external loss may have had for its fore runner an internal haemorrhage; 2nd, that the external haemorrhage is liable to be converted into an internal one. This latter warning is especially to be noted if the conditions are such as to favour internal accumulation of blood; for example - if the presenting part of the foetus become firmly impacted in the lower uterine segment, or if the medical man employs means calculated to obstruct the outflow of blood, as in using the tampon or fluid dilators, or in introducing his hand for the purpose of turning.

If, as sometimes happens, the haemorrhage occur in a severe degree when the membranes have ruptured early then we have a very grave state of things. This case is, in fact, represented by those cases in which...
Haemorrhage has occurred during pregnancy or first stage of labour and in which the membranes have been ruptured early without this having any effect on the bleeding. Desperate diseases require desperate cured, and in these cases probably the best plan is to incise the cervix freely and deliver quickly, at the same time that the uterus is compressed from above.

Conclusion

In concluding my remarks on this subject I cannot refrain, even at the risk of being thought tedious, from once more urging the importance of this complication. From its nature it has to be studied chiefly from a clinical aspect, and every case that occurs should be published in full detail. The whole subject of accidental haemorrhage seems hardly an exact science. As it ought to be.
While so many advances have been made lately in the practice of medicine and surgery generally and in most of the other departments of midwifery, it seems a reproach that practically nothing has been done to diminish the heavy mortality of this complication - one of the most serious of those which threaten the life of the lying-in woman.