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Unavoidable Haemorrhage *

BY

THE EDITOR.

THIS paper deals with 5,107 cases of placenta praevia which occurred in the confinements of 500,988 women, and with a critical study of 4,580 cases. These two numbers differ owing to the fact that the sections dealing with placenta praevia in the reports are not all set out on the same plan, there being 537 cases which, owing to the omission of certain details, it is impossible to include in this study. The incidence of placenta praevia in this series was 1 in 98 cases.

Some authorities criticize adversely the presentation of massed statistics, especially those from foreign sources, maintaining that, since most readers do not know personally the authors quoted, their standing as experts, or their technique, the picture presented may be entirely fallacious. In this series, however, such a criticism does not obtain so far as the majority of British readers is concerned, since the statistics deal with the practice of the Professors of Obstetrics in maternity hospitals and chiefs in the maternity departments of general hospitals in England, Wales, Scotland, Northern Ireland and the Irish Free State. Most of the reports cover a period of the last five years, although four are for a longer period.

Some years ago I mentioned, casually, to Mr. Carnac Rivett of the Middlesex and Queen Charlotte's Hospitals, that an immense amount of trouble would be saved to scientific investigators in our department of medicine if all maternity hospitals would issue their reports on a uniform plan and, with his

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characteristic energy, he set to work to get this idea carried out by calling the attention of the Obstetric Section of the Royal Society of Medicine to the subject, and obtaining a sub-committee to draw up a uniform plan. As the result of the deliberations of this sub-committee, a uniform plan was eventually decided upon, which was agreed to by the Professors of Obstetrics and chiefs of the maternity departments in England, Scotland, Northern Ireland, and the Irish Free State.

Many of the more recent reports are issued on this plan, which makes an investigation of any obstetric subject much easier. Nevertheless, there are certain maternity hospitals in which the chiefs have not insisted on their registrars following the uniform plan, so that my labour has been enormously increased. The Council of the British College of Obstetricians and Gynaecologists is now drawing up a special "Case Sheet" for maternity cases, which it is hoped will be used by all registrars in the future. Lastly, some registrars have an unfortunate habit of using capital letters for abbreviations, the meaning of which one has not the slightest idea, since there is not any indication in some of the reports for what such capital letters stand. If this is so for a British investigator, what a hopeless position for one who is foreign! I daresay many authors have realized that, during my Editorship of *The Journal of Obstetrics and Gynaecology of the British Empire*, I have not allowed such abbreviations without an indication of their meaning, and I feel confident that our foreign subscribers, of whom we have a large number, must often have blessed such a decision.

The figures I append cannot be made to tally for the following reasons:

In some reports the ages of the patients were not appended.
,, ,, the parity of the patients was not appended.
,, ,, the period of pregnancy of the patients was not appended.
,, ,, there was not any note of the variety of placenta praevia.
,, ,, the details given were so scrappy that it was impossible to make any use of them for statistical purposes.

In many cases the requisite details of the death of the patient are omitted.

In a few there is the simple note "patient died".

Some registrars are satisfied with reporting two varieties of placenta praevia, complete and incomplete, and nowhere in their descriptions have they taken the trouble to separate the latter into its two recognized varieties.

Those cases in which the variety of placenta praevia is given, but not the age, are added to cases reported in the main tables.

Cause.

The reason why the zygote, or part of it, becomes implanted on the lower uterine segment is unknown and the few theories advanced as to the cause will, on a critical examination, not hold water. The suggestion that subinvolution and chronic endometritis may be the principal cause is based on the repeated statement that placenta praevia is far commoner in multiparae than in primigravidae. This is so, but individually—that is taking women who have had one, two or more children—placenta praevia is far commoner in primigravidae.

That portion of the body of the uterus situate between the level of the internal os and the reflection of the peritoneum off the posterior wall of the uterus and the site of entrance of the cervical uterine artery in the unimpregnated uterus is known as the isthmus, in the pregnant woman as the lower uterine segment. An intensive research has been made by Fränkl into the morphology, pathology, bio-chemistry and microscopy of the isthmus, and his findings may be summed up as follows:

1. The interglandular structure does not take on the same degree of decidual formation as does the remainder of the corporeal mucosa.

2. The proportion of fibrous and muscular tissue is greater.

3. The glycogen content, essential for the growth of the fertilized ovum, is lower in the mucosal cells.

4. In the last three months its depth increases as it comes to form the lower uterine segment.

These findings, which are not germane to this paper, do not carry one any further as to the cause of placenta praevia, but they are of interest in this sense:

1. In normal pregnancy the attachment of the lower pole of the fertilized ovum is relatively loose, so that as the lower segment of the uterus expands the fertilized ovum can expand with it.

2. The glycogen content of the mucosal cells being low is a handicap to the normal formation of the placenta, so that the placenta is apt to be diffuse and membranaceous.

3. Such a placenta may be a cause of some of the foetal malformations which occur, though it cannot be a common cause, as my figures show, but always with the reservation that some registrars did not trouble to include such malformations.

4. As the result of Fränkl's observations it would appear that the lower pole of the placenta is more firmly attached to the lower uterine segment, when it abuts on it. This would account for the early onset of bleeding in such a large number of cases, due to the expansion of the lower uterine segment in the last weeks of pregnancy. Placenta praevia is certainly responsible for more abortions and miscarriages than is usually recognized.

Age.

Taking the five-year periods, the greatest number of patients is between 31 and 35 years of age, though that between 26 and 30 is only 33 less. Placenta praevia occurred most often in patients 32 years of age, and then in those of 30 years of age. It would appear that the risk of this complication in younger women has increased in more modern times, since it is generally placed at a somewhat higher figure. If the ages of the remaining 1502 patients had been stated in the reports, whether these would have corrected such an impression I know not, but the sample appears to be sufficiently large to warrant such a statement.

AGE OF PATIENT WHEN TREATED IN 3602 CASES.

49 years of age	6	31 years of age	176
47 ,, ,, ,, ...	6	30 ,, ,, ,, ...	219
46 ,, ,, ,, ...	13	29 ,, ,, ,, ...	195
45 ,, ,, ,, ...	24	28 ,, ,, ,, ...	198
44 ,, ,, ,, ...	38	27 ,, ,, ,, ...	160
43 ,, ,, ,, ...	69	26 ,, ,, ,, ...	145
42 ,, ,, ,, ...	85	25 ,, ,, ,, ...	139
41 ,, ,, ,, ...	92	24 ,, ,, ,, ...	112
40 ,, ,, ,, ...	122	23 ,, ,, ,, ...	94
39 ,, ,, ,, ...	151	22 ,, ,, ,, ...	85
38 ,, ,, ,, ...	198	21 ,, ,, ,, ...	64
37 ,, ,, ,, ...	150	20 ,, ,, ,, ...	48
36 ,, ,, ,, ...	186	19 ,, ,, ,, ...	33
35 ,, ,, ,, ...	166	18 ,, ,, ,, ...	13
34 ,, ,, ,, ...	193	17 ,, ,, ,, ...	6
33 ,, ,, ,, ...	190	16 ,, ,, ,, ...	1
32 ,, ,, ,, ...	225		
16 years of age to 20	101	Percentage	2.8
21 ,, ,, ,, ,, 25	494	,, ...	13.7
26 ,, ,, ,, ,, 30	917	,, ...	25.4
31 ,, ,, ,, ,, 35	950	,, ...	26.3
36 ,, ,, ,, ,, 40	807	,, ...	22.4
41 ,, ,, ,, ,, 45	308	,, ...	8.5
46 ,, ,, ,, ,, 49	25	,, ...	0.6
	3602		

Parity.

In 4406 patients there were 886 primigravidae and 3520 multiparae, 20.1 and 79.9 per cent respectively. In comparison it will be seen that, individually, the complication occurred far more often in primigravidae.

NUMBER OF CHILDREN, COUNTING PRESENT PREGNANCY, IN 4406 CASES.

1st child	886	11th child	83
2nd ,, ...	750	12th ,, ...	63
3rd ,, ...	634	13th ,, ...	49
4th ,, ...	506	14th ,, ...	37
5th ,, ...	359	15th ,, ...	14
6th ,, ...	278	16th ,, ...	9
7th ,, ...	251	17th ,, ...	4
8th ,, ...	211	18th ,, ...	2
9th ,, ...	164	19th ,, ...	1
10th ,, ...	105		
Primiparae	886	Percentage	20.1
Multiparae	3520	,, ...	79.9
	4406		100.0

Period of Pregnancy.

In the main, the figures given were reported in weeks, as they should be. In a few cases the period is given in months, from which a calculation could be made in some cases by referring to the dates given, and in others by noticing that the registrar took a nine months' pregnancy to be the same as one of 40 weeks. (Details on page 398.)

Clinical Features.

The clinical features are so well known to all of you, and so well described in textbooks on obstetrics, that it is not necessary here to discuss them in any detail. It is generally taught that, as a rule, repeated attacks of small haemorrhages signify that the cause is due to unavoidable haemorrhage rather than to that of accidental haemorrhage. The 'history' of the bleeding is not, as a rule, mentioned in the reports I have examined, but in those cases in which such a history is given it would seem that in the majority of cases such warning signs are not available. For instance, in the reports of the Glasgow Royal Maternity Hospital, which give very complete details, in only 35.5 per cent was there any such warning of two or more days. In other words, in 64.5 per cent the first bleeding was severe enough to call for immediate and definite treatment to terminate pregnancy in the safest possible way.

Period of Pregnancy 4065 Patients

In 4065 cases there were 2808 patients, or 69.0 per cent, who were 36 weeks pregnant and over, and 1257 patients, or 30.9 per cent, who were under 36 weeks pregnant. The complication was diagnosed most often at term and after this at the thirty-sixth week.

In those reports in which the fact was mentioned, out of 3717 patients there were 1463 who were 'booked' cases, or 39.3 per cent, and 2254 patients who were admitted to hospital under the heading of 'emergency' or 'not booked', or 60.6 per cent.

No. of weeks pregnant	No. of patients	Percentage
43	2	0.04
42	13	0.31
41	24	0.58
40	1360	33.48
39	178	4.37
38	425	10.45
37	207	5.09
36	599	14.73
35	154	3.78
34	238	5.8
33	106	2.6
32	333	8.2
31	36	0.88
30	197	4.84
29	34	0.83
28	79	1.9
27	14	0.34
26	39	0.96
25	7	0.17
24	11	0.27
23	3	0.07
22	2	0.04
21	1	0.02
20	3	0.07
Total	4065	

Diagnosis.

The diagnosis in the majority of patients is quite easy, and the cases may be divided into two groups:

(1) Those in which the cervical canal is sufficiently patent to allow a finger to be passed through it.

(2) Those in which the external os is closed, so that a finger cannot be passed through it.

The second group comprises those cases in which the placenta is far more often of the complete variety, the slight expansion of the lower uterine segment being sufficient to cause a little separation of the placenta but not sufficient dilatation of the internal os to allow the finger to be passed through it.

The diagnosis in such cases must, for a time, remain uncertain, and although there are some signs which are advanced as indicating that the placenta is praevia, they are not by any means absolute.

Thus, on abdominal examination the placenta, or part of it, being situated on the lower uterine segment, may prevent the head of the child from engaging in the pelvis of the mother. So will a head larger than normal, or a brim of the pelvis smaller than normal, and the bleeding may be due to accidental haemorrhage. Again, there may be a malpresentation of the head of the child, but there are such malpresentations in accidental haemorrhage. Some authorities have asseverated that they can feel the low insertion of the placenta on abdominal examination. I have never been able to. Lastly, on vaginal examination in a normal case one can feel the hard head of the child. How striking this is is well known to us all. When we examined our first patient in the last month of pregnancy or in labour; one wondered however the head could be born. It is true that the placenta, being in front of the head, may result in a 'cushiony' feeling on vaginal examination, but such a sign is but very little different, if any, from that found in a breech presentation complicated by accidental haemorrhage, although I admit that such a presentation should have been diagnosed on abdominal examination—but have we not, even we seniors, been misled on occasions? It is true that the diagnosis of the presentation can be made by an X-ray examination, but such is not always available. We also know from the work of Professor Munro Kerr that if 20 c.c. of uroselectan B are injected through the abdominal wall into the amniotic sac, the liquor amnii becomes opaque and a shadow of the cavity is shown upon the film, ovoid, irregular and sharp. The placenta, which projects into the sac alters the

outline of the shadow and a defect in the outline of the shadow becomes apparent. This procedure, however, is not without certain drawbacks and dangers. In 10 patients thus treated, labour supervened prematurely, so that apart from any danger, this method of diagnosis should not be used till the thirty-sixth week of pregnancy or after.

It was thought at one time, especially after the late Gordon Ley's paper on accidental haemorrhage, that a diagnosis could be made between it and unavoidable haemorrhage by the presence of a high blood-pressure and albuminuria in the former. In fact this author went so far as to assert that if albuminuria and a high blood-pressure were absent, so was accidental haemorrhage. Since the publication of this paper, however, much more light has been thrown on the subject of accidental haemorrhage, and these signs are not always present in the non-toxaemic varieties. Moreover, the taking of the blood-pressure is now almost universal in hospitals, as is the testing of the urine for albumin, and both high blood-pressure and albuminuria have been noted in many cases of placenta praevia, how often one does not know, since many registrars regard the insertion of such details as a matter of supererogation, though, on the other hand, in some of the reports such details have been faithfully recorded. In the reports I have examined albuminuria is mentioned as occurring 176 times. I have been unable to obtain any reliable percentage since in a long series of cases the statement 'albuminuria' will occur once, as it were in a burst of enthusiasm, while in other reports it is mentioned not infrequently, and it is difficult to believe, unless this complication is due to local peculiarities, that in the former some of the urines had not been examined, or, if examined, the result had not been appended to the reports. However, as a subject for diagnostic assessment, albuminuria and high blood-pressure have their place.

Variety.

There is a certain amount of confusion owing to the various names given to different varieties of placenta praevia, such as central, complete, incomplete, marginal, partial, lateral, and high lateral. Some registrars, for instance, using the term "marginal" for what other registrars call "lateral," and vice versa, but one has been able to sort such cases accurately by reading the reports of deaths and of other special cases in which the position of the placenta is described, and so by turning to the statistical table

one has realized what the registrar in question meant by his description. Since a patient suffering from unavoidable haemorrhage is examined on admission and a certain line of treatment decided upon at once (or should be), it seems to me correct to classify such cases according to which variety of placenta praevia was found when the patient was first examined. Thus if the os is entirely covered by placenta I have entered the case under the designation of *internal os completely covered*; if only part of the os was covered, under that of *internal os partly covered*; and if a part of the placenta could not be felt except by passing the finger up through the internal os and feeling its edge, under that of *internal os not covered at all*. I realize that if the patient is left for some time, perhaps with such a procedure as packing the vagina, the first or third variety may eventually become the second variety, in the first place the edge of the placenta only just covering the internal os and in the second reaching right up to its margin. Nevertheless, in most cases, surely the doctor has to decide what treatment he is going to pursue after examining the patient, and if the os is entirely covered, whatever its size, in my opinion he would be correct in deciding that he is face to face with the first variety, no matter which variety it might have become, if a single method of treatment had not been decided upon; if it is partly covered, with the second variety; and if free, with the third variety, and he should treat the case accordingly.

There remain those rarer cases in which the cervix is closed and rigid and the patient is bleeding. Rarer, because bleeding signifies dilatation of the lower uterine segment and cervical canal and, therefore in most cases, the placenta can be felt. In these rarer cases it will be found that most of them are of the first variety, since the smallest amount of dilatation is able to separate part of the placenta.

The number of the different varieties in the 4,580 cases was as follows:

Internal os completely covered	1085, or 23.6	per cent
Internal os partly covered	952, or 20.7	,,
Internal os not covered at all	1085, or 23.6	,,
Internal os not covered at all, or partly covered	1458, or 31.8	,,
	99.7	,,

Points to be Observed in the Treatment of a Patient the Subject of Placenta Praevia.

1. Control the bleeding as soon as possible.
2. Do not make a vaginal examination unless prepared to embark at once on an appropriate treatment.
3. Combat the shock, if such be present.
4. Take every precaution to prevent septic infection.
5. Do not hasten delivery, except in cases of Caesarean section.
6. Perforate the placenta if necessary with a sharp-pointed instrument.
7. Whenever possible the patient should be treated in a hospital, or first-class nursing home, with expert assistance.

1. *Control the bleeding as soon as possible.* The patient will never be safe until the child is delivered and the uterus well retracted. In the cases reported many women died from the result of antepartum haemorrhage, there not being any bleeding after the child and placenta had been delivered. How best to control the bleeding depends on the variety of placenta praevia, but taking all cases into consideration, packing the vagina, though a bad method, is indicated in the following circumstances, when (*a*) dangerous bleeding is present before the patient can be removed to a hospital; (*b*) the condition of the patient is so serious that active treatment should not be employed until she has had a blood transfusion or saline and glucose infusion; (*c*) there is a sudden and severe bleeding following a vaginal examination and the doctor is not prepared at once to employ one of the methods of delivery. Except rarely, the packing is very inefficiently done, and in most cases this must be so because of the absence of adequate illumination, proper material, instruments, and expert assistance. Packing the vagina efficiently is not nearly so easy as it seems, and in those cases in which this has to be done, because of dangerous bleeding, or the distance of the patient's home from a hospital, the packing should be soaked in an efficient antiseptic. Of the cases reported, to the number of 34, in which the vagina is stated to have been packed, before admission, 23.5 per cent died of sepsis, although in 26.0 per cent the condition of the patients was noted as "good" on admission.

The packing is noted in many cases on admission as being of a very elementary nature, a few inches of gauze being inserted, which on removal stank.

The importance of controlling the bleeding as soon as possible is reflected in the returns of deaths from post-partum haemorrhage. It must be remembered that post-partum haemorrhage after delivery in a case of placenta praevia is a far different proposition than otherwise, since a fatal termination requires, as a rule, more than a pint of blood to be lost in the latter, whereas in the former, because of the antepartum haemorrhage, and often the deficient retraction resulting therefrom, a few ounces will suffice. The delivery of the placenta should, therefore, not be hurried, unless the patient is bleeding dangerously. So long as the latter is not present, the placenta should be allowed to separate naturally, no matter, within reason, how long this takes, during which measures may be taken to improve the condition of the patient. To remove the placenta manually, because it has not separated in the usual time, is fraught with great danger of infection and, in cases of placenta praevia especially, with that of a fatal termination from shock. It must not be forgotten that in cases of placenta praevia the lower uterine segment is more friable and runs an enhanced risk of being torn during manipulations to deliver the child. More than one case is reported in which such an injury resulted in death from post-partum haemorrhage. If there is abnormal bleeding after the third stage of labour, at once examine the cervix. It will be seen that post-partum haemorrhage is, with shock, the second commonest cause of death, 18.0 per cent, and in 22.4 per cent of the cases the condition of the patient on admission was noted as "good".

2. *Do not make a vaginal examination unless prepared to embark at once on an appropriate treatment.* It is true that the treatment, for haemorrhage, may have to be resorted to before the patient can be removed to hospital, but such cases are few and far between. A vaginal examination may easily separate an additional area of placenta, or disturb blood clots, with the result that the amount of bleeding may increase to a serious extent before the patient can be sent into hospital, or expert assistance can be obtained. Nevertheless, when a patient is so far in pregnancy that her bleeding suggests placenta praevia as the cause, unless her home surroundings are such that they can be treated with complete confidence, she should be at once transferred to a hospital, or first-class nursing home, before a vaginal examination is made, not only for the reasons stated

above, but also because the temptation to pack the vagina will be obviated.

3. *Combat the shock, if such be present.* Death from shock is not only due to the antepartum haemorrhage, and I think the number thus dying might be decreased with a more complete understanding of the case as it presents itself. Shock was responsible for 18.0 per cent of the patients, and of these 34.5 per cent were noted as being in a "good" condition on admission. In only a very few cases of those patients dying from shock is a note appended to the account of the death that any steps were taken to treat the shock by blood transfusion, saline infusion, or other methods. It is true that the registrars may have neglected to mention such measures if and when they were employed, but taking the figures at their face value, manipulative treatment by various methods was resorted to in 18 cases when the condition of the patient on admission was noted as "collapsed". If a patient is admitted whose condition on admission is noted as "collapsed", "blanched", or "shocked", the danger of death is great. In the details dealing with the deaths of those patients who died "undelivered", a full account is generally given of the unsuccessful methods taken to deliver the child, but it would appear, from the absence of such information, that but few measures were taken to improve the condition of the patient before resorting to one or other method of delivery. Since all these patients died the result might not have been any different, and perhaps better, if recuperative measures had been tried before those of an active method were resorted to. Provided the haemorrhage has been controlled, severe shock and collapse is an indication to delay operative interference until the appropriate treatment has been given and until some degree of recovery has resulted. If the haemoglobin, which can be easily and quickly estimated in the ward, is below 30 per cent immediate blood transfusion is indicated. As such patients require both fluid and red cells, 500 to 600 c.c. should be given. If the anaemia is less severe a smaller transfusion should be given, say 250 to 300 c.c., or alternatively intravenous infusion of saline and glucose, and with shock and low blood-pressure 50 to 100 c.c. of a 30 per cent hypertonic solution. A blood-pressure below 100 mm. systolic is a danger signal and an indication to delay operative interference, if possible, until treatment has been applied. Drugs appear to be of little value, but ephedrine, adrenalin, or coramine are most likely to help circulatory failure. Bandaging of the limbs may also be tried,

hot drinks given and hot-water bottles applied. When a patient suffering from shock is admitted to hospital the blood of those relatives who accompany her should be typed in case a blood transfusion is considered desirable then, or at some later date. While the doctor is thus delaying operative treatment, if there is any bleeding worth speaking about, he should pack the vagina efficiently, taking every precaution to prevent septic infection.

4. *Take every precaution to prevent septic infection.* The commonest cause of death from placenta praevia, apart from those patients who died undelivered, is septic infection. Owing to the placental site being so near the vagina and the necessity of touching the placental site in many of the methods of delivery, together with the inevitable bleeding lowering the resistance of the patient, it is not to be wondered at that septic infection heads the list of fatal causes, 20.5 per cent. Nevertheless, in 63 per cent of the patients who died of septic infection their condition on admission was noted as "good". It has already been pointed out that 23.5 of the patients in whom the vagina was packed died of sepsis, as also did 18.4 of those from whom the placenta was manually removed. Keeping in mind the suggestions here offered, the number of deaths from septic infection may perhaps be reduced.

5. *Do not hasten delivery, except in cases of Caesarean section.* Even in some cases of Caesarean section it might be advisable to wait until the condition of the patient had improved. In 14.6 of the patients who were subjected to this operation the condition on admission was noted as "collapsed", and they all died.

Shock, post-partum haemorrhage, tears of the cervix and lower uterine segment, and an increased risk to the child are associated with the hastening of delivery, and the risk of septic infection is enhanced by the methods taken to deliver the child quickly. Having brought down a leg, for instance, the temptation to deliver the child forthwith cannot be resisted by some doctors. So long as there is not any dangerous bleeding the labour should be allowed to progress otherwise normally, measures being taken meanwhile to improve the condition of the patient. There will thus be an increased opportunity for the open vessels in the placental site to thrombose when the labour is slow and for the uterus to regain, or enhance, its rectractile power. The lower uterine segment is more liable to injury in cases of placenta praevia. An exception to Herman's aphorism of "slow extraction and antisepsis" is when a bag, having been

inserted and later expelled, the absence of pressure on the placental site may result in the onset of a dangerous bleeding, when the child must be delivered, and the case enters the composite class.

6. *Perforate the placenta, if necessary, with a sharp-pointed instrument.* As will be seen, the best treatment for a patient whose os is completely covered with placenta appears to be quite obvious, except when the surroundings and absence of expert assistance contra-indicate Caesarean section. As a rule, therefore, perforation of the placenta will not be called for. If, however, such a procedure has to be adopted, as Bethel Solomons has pointed out, a sharp-pointed instrument should be used, since otherwise the placenta may further be separated, in which case furious haemorrhage has resulted.

7. *Whenever possible the patient should be treated in hospital or in a first-class nursing home, with expert assistance.* So far as the hospital, or nursing home, are concerned, I need not stress their great advantage. It is obvious that the patient should be treated in such surroundings that the chance of infection is diminished so far as is humanly possible. Moreover, with all the appliances handy to deal with the case the patient will be far safer, since one never knows when her condition may not suddenly become worse. In these reports there are several instances in which the bleeding had stopped, or had been reduced to a minimum, and suddenly a furious, and in some cases fatal, haemorrhage occurred.

So far as expert assistance is concerned I am not suggesting that every case of placenta praevia must be treated by a member of the honorary staff of a maternity hospital, or maternity department of a general hospital, but I do emphasize the point that a doctor who sets out to treat a case of placenta praevia should have an efficient knowledge of the art and practice of obstetrics. Placenta praevia is a comparatively rare complication in private practice, whereas in hospitals it is not particularly uncommon. The average doctor in private practice will have but very few opportunities of dealing with this complication, and the majority will not have had that experience which may be gained by acting as a resident officer in a maternity hospital or department, whereas members of an honorary staff, during the long years of their appointment are fully conversant with the treatment of such a complication as placenta praevia. I believe, with respect to obstetrics as a whole, the British College of Obstetricians and Gynaecologists will be of great

service to the community, since the regulations for admission to the examination for its Diploma are such that the candidate, to be successful, must not only have a very good knowledge of the science of obstetrics, but also must produce proof that he has held a resident obstetric appointment, and that his practical experience has attained a certain high standard. The increasing number of successful candidates for this examination affords ample proof that the obstetrical services available to mothers in our country, as well as those in the Dominions and Colonies, will in the future be infinitely better. The value of expert assistance is shown by a remark made to me by one of our leading Professors of Obstetrics who, when in the course of preparing a new edition of his book, had to read the notes of cases of placenta praevia which had been treated in his hospital over a series of years, found that the results were infinitely better when he, or his colleagues on the honorary staff, had treated the patient from the commencement, than when one of the resident officers had commenced the treatment.

You will find in Tables I, II, III and IV a description of every technique employed to deliver the child both by the single and composite methods. In the following remarks I shall confine myself principally to the single methods, since the samples of composite methods are comparatively small when compared with that of the single methods; and the composite results should not encourage a doctor to employ them unless he is forced to do so for some adequate reason.

The material comprised in the reports of the 4,580 cases of placenta praevia has been analysed with the view of ascertaining by which method, or methods, the best results are likely to be obtained, so far as the mother and her child are concerned, although it is held in general by the profession that the mother must have the first consideration. In so many patients the labour starts prematurely, the child being stillborn, or if born alive dies within a comparatively short time, and even at term the foetal mortality in most cases is high. It used to be thought that if the bleeding started before the thirty-sixth week of pregnancy and was not dangerous, an attempt ought to be made to tide the patient over the intervening period until the child, if born alive, might have a fair chance of living. Although such treatment is worthy of consideration for cases of accidental haemorrhage, for those of placenta praevia it is bad treatment. If a patient has started to bleed thus early she will certainly

bleed again, and perhaps fatally. Moreover, if a patient starts to bleed before term, and certainly if before the thirty-sixth week of pregnancy, a good portion of her placenta may be situated well over the lower uterine segment, the most dangerous variety, and steps should be taken to terminate the pregnancy while the condition of the mother is good. It is a fatal mistake for a doctor to temporize in order to see what will happen. Dangerous bleeding may supervene at any time, when the environment of the patient may be most unsuitable, expert advice difficult to obtain at a moment's notice, and blood transfusion, if desirable, practically impossible to achieve. As I have stated, if bleeding occurs, the patient should be sent into hospital or some other suitable institution.

When deciding which method of treatment to pursue it is necessary to take many things into consideration, such as the obstetrical experience of the doctor attending the patient; the variety of placenta praevia; the amount of bleeding which has taken, and is taking place; the degree of dilatation of the cervix; the general condition of the patient, and whether she is a primigravida or multipara. The obstetrical expert, from his large experience, is able to weigh these various points and, acting accordingly, will obtain the best results.

That the methods employed to deliver the child must be varied up to a certain point is evidenced by their notable diversity, as mentioned in the reports. For instance, when the internal os was completely covered, 47 different methods were employed to deliver the child; when the internal os was partly covered, 51 different methods; when the internal os was not covered at all, 41 different methods; and when the variety of placenta was labelled as 'incomplete,' that is to say, combining the varieties in which the internal os was not covered or partly covered, 51 methods. In view of the fact that all these patients were treated by, or under the supervision of, well recognized obstetrical experts, one must assume that each method employed was the best in the circumstances. I am inclined to think, however, that if it were possible for the doctor to decide which was the one best method to employ in a certain case and carried this out until the labour had terminated, better results would be obtained than when he employs what I have termed 'composite' treatment, that is to say, more than one method for the same patient, such as a bag and internal version, and the particulars given in these reports appear to bear out my contention. From Tables V to XIII (pp. 428–432) it will be seen that the death-rate is

lower and the percentage of live children far higher for patients 36 weeks pregnant and over when a single method was used than when composite methods were employed. For patients under 36 weeks pregnant the same holds good, with the exception of when the internal os is completely covered. It is true that the sample of the composite method is small when compared with that of the single method, but the results appear to support that great axiom in the practice of midwifery 'interfere with labour as little as possible.' Nevertheless, one must recognize that circumstances may arise during the treatment of a patient suffering from placenta praevia which make imperative an alteration in the method first employed.

These results seem to amplify the suggestion that cases of placenta praevia may on occasion be over-treated. I realize that it is a far different proposition sitting in one's armchair evaluating statistics than having to treat a case of placenta praevia, and since the reports do not contain any indication as to why these methods were employed, perhaps such a criticism is not fair. I give the figures for what they are worth.

Internal Os Completely Covered.

A reference to Tables I, V and VI will show that apart from the case of spontaneous delivery, which may be disregarded, and a few composite methods with numbers so small that they can be ignored, Caesarean section, for patients 36 weeks pregnant and over, is by far the safest method of delivery both for the mother and child. The maternal mortality, 4.1 per cent, is low, and the percentage of children born alive and lived, 84.1, is high. It may be argued that such a method is all very well in the hands of an expert, but every case of placenta praevia should be, whenever possible, treated by an expert. What are the alternatives? The next largest groups are those containing patients treated by bipolar version, with a maternal mortality of 7.9 per cent and a percentage of living children of 14.5, those treated by internal version with a maternal mortality of 17.6 per cent and a percentage of living children of 17.1, and those treated by pulling down a leg in breech presentations with a maternal mortality of 16.1 per cent and a percentage of living children of 34.4. The total corresponding percentages for single methods are 6.7 and 52.1, and for composite methods 13.9 and 25.3 per cent.

When one turns to patients under 36 weeks pregnant the advantage of Caesarean section is not so outstanding when

compared with the method of pulling down a leg in breech presentations, having a maternal mortality of 6.5 per cent as against that of 3.5 per cent, but the percentage of children who lived in the former was 38.4 per cent as against 3.5 per cent, this striking difference being obviously due to the fact that there is a far greater chance of delivering a living premature child when this can be accomplished quickly and without any pressure on the child than when the opposite conditions obtain. If the breech is not presenting and the child can be turned by external version and a leg pulled down, the maternal mortality is 6.2 per cent and the foetal mortality 87.5 per cent. If, however, the breech is not presenting and the child cannot be turned by external version, then delivery by the bipolar method entails a maternal mortality of 13.5 per cent and a foetal mortality of 93.9 per cent, so that Caesarean section is the better proposition. The results of the cases of Caesarean section might, with good fortune, have been far better; since of the four fatal cases, two died of post-partum haemorrhage and one each of diabetic coma, intestinal obstruction and shock respectively, the patient who died of shock being subjected to operation in a ' collapsed ' condition. Of the 12 deaths of patients over 36 weeks pregnant following Caesarean section three died of pneumonia, three of septic infection, two of shock, and one each respectively of acute yellow atrophy, post-partum haemorrhage, pulmonary embolism, and peritonitis. Of these nine were admitted in a ' good ' condition.

Many authorities affirm that if there is the slightest suspicion of septic infection when the patient is admitted Caesarean section should not be performed. Bright Banister, however, has published a series of cases of Caesarean section in which infection was definite before operation, with 100 per cent recovery of the patients, after swabbing the interior of the uterus at the time of the operation with violet green antiseptic. Other authorities maintain that if the child is dead Caesarean section should not be performed. The figures, however, show that for patients 36 weeks pregnant and over such a proposition is untenable since, whether the child is dead or alive, the maternal mortality is far lower than by any other method.

In addition to the causes of death in Caesarean section mentioned above, the following are those of the deaths mentioned in Table I: Insertion of bag, 2: sepsis; post-partum haemorrhage. Bipolar version, 36: sepsis, 10; shock, 9; post-partum haemorrhage, 10; pneumonia, 2; uraemia, 2; peritonitis, 1; pulmonary embolism, 1; air embolism, 1. Caesarean hysterec-

tomy, 1: acute bronchitis. Craniotomy, 3: sepsis; shock; rupture of the uterus. Breech extraction, 1: post-partum haemorrhage. Evisceration, 1: shock. Forceps, 3: shock. Internal version, 10: sepsis, 2; shock, 4; post-partum haemorrhage, 3; uraemia, 1. Pulling down leg, 12: sepsis, 2; shock, 3; post-partum haemorrhage, 4; ruptured uterus, 1; perforated duodenal ulcer, 1; missing, 1. Packing vagina, 3: sepsis; post-partum haemorrhage; pneumonia. Rupture membranes, 1: shock. Scalp traction, 1: shock. Vaginal Caesarean section, 1: pulmonary embolism.

Internal Os Partly Covered. (*Tables II, VII, and VIII.*)

When the leg was pulled down, in breech presentations, the maternal mortality was nil, and that of the children 42.8 per cent in 14 cases.

Taking the larger numbers, most of the patients suffering from this variety of placenta praevia 36 weeks pregnant or over were treated by the methods of bipolar version, 117 cases; expectant treatment, 83 cases; rupture of the membranes, 82 cases; and Caesarean section, 56 cases. The best result to the mother, 1.2 per cent mortality, is reported after rupture of the membranes; next, after Caesarean section, 1.7 per cent; then, with bipolar version, 3.4 per cent; and, lastly, with expectant treatment, 3.6 per cent. From the point of view of surviving children, Caesarean section, as would be expected, stands far above the others with a percentage of 89.2, followed by expectant treatment, 77.1 per cent; rupture of the membranes 59.7 per cent, and bipolar version, 29.9 per cent respectively.

The difference in the maternal mortality between rupture of the membranes and Caesarean section being but half per cent to the disadvantage of the latter, which has an advantage of 29.5 per cent of children surviving, makes, in my opinion, when the breech is not presenting, Caesarean section justifiable if the parents express an emphatic wish for every step to be taken to secure a living child and the operation can be performed by an expert, in favourable surroundings and the condition of the patient 'good.' Bipolar version has nearly the worst maternal mortality and by far the worst foetal mortality, as in the variety when the os is completely covered. It must be remembered, however, when the bleeding is dangerous and the facilities for Caesarean section not as perfect as they should be, so far as the mother is concerned bipolar version is a

good method of treatment. When the leg is pulled down after the child has been turned, and from the reports it is obvious that in most cases the leg was pulled down, the half breech fits the lower uterine segment much more snugly than the bag. In addition, bipolar version enables the pressure on the placental site to be kept up until the child is born, assisted when necessary by a two-pound weight attached to the leg, whereas when the bag has been used, directly it has been expelled from the uterus such pressure ceases and, on occasions, dangerous bleeding ensues when the child has to be delivered forthwith, which places the case in the composite class. A bag will control the bleeding, dilate the cervix, and perhaps excite uterine contractions, while it is *in situ*, but it may not be available and the best of them deteriorate somewhat quickly so that, as has often happened, when the doctor decides to use a bag, if he possesses one, he finds that it leaks. Also by the use of a bag the presentation may be changed, in which circumstance the malposition has to be rectified and the case passes into the composite class.

It is true that with the method of scalp traction, 35 cases; with internal version, 11 cases, and extraction with the forceps, 10 cases, there was not any maternal mortality, but the numbers are small, and the foetal mortality was 52.8, 72.7, and 50 per cent respectively. If to enhance the numbers the composite cases are included, the maternal mortality of scalp traction is 5.2 per cent, in that of internal version nil, and that after the use of the forceps 4.1 per cent, their respective foetal mortality being 37.6, 72.7 and 58.3 per cent respectively.

The advantage of scalp traction is that the special forceps can be introduced quickly and through an os too small for bipolar version or insertion of a bag. A disadvantage of version, apart from that of septic infection and the foetal mortality, is that the manipulations are apt to cause free bleeding.

Packing the vagina has a maternal mortality of 5.0 per cent and a foetal one of 50.0 per cent. I have already referred to the disadvantages of packing the vagina, and although, obviously, it cannot be assumed that all the deaths which occurred when the vagina was packed were due to this accessory method, if all the cases which were packed in the three varieties of placenta praevia are taken, 227 in number, the maternal mortality was 12.1 per cent and that of the child 72.0 per cent.

For patients under 36 weeks pregnant the results are as follows: Rupture of the membranes, 54 cases and Caesarean section, 9 cases, maternal mortality nil; foetal mortality, 63.7 and

55.5 per cent respectively; bipolar version, 118 cases, maternal mortality, 2.5 per cent, foetal mortality, 73.2 per cent; and expectant treatment, 38 cases, 2.6 per cent maternal mortality, and 63.5 per cent foetal mortality.

The cause of the deaths in Table II were as follows:—Bipolar version, 8: sepsis, 3; shock, 3; post-partum haemorrhage, 1; pulmonary embolism, 1. Caesarean section, 1: shock. Expectant treatment, 4: sepsis, 2; shock, 1; post-partum haemorrhage, 1. External version, 1: missing. Forceps, 1: post-partum haemorrhage. Packing vagina, 1: pulmonary embolism. Rupture membranes, 1: tuberculosis. Scalp traction, 5: sepsis, 3; shock, 1; post-partum haemorrhage, 1.

Internal Os not Covered at all. (*Tables III, IX, and X.*)

The statistics under this heading appear to suggest that patients suffering from placenta praevia when this organ is free of the internal os are apt to be over-treated. For instance, if Table IX is turned to, it will be found that there were 54 cases of Caesarean section on patients over 36 weeks pregnant with a maternal mortality of 9.2 per cent. It is true that the percentage of surviving children was 92.5, but even this is too high a price to pay. It occurred to me that, owing to registrars differing in their terminology of the varieties of placenta praevia, I might have made a mistake and that these cases should have been included with those in which the internal os is partly covered, but on a re-examination it was not so. I, therefore, take it that there must have been some very urgent reason why Caesarean section was performed, especially when one turns to the variety labelled 'incomplete' by some registrars, which includes both those in which the internal os is partly covered and not covered at all, and in which the maternal mortality for 105 cases was 2.8 per cent and the children surviving 82.6 per cent. The results are worse in patients under 36 weeks pregnant with a maternal mortality of 12.5 per cent and a foetal survival of 37.5 per cent. From Table III it is obvious that the correct treatment for placenta praevia when this does not overlap the internal os is to "wait and see." With such treatment there were 267 cases without a maternal death and a survival rate for the children of 71.1 per cent, taking in cases both over and under 36 weeks pregnant. The next best results are gained by rupturing the membranes in cases over 36 weeks pregnant with a maternal mortality of 0.7 per cent and 74.2 per cent children

surviving. Under 36 weeks pregnant the results were not so good with a maternal mortality of 4.0 per cent and 47.0 per cent children surviving.

Internal Os Partly Covered or not Covered at all. (*Tables IV, XI, and XII.*)

These Tables show the results obtained at some hospitals where it is apparently the custom to recognize only two varieties of placenta praevia, complete or central, and incomplete. It is, therefore, impossible to obtain information similar to that displayed in Tables II and III. If, however, the figures of the corresponding methods given in Tables II and III are added together and then compared with those in Table IV one can estimate, with some interest, the results obtained by the different methods at two sets of hospitals, A and B. (Table XIV, p. 433.)

The remaining single methods of treatment, of which there are any number worth consideration, give the following results:

	Percentage maternal mortality	Percentage children alive	Condition on admission
Packing the vagina ...	4.1	66.6	Poor; poor
Scalp traction	15.0	74.0	Good; fair; anaemic
Internal version	17.6	17.6	Good, 2; fair; blanched; —
Forceps	5.8	82.3	Good, fair, poor, collapsed

The results in these cases are somewhat better for the composite methods, except in the case of extraction with the forceps, when the maternal mortality was 27.2 per cent and the foetal mortality 72.7 per cent.

The following are the causes of deaths in Table III: Insertion of bag, 1: sepsis. Bipolar version, 13: sepsis, 5; shock, 4; post-partum haemorrhage, 2; pneumonia, 1; cardiac disease, 1. Caesarean section, 6: sepsis, 2; shock, 2; pulmonary embolism, 1; pneumonia, 1. Craniotomy, 1: shock. Forceps, 4: sepsis; pyremia; shock; post-partum haemorrhage. Internal version, 5: sepsis, 1; post-partum haemorrhage, 4. Pulling down leg, 2: sepsis; post-partum haemorrhage. Packing vagina, 2: shock; post-partum haemorrhage. Rupture membranes, 4: sepsis; gas-gangrene; shock; post-partum haemorrhage. Scalp traction, 3: sepsis, 2; diabetic coma, 1.

For this purpose the composite methods are added to the single methods since the former differ but little in the two sets, and the vast majority of the figures refer to single methods. When the patients were 36 weeks pregnant or over, in hospitals A the maternal mortality was worse for five methods out of 10, namely when using a bag, performing Caesarean section, bipolar version, internal version, and scalp traction; and better in five expectant treatment, extraction with the forceps, pulling down leg, rupture of the membranes, and packing vagina. In the cases in which the maternal mortality was worse the proportion of living children was better in four. When using a bag, internal version, packing the vagina and scalp traction, there were no deaths in either case, and the same number when rupturing the membranes.

When the patients were under 36 weeks pregnant the maternal mortality in hospitals A was better in three methods, namely when performing Caesarean section, extraction with the forceps, and expectant treatment; and worse in bipolar version, pulling down a leg, and scalp version. With respect to the percentage of children surviving, better results were obtained in hospitals A in six instances and worse in four.

The causes of death in Table IV were as follows: Bipolar version 13: sepsis 2, post-partum haemorrhage 4, and one each from shock, pneumonia, bronchitis, uraemia, eclampsia, heart disease, and N.A.B. poisoning. Caesarean section 9: sepsis 2, peritonitis 2, and one each from shock, post-partum haemorrhage, pneumonia, intestinal obstruction, and uraemia. Craniotomy 2: sepsis and rupture of the uterus. Expectant treatment 5: sepsis, peritonitis, shock post-partum haemorrhage, and toxaemia. Forceps 5: sepsis, pyaemia, post-partum haemorrhage 3. Internal version 3: sepsis, shock, post-partum haemorrhage. Pulling down leg 3: shock, post-partum haemorrhage, toxaemia. Packing vagina 2: sepsis and shock. Rupture of membranes 6: sepsis, shock, post-partum haemorrhage, pulmonary embolism, and uraemia 2. Scalp traction 3: sepsis, shock, post-partum haemorrhage.

COMPLICATIONS AS REPORTED

Albuminuria	176
Malpresentations:	
Breech and footling	503
Brow	1
Face	1
Hand	1
Oblique	96
Malformations:	
Anencephalus	6
Exomphalos	3
Foetal ascites	1
Hydramnios	18
Mongolian	1
Monster	1
Spina bifida	1
Anencephalus, meningocele, spina bifida	1
Prolapse of the cord	67
Sepsis	152

The numbers given above do not, obviously, represent the true facts. In some reports such information is not given, and it is impossible to believe that one or other of the complications mentioned above did not occur in the practice of these hospitals. The presence of albumin in the urine is carefully noted in some reports of these hospitals, and then in other reports of the same hospitals no mention is made of the complication.

DEATHS

Causes

Sepsis	66	Bronchitis	2
Post-partum haemorrhage	58	Cardiac disease	2
Shock	58	Eclampsia	1
Pneumonia	12	Pyaemia	1
Pulmonary embolism	8	Tuberculosis	1
Uraemia	7	Duodenal ulcer	1
Peritonitis	6	Gas-gangrene	1
Toxaemia	3	Acute yellow atrophy	1
Ruptured uterus	3	N.A.B. poisoning	1
Tear of lower uterine segment	3	Air embolism	1
Intestinal obstruction	2	Anaesthetic	1
Diabetic coma	2	Undelivered	77
		Not reported	3

TOTAL 321

AGES OF THOSE PATIENTS WHO DIED

		Percentage
20 years of age	2	.62
21 years of age to 25	13	4.05
26 ,, ,, ,, ,, 30	57	17.76
31 ,, ,, ,, ,, 35	69	21.49
36 ,, ,, ,, ,, 40	70	21.8
41 ,, ,, ,, ,, 45	29	9.03
Not reported	81	25.3
TOTAL	321	

NUMBER OF CHILDREN OF THOSE PATIENTS WHO DIED

No. of children	No. of patients who died	Percentage
0	10	3.1
1	52	16.2
2	58	18.07
3	35	10.9
4	45	14.02
5	21	6.5
6	21	6.5
7	19	5.2
8	13	4.5
9	9	2.8
10	9	2.8
11	5	1.5
12	2	.62
13	5	1.5
14	3	.93
15	2	.62
19	1	.31
Not reported	11	3.4
TOTAL	321	

These figures do not support the statement that the percentage of deaths increases with the parity of the patient, at anyrate after the woman has had four children.

VARIETY OF PLACENTA PRAEVIA IN THE FATAL CASES.

		Percentage
Internal os completely covered	161	50.1
Internal os partly covered	32	9.9
Internal os not covered at all	58	18.07
Internal os not covered at all, or partly covered	70	21.8
TOTAL	321	

STATE ON ADMISSION OF THOSE PATIENTS WHO DIED

Good	103	Bad	3
Fair	51	Grave	2
Collapsed	45	Critical	1
Blanched	30	Shocked	2
Moribund	27	Very ill	2
Poor	16	Not reported	39
TOTAL	321		

Of those patients whose condition on admission was recorded, in 36.5 per cent of cases it is entered in the notes of the case as *good*.

METHOD OF ADMISSION TO HOSPITAL OF THE PATIENTS WHO DIED

Booked	38
Emergency	118
No information	165
TOTAL	321

My thanks are due, for information additional to that contained in the reports I possess, to Miss Margaret Donald, of St. Mary's Hospital, Manchester, as also to Dr. G. A. Gerrard, the Registrar of that hospital; to Dr. Patrick Playfair, Registrar to Queen Charlotte's Hospital; to Dr. Clifford Kennedy, Registrar to the Edinburgh Royal Maternity Hospital; to Dr. Malcolm Black, Registrar to the Glasgow Royal Maternity Hospital; to Dr. J. R. Blaikley, Obstetric Registrar, Guy's Hospital; to the Resident Medical Officer, Birmingham Maternity Hospital; to

Dr. Frewer, Resident Medical Officer of the City of London Maternity Hospital; to Dr. Evan Beford; and to Mr. Sherratt for very kindly checking the figures in this study.

The details are abstracted from the Reports of the following 17 hospitals:

London.	City of London Maternity Hospital.
	East End Maternity Hospital.
	General Lying-in Hospital.
	Guy's Hospital. Maternity Department.
	University College. Obstetric Unit.
	Queen Charlotte's Maternity Hospital.
Provinces.	Birmingham Maternity Hospital.
	Jessop Hospital for Women. Maternity Department.
	Leeds Maternity Hospital.
	Liverpool Maternity Hospital.
	Princess Mary Maternity Hospital, Newcastle.
	St. Mary's Hospitals, Manchester. Obstetric Department.
Scotland.	Glasgow Royal Maternity Hospital.
	Edinburgh Royal Maternity Hospital.
Northern Ireland.	Belfast Maternity Hospital.
Irish Free State.	Coombe Maternity Hospital.
	Rotunda Maternity Hospital.

TABLE I.

INTERNAL OS COMPLETELY COVERED

Methods of treatment	36 Weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Children alive	Children stillborn	Children dead	Number of cases	Deaths	Children alive	Children stillborn	Children dead	
1. **Bag**	8	1	4	4	—	3	1	—	3	—	1
2. External version	1	—	—	—	1	1	—	—	1	—	2
3. **Bipolar version**	189	13	28	157	8	111	15	7	98	9	3
4. Extraction	6	—	—	6	—	1	—	—	1	—	4
5. Pack	19	6	1	18	1	7	—	6	1	—	5
6. Pack, extraction	1	1	—	1	—	2	—	—	2	—	6
7. Pack, rupture	2	—	—	2	—	2	—	—	2	—	7
8. Bag	5	1	—	5	—	3	—	—	3	—	8
9. **Breech extraction** ...	1	—	1	—	—	2	1	—	2	—	9
10. **Caesarean section** ...	288	12	244	29	17	61	4	25	15	25	10
11. Pack	8	—	4	3	1	1	—	—	—	1	11
12. Lower segment	1	—	1	—	—	2	1	1	1	—	12
13. Vaginal	—	—	—	—	—	2	1	1	—	1	13
14. Hysterectomy	10	1	8	2	—	—	—	—	—	—	14
15. Hysterectomy bag ...	—	—	—	—	—	1	—	—	1	—	15
16. **Craniotomy**	1	1	—	1	—	1	—	—	1	—	16
17. External version, leg ...	2	1	—	2	—	—	—	—	—	—	17
18. B'polar version	2	—	—	2	—	—	—	—	—	—	18
19. Internal version bag ...	1	1	—	1	—	—	—	—	—	—	19
20. **Expectant**	5	—	3	—	2	12	—	1	9	2	20
21. **Evisceration**	—	—	—	—	—	—	—	—	—	—	21
22. Pack, bipolar version ...	1	1	—	1	—	—	—	—	—	—	22
23. **Forceps**	1	1	—	1	—	2	—	—	2	—	23
24. Bipolar version, rupture	1	1	—	1	—	—	—	—	—	—	24
25. Pack	1	—	—	—	1	—	—	—	—	—	25
26. Pack, rupture	3	1	1	1	1	—	—	—	—	—	26
27. Bag	6	—	1	5	—	—	—	—	—	—	27
28. **Internal version**	34	6	6	27	2	20	3	3	16	2	28
29. Extraction	6	—	3	3	—	2	1	—	—	2	29
30. Pack	—	—	—	—	—	1	—	—	1	—	30
31. Bag	11	—	5	6	—	3	—	—	3	—	31

TABLE I (*continued*).

INTERNAL OS COMPLETELY COVERED

(*continued*)

Methods of treatment	36 Weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Children alive	Children stillborn	Children dead	Number of cases	Deaths	Children alive	Children stillborn	Children dead	
32. **Leg—pulling down** ...	31	5	11	20	1	28	1	1	25	3	32
33. Extraction	1	1	—	1	—	9	—	—	8	1	33
34. External version	28	3	3	24	1	16	1	2	12	2	34
35. External version, extraction	3	—	1	1	1	1	—	—	1	—	35
36. Pack	1	—	—	1	—	5	1	—	5	—	36
37. Pack, extraction	2	—	—	2	—	4	—	—	5	—	37
38. Bag, extraction	2	—	1	1	—	1	—	—	1	—	38
39. **Packing vagina**	6	—	—	6	—	9	3	3	5	1	39
40. Pack, rupture	7	—	7	—	—	4	—	—	4	1	40
41. Pack, extraction	1	—	—	1	—	—	—	—	—	—	41
42. **Rupture membranes** ...	14	—	10	4	—	6	1	—	6	—	42
43. **Scalp traction**	3	—	—	3	1	4	—	—	4	—	43
44. Rupture	1	—	—	1	—	1	—	—	1	—	44
45. Rupture, pack	2	—	—	2	—	1	—	—	1	—	45
46. Rupture, bipolar version	1	—	—	1	—	1	—	—	1	—	46
47. Pack	1	1	—	1	—	—	—	—	—	—	47
48. **Undelivered**	19	19	—	—	19	17	17	—	—	17	48
TOTAL	737	77	343	347	57	347	51	50	241	67	

Twenty-one twins.

TABLE II.

INTERNAL OS PARTLY COVERED

Methods of treatment	36 Weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Children alive	Children stillborn	Children dead	Number of cases	Deaths	Children alive	Children stillborn	Children dead	
1. **Bag**	6	—	3	3	—	7	—	2	3	2	1
2. Rupture	—	—	—	—	—	—	—	—	—	—	2
3. **Bipolar version**	117	4	35	73	9	118	3	32	78	9	3
4. Extraction	7	—	3	3	1	—	—	—	—	—	4
5. Rupture	5	—	1	4	—	5	—	—	4	1	5
6. Pack	8	—	3	5	—	3	1	—	3	—	6
7. Bag	2	—	1	1	—	3	—	—	3	—	7
8. **Breech extraction** ...	—	—	—	—	—	1	—	—	1	—	8
9. **Caesarean section** ...	56	1	50	4	2	9	—	4	5	—	9
10. Pack	4	—	3	1	—	—	—	—	—	—	10
11. Pack, rupture	—	—	—	—	—	1	—	—	1	—	11
12. Lower segment	2	—	2	—	—	—	—	—	—	—	12
13. **Craniotomy**	—	—	—	—	—	—	—	—	—	—	13
14. Bag	1	—	—	1	—	—	—	—	—	—	14
15. Bipolar version	1	—	—	1	—	—	—	—	—	—	15
16. **Expectant**	83	3	64	17	2	38	1	15	21	5	16
17. **External version** ...	1	1	1	—	—	2	—	—	2	—	17
18. **Forceps**	10	—	6	5	1	—	—	—	—	—	18
19. Rupture	4	—	2	1	1	—	—	—	—	—	19
20. Rupture, pack	2	1	1	—	1	—	—	—	—	—	20
21. Rupture, traction ...	1	—	1	—	—	—	—	—	—	—	21
22. Pack	1	—	—	1	—	—	—	—	—	—	22
23. Bag	6	—	2	3	1	1	—	—	—	1	23
24. Traction	—	—	—	—	—	1	—	—	1	—	24
25. **Induction**	4	—	3	1	—	—	—	—	—	—	25
26. **Internal version**	11	—	3	7	1	9	—	3	7	2	26
27. Extraction	7	—	3	3	1	4	—	2	—	2	27
28. Rupture	2	—	—	2	—	—	—	—	—	—	28
29. Rupture, pack	1	—	—	1	—	—	—	—	—	—	29
30. Rupture, extraction ...	1	—	—	1	—	—	—	—	—	—	30
31. Pack	—	—	—	—	—	1	—	—	1	—	31

TABLE II (*continued*).

INTERNAL OS PARTLY COVERED

(*continued*)

Methods of treatment	36 Weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Children alive	Children stillborn	Children dead	Number of cases	Deaths	Children alive	Children stillborn	Children dead	
32. Pack, extraction	1	—	1	—	—	—	—	—	—	—	32
33. Bag	3	—	1	2	—	1	—	—	—	1	33
34. **Leg—pulling down** ...	14	—	6	8	—	15	—	1	14	2	34
35. Extraction	3	—	—	2	1	—	—	—	—	—	35
36. External version	20	—	4	13	3	1	—	—	1	—	36
37. External version, extraction	—	—	—	—	—	1	—	—	1	—	37
38. Rupture	5	—	—	4	1	2	—	—	2	—	38
39. Rupture, extraction ...	1	—	1	—	—	—	—	—	—	—	39
40. Pack	1	—	—	1	—	1	—	—	1	—	40
41. Pack, rupture	1	—	—	1	—	—	—	—	—	—	41
42. **Packing vagina**	20	1	10	10	1	12	—	2	10	1	42
43. External version	—	—	—	—	—	1	—	—	1	—	43
44. External version, rupture	3	—	1	2	—	—	—	—	—	—	44
45. Rupture	24	—	10	13	1	26	—	3	18	5	45
46. **Rupture membranes** ...	82	1	49	32	1	54	—	20	19	16	46
47. **Scalp traction**	35	—	17	15	4	7	—	1	3	3	47
48. External version	—	—	—	—	—	1	—	—	1	—	48
49. Rupture	36	4	21	8	7	17	—	4	11	2	49
50. Rupture, external version	2	—	1	—	1	2	—	2	—	—	50
51. Pack, rupture	4	—	—	2	2	1	1	—	1	—	51
52. **Undelivered**	8	8	—	—	8	1	1	—	—	1	52
TOTAL	606	24	309	251	50	346	7	91	213	53	

Fifteen twins.

TABLE III.

INTERNAL OS NOT COVERED AT ALL

Methods of treatment	36 Weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Children alive	Children stillborn	Children dead	Number of cases	Deaths	Children alive	Children stillborn	Children dead	
1. **Bag**	15	1	9	6	—	9	—	5	4	—	1
2. **Bipolar version**	90	7	41	45	4	63	1	25	35	3	2
3. Extraction	3	1	1	2	—	1	1	—	1	—	3
4. Rupture	3	—	1	2	—	2	—	—	1	1	4
5. Pack	3	1	—	3	—	3	2	—	3	—	5
6. Bag	7	—	2	4	1	7	—	1	1	5	6
7. **Breech extraction** ...	9	—	5	4	—	5	—	4	1	1	7
8. **Caesarean section** ...	54	5	50	1	3	8	1	3	2	3	8
9. Pack	2	—	2	—	—	1	—	—	—	1	9
10. Lower segment	2	—	2	—	—	—	—	—	—	—	10
11. Hysterectomy	—	—	—	—	—	1	—	—	1	—	11
12. Vaginal	—	—	—	—	—	1	—	—	—	1	12
13. **Craniotomy**	1	1	—	1	—	—	—	—	—	—	13
14. Bipolar version	1	—	—	1	—	—	—	—	—	—	14
15. Bag	1	—	—	1	—	—	—	—	—	—	15
16. **Decapitation**	1	—	—	1	—	—	—	—	—	—	16
17. **Expectant**	196	—	159	29	9	71	—	39	24	9	17
18. **Forceps**	17	1	14	2	1	4	—	2	2	—	18
19. Rupture	3	1	1	1	1	—	—	—	—	—	19
20. Rupture, traction ...	1	—	1	—	—	—	—	—	—	—	20
21. Pack	4	—	1	3	—	—	—	—	—	—	21
22. Pack, rupture	1	1	—	1	—	—	—	—	—	—	22
23. Bag	2	1	—	2	—	2	—	2	—	—	23
24. **Induction**	10	—	7	2	1	5	—	2	1	2	24
25. **Internal version**	17	3	3	14	1	6	—	—	5	2	25
26. Extraction	7	—	4	3	—	2	—	—	1	1	26
27. Rupture	1	—	—	1	—	—	—	—	—	—	27
28. Pack	2	1	—	1	1	1	—	—	1	—	28
29. Bag	3	1	3	—	—	2	—	2	—	—	29
30. **Leg—pulling down** ...	20	—	10	8	2	22	—	2	19	2	30
31. Extraction	3	—	—	3	—	1	—	—	1	—	31

TABLE III (*continued*).

INTERNAL OS NOT COVERED AT ALL
(*continued*)

Methods of treatment	36 Weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Children alive	Children stillborn	Children dead	Number of cases	Deaths	Children alive	Children stillborn	Children dead	
32. External version	18	—	9	6	3	2	—	—	—	2	32
33. External version, rupture	3	—	1	—	2	—	—	—	—	—	33
34. Rupture	2	—	—	2	—	6	1	1	4	1	34
35. Pack, rupture	1	1	—	1	—	3	—	—	2	1	35
36. **Packing vagina**	24	1	16	5	3	14	—	6	7	3	36
37. Rupture	27	1	23	4	3	18	—	4	12	2	37
38. **Rupture membranes** ...	128	1	98	26	8	49	2	24	18	9	38
39. Extraction	1	1	—	1	—	—	—	—	—	—	39
40. **Scalp traction**	20	3	6	12	2	17	—	10	5	3	40
41. Rupture	37	—	24	9	4	12	—	5	4	3	41
42. **Undelivered**	4	4	—	—	4	2	2	—	—	2	42
TOTAL	744	37	493	207	53	341	10	137	155	57	

Two triplets; 12 twins.

TABLE IV.
INTERNAL OS PARTLY COVERED, OR NOT COVERED AT ALL

Methods of treatment	36 Weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Children alive	Children stillborn	Children dead	Number of cases	Deaths	Children alive	Children stillborn	Children dead	
1. **Bag**	27	—	12	12	3	8	—	—	5	4	1
2. Pack	1	—	1	—	—	1	—	—	—	1	2
3. **Bipolar version**	175	6	43	126	7	149	6	36	110	13	3
4. Extraction	4	—	1	3	—	6	—	1	5	—	4
5. Rupture	2	—	1	—	1	4	—	—	4	—	5
6. Pack	4	1	1	2	1	7	—	3	2	2	6
7. Bag	1	—	1	—	—	—	—	—	—	—	7
8. **Breech extraction** ...	1	—	—	1	—	6	—	3	2	1	8
9. Rupture	1	—	—	1	—	—	—	—	—	—	9
10. **Caesarean section** ...	104	3	86	13	5	32	6	20	6	7	10
11. Pack, rupture	1	—	1	—	—	—	—	—	—	—	11
12. Lower segment	1	—	1	—	—	1	—	1	—	—	12
13. Hysterectomy	1	—	—	1	—	1	—	1	—	—	13
14. Post-mortem	1	1	1	—	—	—	—	—	—	—	14
15. **Craniotomy**	4	2	—	4	—	—	—	—	—	—	15
16. Bipolar version	1	—	—	1	—	—	—	—	—	—	16
17. Rupture, internal version	2	—	—	2	—	1	—	—	1	—	17
18. Pack, external version, leg	1	—	—	1	—	—	—	—	—	—	18
19. Bag, internal version ...	—	—	—	—	—	1	—	—	1	—	19
20. **Evisceration**	—	—	—	—	—	1	—	—	1	—	20
21. **Expectant**	163	3	135	27	5	112	2	41	58	18	21
22. **Forceps**	23	1	16	7	—	2	—	1	—	1	22
23. Rupture	9	1	4	5	—	1	—	—	1	—	23
24. Pack	2	2	—	2	—	3	1	1	2	—	24
25. Internal version	1	—	—	1	—	—	—	—	—	—	25
26. **Hysterotomy**	—	—	—	—	—	1	—	—	—	1	26
27. **Induction**	5	—	2	2	1	2	—	—	2	—	27
28. **Internal version**	60	1	14	42	4	33	—	6	21	8	28
29. Extraction	6	1	2	4	—	2	—	—	1	1	29

TABLE IV (*continued*).

INTERNAL OS PARTLY COVERED, OR NOT COVERED AT ALL
(*continued*)

Methods of treatment	36 Weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Children alive	Children stillborn	Children dead	Number of cases	Deaths	Children alive	Children stillborn	Children dead	
30. Pack	2	—	—	1	1	—	—	—	—	—	30
31. Pack, extraction	1	—	1	—	—	—	—	—	—	—	31
32. Bag	5	1	1	1	3	—	—	—	—	—	32
33. **Leg—pulling down** ...	26	—	5	20	1	26	—	2	18	7	33
34. External version	17	1	5	12	—	13	—	1	2	10	34
35. Extraction	4	—	2	1	1	4	—	—	1	3	35
36. Extraction, external version	7	1	2	4	1	3	—	—	3	—	36
37. Extraction, internal version	1	—	—	1	—	1	—	—	1	—	37
38. Rupture	2	—	1	1	—	5	1	—	5	—	38
39. Rupture, extraction ...	1	—	—	—	1	—	—	—	—	—	39
40. Rupture, external version	1	—	—	1	—	—	—	—	—	—	40
41. Rupture, internal version	2	—	—	2	—	4	—	1	2	1	41
42. Pack	—	—	—	—	—	1	—	—	1	—	42
43. Pack, extraction	—	—	—	—	—	1	—	—	1	—	43
44. Pack, internal version	1	—	—	1	—	—	—	—	—	—	44
45. Bag	—	—	—	—	—	1	—	—	1	—	45
46. **Packing vagina**	2	2	—	2	—	1	—	—	1	—	46
47. Rupture	1	—	—	—	2	—	—	—	—	—	47
48. **Rupture membranes** ...	167	3	110	49	10	106	3	39	54	14	48
49. **Scalp traction**	27	1	16	10	1	8	—	1	5	2	49
50. Rupture	17	—	8	7	2	11	2	—	4	7	50
51. Rupture, pack	1	—	—	1	—	—	—	—	—	—	51
52. **Undelivered**	8	8	—	—	8	5	5	—	—	5	52
TOTAL	894	39	473	371	58	564	26	158	321	106	

Twenty-nine twins.

TABLE V.

INTERNAL OS COMPLETELY COVERED

TREATMENT BY ONE METHOD

Methods of treatment	36 weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	
1. Bag	8	1	12.5	50.0	50.0	3	1	33.3	—	100.0	1
2. Bipolar version	189	13	7.9	14.5	85.5	111	15	13.5	6.1	93.9	2
3. Breech extraction ...	1	—	—	100.0	—	2	1	50.0	—	100.0	3
4. Caesarean section ...	288	12	4.1	84.1	15.9	61	4	6.5	38.4	61.6	4
5. Caesarean section, lower segment	1	—	—	100.0	—	2	1	50.0	50.0	50.0	5
6. Caesarean section, vaginal	—	—	—	—	—	2	1	50.0	50.0	50.0	6
7. Craniotomy	1	1	100.0	—	100.0	1	—	—	—	100.0	7
8. Expectant	5	—	—	60.0	40.0	12	—	—	8.3	91.7	8
9. Forceps	1	1	100.0	—	100.0	2	—	—	—	100.0	9
10. Internal version	34	6	17.6	17.1	82.9	20	3	15.0	14.2	85.8	10
11. Leg—pulling down ...	31	5	16.1	34.4	65.6	28	1	3.5	3.5	96.5	11
12. Packing vagina	6	—	—	—	100.0	9	3	33.3	33.3	66.6	12
13. Rupture membranes ...	14	—	—	71.4	28.6	6	1	16.6	—	100.0	13
14. Scalp traction	3	—	—	—	100.0	4	—	—	—	100.0	14
TOTAL	582	39	6.7	52.1	47.8	263	31	11.7	11.3	88.7	

TABLE VI.

INTERNAL OS COMPLETELY COVERED

COMPOSITE TREATMENT

Methods of treatment	36 weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	
1. Bag	1	—	—	—	100.0	1	—	—	—	100.0	1
2. Bipolar version	33	8	24.2	3.0	97.0	15	—	—	40.0	60.0	2
3. Caesarean section, pack	8	—	—	50.0	50.0	1	—	—	—	100.0	3
4. Caesarean section, hysterectomy	10	1	10.0	80.0	20.0	—	—	—	—	—	4
5. Caesarean section, hysterectomy—bag ...	—	—	—	—	—	1	—	—	—	100.0	5
6. Craniotomy	5	2	40.0	—	100.0	—	—	—	—	—	6
7. Evisceration	1	1	100.0	—	100.0	—	—	—	—	—	7
8. Forceps	11	2	18.1	18.1	81.9	—	—	—	—	—	8
9. Internal version	17	—	—	47.0	52.9	6	2	33.3	66.6	33.3	9
10. Leg—pulling down ...	37	4	10.8	13.5	86.5	36	—	—	5.4	94.6	10
11. Packing vagina	8	—	—	87.5	12.5	4	1	25.0	80.0	20.0	11
12. Scalp traction	5	1	20.0	—	100.0	3	—	—	—	100.0	12
TOTAL	136	19	13.9	25.3	74.7	67	3	4.4	23.1	76.9	

In the Composite Tables the various methods employed are stated in Tables I, II, III, and IV, under the main heading of each method.

Table VII.

INTERNAL OS PARTLY COVERED

Treatment by One Method

Methods of treatment	36 weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage born and dead children still-	
1. Bag	6	—	—	50.0	50.0	7	—	—	28.5	71.5	1
2. Bipolar version	117	4	3.4	29.9	70.0	118	3	2.5	26.8	73.2	2
3. Breech extraction ...	—	—	—	—	—	1	—	—	—	100.0	3
4. Caesarean section ...	56	1	1.7	89.2	10.7	9	—	—	44.4	55.5	4
5. External version	1	1	100.0	100.0	—	2	—	—	100.0	—	5
6. Expectant	83	3	3.6	77.1	22.8	38	1	2.6	36.5	63.5	6
7. Forceps	10	—	—	50.0	50.0	—	—	—	—	—	7
8. Internal version	11	—	—	27.2	72.7	9	—	—	25.0	75.0	8
9. Leg—pulling down ...	14	—	—	42.8	57.1	15	—	—	5.8	94.2	9
10. Packing vagina	20	1	5.0	50.0	50.0	12	—	—	15.3	84.7	10
11. Rupture membranes ...	82	1	1.2	59.7	40.2	54	—	—	36.3	63.7	11
12. Scalp traction	35	—	—	47.2	52.8	7	—	—	14.2	85.8	12
Total	435	11	2.5	55.6	44.4	272	4	1.4	28.2	71.7	

Table VIII.

INTERNAL OS PARTLY COVERED

Composite Treatment

Methods of treatment	36 weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage born and dead children still-	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	
1. Bipolar version	22	—	—	36.3	63.7	11	1	9.0	—	100.0	1
2. Caesarean section ...	4	—	—	75.0	25.0	1	—	—	—	100.0	2
3. Craniotomy	2	—	—	—	100.0	—	—	—	—	—	3
4. Forceps	14	1	7.1	42.8	57.2	2	—	—	—	100.0	4
5. Internal version	15	—	—	31.2	68.8	6	—	—	33.3	66.6	5
6. Leg—pulling down ...	31	—	—	16.1	83.9	5	—	—	—	100.0	6
7. Packing vagina	27	—	—	40.7	59.2	27	—	—	11.1	88.9	7
8. Scalp traction	42	4	9.5	52.3	47.6	21	1	4.7	28.5	71.5	8
Total	157	5	3.1	37.9	62.1	73	2	2.7	15.0	85.0	

Table IX.

INTERNAL OS NOT COVERED AT ALL

Treatment by One Method

Methods of treatment	36 weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	
1. Bag	15	1	6.6	60.0	40.0	9	—	—	55.5	44.5	1
2. Bipolar version	90	7	7.7	45.5	54.5	63	1	1.5	39.6	60.3	2
3. Breech extraction ...	9	—	—	55.5	44.5	5	—	—	66.6	33.4	3
4. Caesarean section ...	54	5	9.2	92.5	7.5	8	1	12.5	37.5	62.5	4
5. Caesarean section, lower segment	2	—	—	100.0	—	—	—	—	—	—	5
6. Craniotomy	1	1	100.0	—	100.0	—	—	—	—	—	6
7. Expectant	196	—	—	80.7	19.3	71	—	—	54.1	45.9	7
8. Decapitation	1	—	—	—	100.0	—	—	—	—	—	8
9. Forceps	17	1	5.8	82.3	17.7	4	—	—	50.0	50.0	9
10. Induction	10	—	—	70.0	30.0	5	—	—	40.0	60.0	10
11. Internal version	17	3	17.6	17.0	83.0	6	—	—	—	100.0	11
12. Leg—pulling down ...	20	—	—	50.0	50.0	22	—	—	8.7	91.3	12
13. Packing vagina	24	1	4.1	66.6	33.3	14	—	—	37.5	62.5	13
14. Rupture membranes ...	128	1	0.7	74.2	25.8	49	2	4.0	47.0	53.0	14
15. Scalp traction	20	3	15.0	30.0	70.0	17	—	—	55.5	44.5	15
Total	604	23	3.8	68.8	31.1	273	4	1.4	43.2	56.8	

Table X.

INTERNAL OS NOT COVERED AT ALL

Composite Treatment

Methods of treatment	36 weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	
1. Bipolar version	16	2	12.5	75.0	25.0	13	3	23.0	7.6	92.3	1
2. Breech extraction ...	—	—	—	—	—	1	—	—	—	100.0	2
3. Caesarean section, pack	2	—	—	100.0	—	1	—	—	—	100.0	3
4. Caesarean section, hysterectomy	—	—	—	—	—	1	—	—	—	100.0	4
5. Vaginal hysterectomy .	—	—	—	—	—	1	—	—	—	100.0	5
6. Craniotomy	2	—	—	—	100.0	—	—	—	—	—	6
7. Forceps	11	3	27.2	27.2	72.8	2	—	—	100.0	—	7
8. Internal version	13	2	15.4	53.8	46.2	5	—	—	40.0	60.0	8
9. Leg—pulling down ...	27	1	3.7	37.0	63.0	12	1	8.3	8.3	91.6	9
10. Packing vagina	27	1	3.7	76.6	23.4	18	—	—	22.2	77.8	10
11. Rupture membranes ...	1	1	100.0	—	100.0	—	—	—	—	—	11
12. Scalp traction	37	—	—	64.8	35.2	12	—	—	41.7	58.3	12
Total	136	10	7.3	58.2	41.8	66	4	6.0	23.0	76.9	

Table XI.

INTERNAL OS PARTLY COVERED, OR NOT COVERED AT ALL.

Treatment by One Method

Methods of treatment	36 weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	
1. Bag	27	—	—	44.4	55.6	8	—	—	—	100.0	1
2. Bipolar version	175	6	3.4	24.4	75.6	149	6	4.0	22.6	77.4	2
3. Breech extraction ...	1	—	—	—	100.0	6	—	—	50.0	50.0	3
4. Caesarean section ...	104	3	2.8	82.6	17.4	32	6	18.7	60.6	39.4	4
5. Caesarean section, lower segment	1	—	—	100.0	—	1	—	—	100.0	—	5
6. Craniotomy	4	2	50.0	—	100.0	—	—	—	—	—	6
7. Expectant	163	3	1.8	80.8	19.2	112	2	1.7	35.0	65.0	7
8. Evisceration	—	—	—	—	—	1	—	—	—	100.0	8
9. Forceps	23	1	4.3	69.5	30.5	2	—	—	50.0	50.0	9
10. Hysterotomy	—	—	—	—	—	1	—	—	—	100.0	10
11. Induction	5	—	—	40.0	60.0	2	—	—	—	100.0	11
12. Internal version	60	1	1.6	23.3	76.7	33	—	—	17.1	82.9	12
13. Leg—pulling down ...	26	—	—	19.2	80.8	26	—	—	7.4	92.6	13
14. Packing vagina	2	2	100.0	—	100.0	1	—	—	—	100.0	14
15. Rupture membranes ...	167	3	1.7	65.0	35.0	106	3	2.8	36.4	63.6	15
16. Scalp traction	27	1	3.7	59.2	40.8	8	—	—	12.5	87.5	16
Total	785	22	2.8	55.4	44.6	488	17	3.4	29.4	70.6	

Table XII.

INTERNAL OS PARTLY COVERED, OR NOT COVERED AT ALL.

Composite Treatment

Methods of treatment	36 weeks pregnant or over					Under 36 weeks pregnant					
	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	
1. Bag	1	—	—	100.0	—	1	—	—	—	100.0	1
2. Bipolar version	11	1	9.0	36.3	63.7	17	—	—	23.5	76.5	2
3. Breech extraction ...	1	—	—	—	100.0	—	—	—	—	—	3
4. Caesarean section, pack	1	—	—	100.0	—	—	—	—	—	—	4
5. Caesarean section, hysterectomy	1	—	—	—	100.0	1	—	—	100.0	—	5
6. Caesarean section, post-mortem	1	—	—	100.0	—	—	—	—	—	—	6
7. Craniotomy	4	—	—	—	100.0	2	—	—	—	100.0	7
8. Forceps	12	3	25.0	33.3	66.6	4	1	25.0	20.0	80.0	8
9. Internal version	14	2	14.2	33.3	66.6	2	—	—	50.0	50.0	9
10. Leg—pulling down ...	36	2	5.5	27.7	72.3	32	1	3.1	5.8	94.1	10
11. Packing vagina	1	—	—	—	100.0	—	—	—	—	—	11
12. Scalp traction	18	—	—	44.4	55.6	11	2	18.1	36.3	63.7	12
Total	101	8	7.9	33.6	66.4	70	4	5.7	17.8	82.2	

TABLE XIII.

A COMPARISON BETWEEN THE RESULTS OBTAINED BY TREATING CASES OF PLACENTA PRAEVIA BY A SINGLE METHOD ONLY AND BY COMPOSITE METHODS

Methods of treatment	36 weeks pregnant or over					Under 36 weeks pregnant				
	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead	Number of cases	Deaths	Percentage maternal deaths	Percentage children alive	Percentage children still-born and dead
Internal os completely covered:										
Single method	582	39	6.7	52.1	47.8	263	31	11.7	11.3	88.7
Composite method	136	19	13.9	25.3	74.7	67	3	4.4	23.1	76.9
Internal os partly covered:										
Single method	435	11	2.5	55.6	44.4	272	4	1.4	28.2	71.7
Composite method	157	5	3.1	37.9	62.1	73	2	2.7	15.0	85.0
Internal os not covered at all:										
Single method	604	23	3.8	68.8	31.1	273	4	1.4	43.2	56.8
Composite method	136	10	7.3	58.2	41.8	66	4	6.0	23.0	76.9
Internal os not covered at all, or partly covered:										
Single method	785	22	2.8	55.4	44.6	488	17	3.4	29.4	70.6
Composite method	101	8	7.9	33.6	66.4	70	4	5.7	17.8	82.2

TABLE XIV.

Methods of treatment	Hospitals	36 weeks pregnant or over			Under 36 weeks pregnant		
		Cases	Percentage maternal mortality	Percentage children alive	Cases	Percentage maternal mortality	Percentage children alive
Bag	A	21	4.7	42.7	16	—	43.7
Bag	B	28	—	46.4	9	—	55.5
Bipolar version	A	245	5.3	35.9	205	3.8	28.2
Bipolar version	B	186	3.7	23.0	166	3.6	21.6
Caesarean section ...	A	120	5.0	90.8	19	9.0	36.8
Caesarean section ...	B	106	2.8	83.0	33	18.1	63.6
Expectant treatment ...	A	279	1.0	79.9	109	0.9	41.2
Expectant treatment ...	B	163	1.8	82.8	112	1.7	36.6
Forceps	A	52	9.6	55.7	4	—	50.0
Forceps	B	35	11.4	57.1	6	16.6	33.3
Internal version	A	56	8.9	32.1	26	—	15.3
Internal version	B	74	4.0	27.0	35	—	17.1
Leg—pulling down ...	A	92	1.0	33.6	54	1.8	7.4
Leg—pulling down ...	B	62	3.2	24.1	59	1.6	6.7
Packing vagina	A	98	3.0	61.2	71	—	21.1
Packing vagina	B	3	66.6	—	1	—	—
Rupture membranes ...	A	211	1.4	70.0	103	1.7	38.5
Rupture membranes ...	B	167	1.7	65.8	106	1.7	65.8
Scalp traction	A	134	5.2	51.4	57	17.5	38.5
Scalp traction	B	45	2.2	53.3	19	10.5	5.2

TABLE XV.

RESULTS TO MOTHERS AND FATE OF CHILDREN IN 4580 CASES OF PLACENTA PRAEVIA

	Cases	Deaths	Percentage maternal deaths	Children alive	Children stillborn	Children dead	Percentage children alive	Percentage children stillborn and dead
Internal os completely covered:								
36 weeks pregnant and over	737	77	10.4	343	347	57	45.9	54.1
Under 36 weeks pregnant	347	51	14.7	50	241	67	13.9	86.1
Internal os partly covered:								
36 weeks pregnant and over	606	24	3.9	309	251	50	50.6	49.4
Under 36 weeks pregnant	346	7	2.0	101	213	52	27.5	72.5
Internal os not covered at all:								
36 weeks pregnant and over	744	37	4.9	493	207	53	65.4	34.6
Under 36 weeks pregnant	341	10	2.9	142	155	57	40.1	59.9
Internal os not covered at all, or partly covered:								
36 weeks pregnant and over	894	39	4.3	473	371	58	52.4	47.6
Under 36 weeks pregnant	564	26	4.6	158	321	106	27.0	73.0

In 4580 cases there were 2981 patients, or 65 per cent, who were 36 weeks pregnant, or over, and 1599, or 35 per cent, who were under 36 weeks pregnant. The complication was diagnosed by far the most often at term, and after this at the thirty-sixth week.

In those reports in which the fact was mentioned, out of 3717 patients there were 1463 who were 'booked', or 39.3 per cent, and 2254 cases, or 60.7 per cent, who were placed under the heading of 'emergency' or 'not booked'.

If the cases under "Internal os partly covered" and "not covered at all" are added to those in which the two varieties are combined, the latter not being separated in some of the reports, the figures are as follows:—

	Cases	Percentage Deaths	Percentage maternal deaths	Children alive	Children stillborn	Children dead	Percentage children alive	Percentage children stillborn and dead
36 weeks pregnant and over	2244	100	4.4	1275	829	161	56.2	43.8
Under 36 weeks pregnant	1251	43	3.4	401	689	215	30.7	69.3