

THE ETIOLOGY, SYMPTOMATOLOGY, DIAGNOSIS AND MODERN
TREATMENT OF PLACENTA PRAEVIA BASED ON A CRITICAL
SURVEY OF NEARLY 300 CASES.

by

L.C.L. AVERILL.

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P R E F A C E.

The condition of Placenta Praevia, i.e. a placenta situated either wholly or partly in the Lower Uterine Segment is one of very vital importance to the community, the doctor, and especially the mother and child. It is certainly not a common occurrence in general practice and one's hospital records are very apt to give an exaggerated idea as to its frequency, but the condition is an ever present possibility and danger to the pregnant mother.

On account of its comparative rarity it is a condition that is very liable to be overlooked and merely classed as a threatened abortion or normal premature labour with possible fatal results for Mother and Child.

The condition is also a vitally important one from the practitioner's point of view because, when diagnosed surgical treatment is called for with no palliative measures, and so, to be well equipped for obstetrical practice, one must be prepared at any time to perform radical treatment in a case of this sort.

The cases under discussion in this thesis are cases/

cases of Placenta Praevia which have occurred in the Royal Maternity and Simpson Memorial Hospital during the past 9 years. The number of cases about which I have been able to obtain some particulars, either scanty or moderately complete during this period is one hundred and ninety ~~five~~^{five}. In some of the cases unfortunately only the very barest particulars are obtainable, whilst in others, more fully reported on, I have been more fortunate, especially those cases which occurred whilst I had the privilege of being Resident House Surgeon at the Hospital.

In my classification I have placed the cases of Placenta Praevia into 3 types:-

(1) Central. In this variety the placenta is centrally situated and completely covers the Os Uteri.

(2) Lateral. Where the placenta is situated in the Lower Uterine Segment and partially overlaps the internal Os.

(3) Marginal. Where the placenta is partially situated in the Lower Uterine Segment but does not project in any way over the Internal Os.

The classification of the types of Placenta praevia is unfortunate because some authorities call a marginal placenta praevia one in which the placenta partially overlaps the Os, whilst a lateral placenta praevia merely projects into the Lower Uterine Segment; that is, the positions of a Lateral and Marginal Placenta Praevia are reversed from the Classification I have given above.

In/

In consideration of this very unsatisfactory state I would suggest a more efficient method of Classification would be to divide cases of Placenta Praevia into two types:-

(1) Complete - where the placenta is centrally situated and entirely covers the Internal Os.

(2) Incomplete - where the placenta is partially situated in the Lower Uterine Segment and may or may not overlap a portion of the Internal Os.

This classification is, I think, a more efficient method, because the differentiation of the Lateral and the Marginal type is often a very intricate and exact point of diagnosis, in that, it may change from one category into the other as the os dilates and also some cases of the marginal type are only discovered from an examination of the placenta and membranes after delivery although the condition may have been suspected beforehand, especially in those cases where there has been some clinical evidence (e.g. Antepartum Haemorrhage.).

On these grounds and for the sake of uniformity I think the profession would do well to adopt classification of Placenta praevia under the two heads
(1) Complete. (2) Incomplete.

I will now proceed to a discussion of the Cases under review, considering them under various headings:-

P A R I T Y.

All obstetricians agree that the condition of Placenta Praevia is far more common in the multiparous woman than in the primiparous, though the exact percentage naturally varies with the various observers.

In the 194 cases under review I find that 35 of these occurred in primiparous patients, 155 in multipara whilst in 4 cases no degree of Parity is stated. This means that 18.4% of the cases of Placenta praevia were in primipara or about 1 in 5.

Analysis of the degree of multiparity in relation to Placenta Praevia is shewn by the Table below:-

Primipara	35
Multipara	
Para 1	28
" 2	18
" 3	19
" 4	16
" 5	17
" 6	18
" 7	12
" 8	9
" 9	6
" 10	3
" Over 10	9
Not stated	4
Total	194

This analysis does not, by any means, indicate that there is more likelihood of a para-1 woman having a placenta praevia than one para-9 because there are naturally many more women para-1 in the world than there are para-9; in fact, in practice we find the opposite to be the case. The type of Multiparae that are most likely to have this condition are those that have been pregnant several times in rapid succession.¹ This is probably due to the fact that owing to the rapid succession the uterus does not properly involute before it becomes pregnant again, so that when the ovum is projected from the interstitial portion of the tube into the uterus proper - the uterine walls form an actual cavity rather than a potential cavity and the ovum gravitates to the lowest level, since it finds no resistance higher up the uterus in which it can embed itself. No definite proof of this postulate can be or I should think ever will be obtained, but it seems to be far the most likely cause of a Placenta Praevia in this type of case. This reason is naturally valueless in the case of a primiparous patient where the ovum is projected into a potential cavity only and it will certainly meet much resistance in its descent. The cause of the placenta being lowly situated in these cases is probably due to a very different cause which will be discussed later.

THE TYPE.

The percentage of the various types of Placenta Praevia is another very interesting point worthy of mention, but unfortunately the varieties are differently named by different observers and record keepers as stated in the preface. For this reason I have not placed the records of the 194 cases under the various heads of "Lateral" and "Marginal" but under the one head of "Incomplete".

I find the position of the placenta in my series of cases to be as follows:-

Complete	53
Incomplete	113
Not Stated	28

This gives the percentage of Central Placenta Praevia to other types to be about 1 to 2 which is, I think, rather in excess of what one finds in practice.

Aleck W. Bourne¹ in giving the statistics of Queen Charlotte's Hospital from 1905 to 1916 states as follows:-

Central	31
Marginal	36
Lateral	82.

This means that we have 31 Complete Placentæ Praeviae for 118 Incomplete or a ratio of nearly 1 in 4. This,

I think, is nearer what one finds in practice.

The question of the type of placenta praevia is a very important point both from the points of view of diagnosis, prognosis, and treatments, and also from the point of view of the mortality both of mother and child as is shewn by the next paragraph.

THE MORTALITY TO MOTHER AND CHILD.

(A) THE MOTHER.

Of the 194 cases under review I find that the condition was attended with fatal results to the mother in 18, of which two cases died undelivered. This gives us a death rate for all cases of 9%; which figure forms a very interesting comparison with Queen Charlotte's Hospital Statistics¹ from 1905 to 1916 where it is reported that out of 217 cases the Maternal death rate was 8% - practically the same figure as the Edinburgh Royal Maternity Hospital for 194 cases.

Analysis of the causes of death in the 18 cases (16 after, and ~~one~~^{two} before delivery) is as follows:-

1. Severe A.P.H. Shock, Collapse ..	8	(2 indelivered)
2. Severe P.P.H. Shock, Collapse ..	5	
3. Septic Pneumonia following Sepsis	2	
4. Uraemia	1	
5. Acute Puerperal Mania	1	
6. Bronchopneumonia	1	
Total	<u>18</u>	

In these 18 cases the placenta was situated as follows:-

Central	12
Lateral	5
Marginal	1
Not stated ...	1

The above figures shew conclusively that the greatest danger to the Mother lies in the central variety; and it is chiefly in this type that radical changes are needed in the old-fashioned methods of some members of the profession. Take for example the following two cases:-

Case I.

Mrs C. Aged 36, 3rd pregnancy. Was admitted to the Hospital having had several severe bleedings extending over one month. On admission (10 p.m.) the os admitted the tip of the Index finger, the placenta was felt and there was slight bleeding. At 11.20 p.m. the vagina was packed with Iodoform Gauze. At noon next day, the os admitted 2 fingers, a douche was given and Bipolar Podalic Version was performed, a leg being brought down. At 1.15 p.m. a living child was born, 8 lbs. 4 ozs. in weight, 21" long. At 1.45 p.m. the Mother was dead from Post-partum Haemorrhage - all the usual treatment having no effect.

Case II./

Case II.

Mrs S. aged 34, 1st pregnancy. Was admitted at 5 p.m. on account of a Central Placenta Praevia. Os 2 fingers dilated. Patient had been examined outside by Doctor but had had no other interference. She had lost a considerable amount of blood, was somewhat collapsed, but her pulse was good. Bipolar Podalic Version was performed at 6 p.m. At 12 midnight patient was delivered of a still-born child and half an hour later the patient died from a ^{atonic} ~~toxic~~ post-partum Haemorrhage, shock and collapse.

These two cases, taken as examples from the eighteen under review, provide very sad reading and we must now look for a remedy.

The correct treatment in practically all these fatal cases and certainly in the two above mentioned lies, I think, in the operation of Caesarean Section. In not one of the eighteen cases was the operation of Caesarean Section performed, which shews that either this line of treatment is worth a long over-due trial or that those cases of placenta praevia treated by this operation have provided no fatal results.

The indications for Caesarean Section, I think, are:-

1. Child should be viable and alive.
2. Patient should not be too exsanguine or collapsed so that she would be unable to stand an Abdominal/

Abdominal Section. In such a case I would advocate packing the Vagina tightly and then stimulating the patient as much as possible so as to improve her general condition and then, if it improves, perform a Caesarean Section.

3. Patient must be in a Hospital or in a place where reasonable asepsis may be expected; it is useless to attempt to perform the operation in squalid quarters where the only assistance available is one nurse.

Berkeley and Bonney³ in their book also add that "the case must be clean and forceps must not have been applied previously." With regard to the question of forceps I entirely agree, though I think it must be an extremely rare condition for anyone to try to deliver a central placenta praevia with forceps. With other varieties it is sometimes possible; but I do not think that mere examination by a physician outside the Hospital, and therefore with doubtful aseptic precautions, is any contra-indication to a Caesarean Section as reported in Case II. If the vagina is swabbed out thoroughly with Iodine before the operation one can expect reasonable asepsis.

The operation of Caesarean Section is not a difficult one, in that the operation is merely a mechanical one because one knows definitely before operating what one is going to find, and it is thus differentiated from those cases where one opens an abdomen not knowing what/

what one is going to find, and where each case has to be treated strictly on its merits.

The operation of Caesarean Section is also a comparatively safe one for the mother, provided one does not operate on a glaringly septic case; and of course as regards the child, live birth can be guaranteed. John P. Deaver⁴ goes so far as to state that out of 115 cases on which he has performed the operation he has had, not only no mortality, but also no post-partum morbidity, which is certainly a record to be proud of. The same writer has now considerably increased the usefulness of the operation and uses it in the earlier months of pregnancy under the title of "Transperitoneal Hysterotomy". He recommends this operation in cases of "Bad Pyelitis, Placenta Praevia, Accidental Separation of the Placenta, prolapse of the Cord, Eclampsia, Toxaemia with Nephritis, Pulmonary Tuberculosis beyond the 4th Month.

Deaver in all cases delivers the uterus outside the abdomen before incision but I do not think this is necessary especially if one adopts the technique advocated by Professor B.P. Watson⁵, i.e. injecting 1 cc. of Pituitary Extract directly into the uterus before incision. This excellent idea, of great value in all cases of Caesarean Section, is specially suitable in cases of Placenta praevia in that it

(1) reduces the Haemorrhage from the placental site to a minimum - a serious question in Placenta Praevia. considering the number of patients who have died /

died from blood loss.

(2) reduces the possibility of Air Embolism - another great danger in this condition. By injecting pituitary extract before opening the uterus, one ensures that the uterus is in an active state of contraction. When the muscle is incised and as soon as the child is delivered it will contract down immediately, separating the placenta, driving the blood from the large sinuses and thus preventing the inrush of air.

In Case II, mentioned previously, I do not think one could find stronger indications for a Caesarean Section - A primipara of 34 years of age, central placenta, pulse good and comparatively little interference outside. Had the operation been performed in this case I consider it practically beyond doubt that both mother and child would have been alive to-day.

The operation of Caesarean Section is, I think, destined to be the operation of the future in obstetrics though it naturally takes some time to influence public opinion which, for some reason, looks with abhorrence, on abdominal operative procedures associated with child birth. Such a change naturally takes time but until we are allowed to perform Caesarean Section in cases such as the 18 fatalities reported, so long will we have a stationary puerperal mortality rate.

As will be seen from the table, Maternal death in Placenta/

Placenta Praevia is generally associated with Haemorrhage, Shock, Collapse; the other causes are Sepsis, Uraemia, Acute Puerperal Mania, Broncho-pneumonia.

The two latter varieties have nothing really to do with the subject of Placenta Praevia as both are Intercurrent Complications that might have occurred with any normal delivery though on account of the loss of blood, and resulting weakness, conditions such as these are more likely to occur. The uraemic case was a woman of 34, para 3, in whom labour was induced on account of Acute Bright's Disease; the child was a female, born alive, which died from Congenital Heart Disease and the mother died several days after delivery from Uraemia. Such a death could not be attributable to placenta praevia although some recent observers have suggested a relationship between Albuminuria and Placenta praevia.

The two deaths from sepsis are interesting from the statistical standpoint in that they clearly shew the definite risks of these patients to sepsis. Briefly the history of these two patients is as follows:-

Case III.

Mrs J., age 32, para 7, had a Central Placenta Praevia, was packed twice, and was then delivered by version, the child being still-born. On the 2nd day she had a rise of temperature and offensive lochia.

This/

This had settled down by the 13th day but on the 18th day there was marked general weakness, dyspnoea, acute pain over the angle of the Scapula and crepitations. Septic Pneumonia was diagnosed by the Consulting Physician and patient died on the 22nd day.

Case IV.

Mrs M., primipara was admitted on account of several severe bleedings. She was then $6\frac{1}{2}$ months pregnant and the os was tightly closed. The vagina was packed with gauze and in 24 hours the cervix was 2 fingers dilated, version was performed and delivery effected without undue loss, the position of the placenta being marginal. On the 3rd day she had a rise of temperature and from then on until the 18th day she ran a swinging temperature when she died - death being due to Puerperal Septicaemia.

It is noted that in both these cases the vagina was packed, either once or twice and version was performed. Such a large amount of interference is bound to increase the risk of the patient to septic infection especially on account of the lowly situated placental site, and in an already weakened condition the body is not able to throw off the invasion so that the organisms finding a ready nidus, the infection quickly becomes general; or as Bourne¹ states "the two chief risks to a patient with Placenta Praevia are Haemorrhage and Sepsis". Two cases such as these only help to/

to strengthen the plea for Caesarean Section as under aseptic precautions the risk of puerperal infection is reduced to a minimum.

(B) THE CHILD.

Although the mother's life is always our first consideration, the high foetal mortality demands urgent investigation and gives us an opportunity for much-needed improvement.

Out of the 194 cases, I find that the child was still-born in 105, giving us a foetal mortality of 54%. These figures exclude 6 cases in which the foetus was macerated, 10 cases in which neonatal death was reported, one undelivered case, and two cases in which the foetuses were definitely not viable.

Queen Charlotte's Hospital Statistics for 1905 to 1916 give their foetal mortality as 59%, whilst Berkeley and Bonney state the death rate in these cases varies between 50% and 60%; so that our own statistics are practically identical with the figures obtained at other hospitals.

The chief factors in the high foetal mortality rate, I consider to be these:-

1. Previous Haemorrhages. This naturally reduces the vitality of both mother and child, so that when/

when the child is born it is generally very puny and often born in a suspended state of animation.

2. Prematurity. On account of the previous haemorrhages the patient generally goes into labour before the normal time and so the child when born is not fully developed.

3. Difficulty of Delivery. As already stated our first consideration in any delivery is naturally the mother and so, the mother's life being endangered by severe bleedings etc., some of the methods of Accouchement force have to be resorted to. Some of these methods give the child a reasonable chance of survival but others, e.g. Version, are in most cases little more than a sacrificial operation.

To lower the foetal mortality rate the two chief methods of treatment must be either Caesarean Section or the use of the Champetier de Ribes' Bag. Important as Caesarean Section is in reducing the maternal mortality it is infinitely more beneficial to the child, as a live child can be guaranteed. The following case illustrates its value:-

Case V.

Mrs W., a primipara of 28, $9\frac{1}{2}$ months pregnant, was admitted on account of several bleedings extending over a fortnight. The os admitted one finger, Lateral placenta praevia was diagnosed, and there was slight bleeding. Patient was given sedatives and the relatives were/

were informed of the possibility of Caesarean Section if the bleeding continued, consent to this line of treatment being grudgingly given. It might be added that patient was only induced to come into hospital when her doctor and friends reassured her that there would be no operation. Patient had been admitted at 11 a.m. and at midnight on the same day the bleeding was still continuing and tending to become worse, the os being still closed. On account of these conditions Caesarean Section was decided on.

The husband was communicated with and when told that his wife was about to go through the operation he nearly fainted and had to be revived. On account of her nervousness it was unsafe to tell the patient that she was about to go through an operation.

Caesarean Section was duly performed and a male child of $5\frac{3}{4}$ lbs was delivered. The mother made an uneventful recovery and the child after an initial drop on the first day increased in weight every day and gained well over a pound while in Hospital. Both mother and child were discharged fit and well on the 21st day and were handed over to the delighted relatives.

This case illustrates well the public aversion to operative procedures, and the beneficial results for mother and child; for such a case not treated thus would certainly have meant the loss of one if not two of the patients.

The/

The other method of great value in this condition is Champetier de Ribes' Bag. This bag ensures that the cervix becomes fully dilated or very nearly so before the mother is in any serious danger owing to Haemorrhage necessitating active measures such as version or forceps delivery. Forceps in these cases is generally a very satisfactory operation and Podalic Version gives very good results when the cervix is fully dilated or practically so and the pains are good; but Version done when the os is less than half dilated practically ensures still-birth, in all but exceptional cases. This question is further discussed under treatment.

THE PRESENTATION AND LIE OF FOETUS.

(A) THE LIE.

The Lie of the Foetus (i.e. the relation of the long axis of the foetus to the long axis of the uterus) in Placenta Praevia presents a striking variation to that found in cases with a normally situated placenta.

In the latter variety we find that the ⁶ presentation is cephalic in 96% of all cases. Of the remaining 4%, breech presentations form 3.5% and shoulder presentations .5% or in other words the Lie is transverse/

transverse in 1 in 200 deliveries.

Berkeley and Bonney³ in their book give figures which vary slightly from the above. The normal percentages are as follows:-

Cephalic	97%
Pelvic	2.4%
Transverse	.4%

In placenta praevia they state the percentages to be:-

Cephalic	67%
Pelvic	9.3%
Transverse	23%

In the series of cases which I am reviewing I find that in 13 of the 194 cases the presentation or lie of the foetus is not stated. Of the remaining 181, the lie is longitudinal in 171 whilst a transverse lie was diagnosed in 10 cases. This means that the frequency of the transverse lie is about 1 in 18 cases in placenta praevia whilst, as stated previously, in normal cases the frequency is 1 in 200 - a very striking difference. There are several reasons for this result:-

- (1) The patients who are most susceptible to the condition of Placenta praevia are multipara, especially those who have borne several children in rapid succession. These types are precisely the same as those in which the transverse lie is commonest. The obvious reason for this is that the/

the musculature of the uterus is so attenuated that the organ is able to expand just as readily laterally as it can longitudinally, there being insufficient tone to keep the foetus in the longitudinal position.

- (2) The placenta is occupying the lower pole of the uterus and this prevents the head or breech from engaging in the pelvis so that the foetus is inclined to lie transversely especially in those who have borne many children.
- (3) In a large number of cases of Placenta Praevia the pregnancy is terminated prematurely and so the foetus being smaller and the uterus containing relatively more Liquor Amnii than it does at term, it is much easier for the foetus to lie transversely than it would at term when the liquor amnii is much less and the foetus fills practically the whole of the uterine cavity. It is also a well known fact that the foetus often changes itself into a vertex presentation quite late in the pregnancy, up to $8\frac{1}{2}$ months or even later; so that if the pregnancy is terminated early, the foetus may not have undergone this spontaneous version.

The Longitudinal Lie is divided into the Cephalic and the Pelvic Presentations and the relative occurrences of these two presentations shew striking differences from/

from those that are usually found. The frequency of the cephalic presentation is reduced and the pelvic presentation is increased.

The percentages of two different observers has already been stated and in my series of cases I find the figures to be:-

Cephalic Presentation. Out of the 181 cases in which the presentation is definitely stated, the vertex occupies the lower pole in 146, i.e. 80.6%.

Breech cases comprise 23 out of the 180 - which works out at 12.7% or 1 in 7.8.

I think the chief reason for this result, apart from the reasons given for the frequency of the transverse lie, is that, as the placenta occupies the lower pole of the uterus, the lower pole of the Uterus becomes of equal size with the upper pole. This is contrary to normal where we find the largest part of the child - the breech - occupying the roomiest part of the uterus, i.e. the upper pole. In cases of placenta praevia there is no definitely narrow part for the head to engage in and in some cases, especially multipara, with a large number of children the lower pole may be even roomier than the upper pole; and thus the breech being the largest part of the child tends to occupy the lower pole of the Uterus.

ABNORMALITIES.

The condition of Placenta praevia which is in itself an abnormality seems to attract to itself other abnormalities. The most common one is, I think, where we find some degree of Hydramnios. This condition generally occurs about 1 in 200 cases but in Placenta Praevia it is much commoner - in the 194 cases reported on, Hydramnios was present in 6, making the ratio 1 in 32.

Twins are reported in two cases, Hydrocephalic children in three occasions, whilst the foetus has been macerated in six pregnancies. All these abnormalities are rather more common than one usually finds.

One case is, I think, worth reporting as illustrating the great number of abnormalities that may occur in one patient.

Case VI.

Mrs B., aged 23, primipara, was admitted to the Hospital one week from full time. She was suffering from a Central Placenta Praevia. On account of Haemorrhage, Bipolar Podalic Version was performed and patient was delivered of a macerated anencephalic foetus. When the membranes were ruptured there was a general rush of Liquor Amnii indicating Hydramnios, and when the placenta was delivered it was seen to have a Battledore/

Battledore insertion of the cord. On the 2nd day the patient became maniacal and died on the 3rd day from Acute Puerperal Mania.

Perhaps the most interesting conditions which we find in some cases associated with Placenta Praevia, are the Toxaemias of Pregnancy, especially Eclampsia and Albuminuria.

In my series of cases I find that we have had three cases of Eclampsia associated with Placenta Praevia. Dr Douglas Miller⁷ reports three cases of this combination - in one he states the eclampsia to be purely coincidental, toxaemic symptoms had been present for some months and the placenta was extensively diseased; the second patient, a 6-para, developed Eclampsia 36 hours after completion of labour and died from the condition; the third had an eclamptic convulsion before delivery but the toxaemia rapidly subsided after the birth of the child.

The onset of Eclampsia is stated by Drs Young and Miller to be due to infarcts in the placenta occupying from one-third to one-half of its substance; other writers such as Talbot and La Vake state that the onset is due to the presence of some chronic sepsis, such as teeth, gums, intestines or elsewhere; the latter view may or may not be well-founded but we are quite certain that in cases of Eclampsia and Albuminuria generally, we do find considerable infarction; whether/

whether the infarction is the cause or the effect of the toxæmia has not yet been conclusively settled.

In my series of cases, there were three cases of Eclampsia coincident with Placenta Praevia. In two of these I am afraid my particulars are scanty, except that both were multiparae, in both the eclampsia was intrapartum and in both cases the child was still-born but the mother survived. In the third case, which one had the opportunity of personally attending to, the history is so interesting as to be worth recording:-

Case VII.

Mrs S., VI-para., aged 40, was admitted to the hospital on account of severe intractible albuminuria, general oedema, and pre-eclamptic symptoms. She was admitted about 3 p.m., spoke quite normally and was put on the usual treatment. She had had no previous hæmorrhages and was exactly at term. At about 7 p.m. on the day of arrival I was called along to see the patient in a typical eclamptic fit. She was unconscious and was just recovering from the fit to some extent. Her blood pressure was very high (S. 220 D. 141). She was immediately given the usual treatment of Morphia $\frac{1}{2}$ gr., Gastric and rectal lavage, large dose of Magnesium Sulphate, and hot packs. In this case I also performed venesection. In about 14 hours the patient had regained partial consciousness, she had had no more fits, but the foetal heart which I had heard/

heard quite distinctly previously could not now be heard. The patient went into labour about 8 p.m. ^{on the following day,} she had severe pains and the os quickly dilated; at 10 p.m. I examined her, found the os fully dilated and the smooth lip of the placenta extending half way across the os and the membranes unruptured. (I am referring to this type of Placenta praevia in a subsequent section). The membranes were ruptured and in about 2 pains the child was born spontaneously, vertex leading; it was still-born and looked as though it had been dead for at least 24 hours. The placenta as per illustration ^{III + IV.} shewed definite infarction.

The interesting points about this case are that:-

- (1) After one seizure, which presumably killed the child, there were no more convulsions.
- (2) Although a definite lateral placenta praevia there was no untoward antepartum haemorrhage and the condition was only discovered at full term when fully dilated.
- (3) The extensive infarction and very interesting type of the placenta found.

After delivery the patient made a rapid recovery, the oedema subsided and there was only a trace of albumen on discharge.

I think that this case is one of those where the condition of Placenta Praevia is only coincidental with that of Eclampsia. It also lends support to the theory/

theory that the foetus itself has something to do with the toxaemias, for it has been reported on several occasions that improvement takes place immediately on the death of the child.

With regard to the relationship of Albuminuria to Placenta Praevia, our ideas have recently undergone decided changes to what were previously well-established conceptions. In all the text-books published 10 years ago it was clearly stated that in Accidental Haemorrhage albumen was present, whilst in Placenta Praevia it was not; in other words the presence or absence of Albuminuria was the chief point in the diagnosis of these two conditions. We undoubtedly have proof of the relationship of infarction of the placenta to albuminuria. Dr Young in his observations stated that albuminuria was the direct result of Placenta infarction, and the severity of the toxaemia depended on the extent of the infarction produced - thus if one-half to one-third of the placenta was infarcted one usually had an attack of Eclampsia; if a smaller portion was infarcted, a less severe form of Toxaemia was produced.

I also noted the fact from observation of cases in the hospital that where one found any degree of placental infarction one also found some degree of Albuminuria present even although the albumen only amounted to a very faint trace. Albuminuria, I also noted, was very prevalent in mothers during labour and for/

for one or two days afterwards. Though there were no symptoms of toxæmia whatever, and the patients had normal deliveries yet in approximately 25% to 35% the urine shewed traces of albumen; the placentae from these patients shewed infarction, either the red variety of recent occurrence or those which had been present in the placenta for several days.

With regard to the Albuminuria in relation to Placenta Praevia I was unable to establish any definite relationship. I personally observed 30 cases of Placenta Praevia and examined carefully to see if any albuminuria was present. Out of these thirty cases, ten (or $33\frac{1}{3}\%$) shewed albuminuria of some degree, but two of these ten cases definitely stated that they had suffered from previous Nephritis. All of these 10 cases shewed some infarction of the placenta; and nine of the ten were delivered of still-born children.

From these observations I am unable to arrive at any definite conclusion that albuminuria is directly associated with Placenta Praevia: but I certainly consider that the Albuminuria is associated with Placental infarction. The figures which I give above, whilst not producing any relationship of a constructive nature certainly disproves the old idea that albuminuria was definitely associated with Accidental Haemorrhage but was not found in cases of Placenta Praevia.

THE ETIOLOGY AND PATHOLOGY OF
PLACENTA PRAEVIA.

Until recent times the only accepted view as to the cause of a placenta becoming embedded in the Lower Uterine Segment was that owing to insufficient involution of the multiparous uterus, the ovum failed to find enough resistance so that it could embed itself by the tissue - destroying power of the Syncytium. This reason is, I think, certainly true in the large percentage of cases and is practically certain to be the cause in the majority of cases of placenta praevia in multipara; but, in the primiparous patient, the uterine cavity is only a potential space, the ovum would certainly meet with very great resistance from the thick muscular walls and would, of necessity embed itself near the fundus of the uterus.

The cause, therefore, of the lowly-situated placenta in a primipara must be either:-

(1) Delayed Action of the Syncytium.

This is always a possibility and very difficult to disprove. The ovum is projected from the uterine ostium into the uterus and owing to the delayed action of the Syncytium, the ovum is wafted downwards until it reaches the lower uterine segment, the destructive action begins and the ovum embeds itself.

This/

This is the procedure, I think, in certain cases of Placenta Praevia in primiparae.

(2) Chronic Endometritis.

This is very rare in primiparae but may conceivably be the cause in Gonococcal infections. As a result of the infection the endometrium becomes greatly thickened and the ovum is unable to embed itself until it is held up at the internal os.

(3) Placental Attachment to the Decidua Capsularis.

When the ovum becomes embedded in the uterus, it is bounded on the uterine side by the decidua basalis and is separated from the cavity of the uterus by the decidua capsularis. The earliest development of the placenta is found in the chorionic villi which proceed from the ovum to the decidua basalis and capsularis, surround the ovum completely and are bathed in Maternal blood. As the ovum develops the majority of the chorionic villi atrophy, especially those attached to the decidua capsularis and a percentage of these attached to the decidua basalis fuse together and form the placenta. The ovum grows, the decidua capsularis fuses with the decidua ^vena and the placenta is left attached to that portion of the uterus where the ovum originally embedded itself. If however, the placenta becomes attached either wholly or partly to the decidua capsularis, the ovum continues to grow and as/

as it does so it pushes that portion of the placenta attached to the decidua capsularis downwards until it lies in the Lower Uterine Segment. The series of diagrams help to illustrate what I mean. If these evolutions do definitely take place, I contend there should be a free edge of placenta covered by membrane on the maternal surface, as in Case VII, unless the uterus is so high up that the placenta is forced against the uterine wall and fusion between decidua capsularis and vera take place with adhesion to the wall of the Uterus, so that no free edge of placenta is felt. In Case VII, as mentioned previously, there was no antepartum haemorrhage whatever, when I examined the patient. She was practically fully dilated and I could definitely feel the elastic bag of waters on one side and the soft spongy edge of the placenta on the other, but I could not feel the separate cotyledons as they were covered over by a thin membrane. This membrane I consider to be the fused decidua capsularis and vera fused, as per illustration.

This last method I consider to be the cause when one can feel the free tongue of placenta covered with membrane, but in the other cases it may be caused by any of the conditions mentioned previously.

Books on the subject briefly mention that placenta praevia may be caused by the placenta growing on to the decidua capsularis. R.W. Johnstone⁶ states that "the/

"the condition (placenta praevia) is due to the development of the placenta in connection with the decidua capsularis at the lower pole of the ovum as well as with the decidua basalis.

Whitridge Williams⁸ also expounds this view and gives a very instructive diagram, but such modern writers as Davis⁹ of Philadelphia fail to mention the possibility.

THE DIAGNOSIS.

Despite the passage of time and the almost daily additions to our fund of obstetrical knowledge, yet the one great symptom and aid in the diagnosis of Placenta Praevia is "Haemorrhage". Strictly speaking we may expect a Placenta Praevia to show itself at any period of gestation, for I certainly think, as is mentioned by various observers, that a Placenta Praevia is a common cause of an early abortion. R.W. Johnstone⁶ places Low insertion of the Placenta at Sixth in his list of the Relative frequency of the predisposing causes of abortion, whilst Davis⁹ states that by far the most frequent ovular cause of abortion is Haemorrhage. I can certainly support these contentions for whilst attending to the cases of Incomplete Abortion which/

which had come into the Hospital, I noticed in two separate cases that after dilatation of the cervix with the bougies, and on digital examination, I could feel a small portion of the placenta attached to the uterus just inside the internal os. In these cases therefore the placenta had been lowly situated and had been probably the cause of the early abortions.

Haemorrhage in the latter months is practically always due to two causes:-

(1) Accidental Separation of a normally situated placenta.

(2) Placenta Praevia.

With regard to Accidental Separation of the Placenta we generally have some definite cause; for instance the patient may be toxæmic or there may be a history of a blow, a fall, a kick, a sudden strain, or some great disturbance or shock. In placenta praevia we have no prodromal symptoms; the only symptom is a painless flow of red blood which comes on without warning, and without any cause to account for it.

This being the case we are at once suspicious of a Placenta Praevia and we make a vaginal examination to ascertain if the placenta is palpable. In some cases it may be felt and so our diagnosis is settled, but in the large majority the os is closed and so we are now in rather a quandary.

The question now before us is; "If we had some definite/

definite uterine haemorrhage before term and the os is firmly closed, should we dilate the os forcibly to make sure of our diagnosis of Placenta Praevia, and at the same time, if the placenta is not lowly situated, turn a threatened Abortion into an Inevitable Abortion; or should we use palliative measures, such as complete rest, light diet, uterine sedatives and thus tide the patient over the present haemorrhage but at the same time allow her to run the risk of a further haemorrhage which may prove fatal?"

There is a well known adage in connection with this condition which is known throughout the Obstetrical World: "As soon as Placenta Praevia is diagnosed, it must be treated." This would seem to be the answer to our question and if followed we would proceed to carry out an operation, definitely sacrificial. In isolated patients this would certainly be the safer course to adopt because we are definitely sacrificing the child but at the same time preventing the mother from the risk of death from Haemorrhage.

However, in recent years, antenatal work has increased by leaps and bounds and I think the treatment of these cases, from the present day conception, would be to keep these doubtful Praevia cases - that is those cases which have had one Haemorrhage, and then with palliative measures, settled down - in a special ward of the Antenatal department, where we have plenty of/

of light and pleasant surroundings; and where the patient can rest quietly in bed, can receive attention to the bowels, can be treated with uterine sedatives etc. and thus give the foetus every chance to grow to full size before pregnancy is terminated. Such patients may require nursing in this manner for one, two or even three months.

Under this scheme of treatment patients may go almost up to full term before we have any occurrence of haemorrhage, when there is a better hope of a viable child; and in any case the danger to the mother is not increased because as soon as haemorrhage appears it can be treated - if continuous, and becoming a danger to the mother, by packing, Caesarean Section or other methods; if spasmodic, it may yield to palliative measures once more.

The advantages claimed for such a method of treatment are:-

1. Foetal mortality lowered.

Sacrificial operations would not be required so often and mothers would be able to carry their children longer and thus they would have a better chance of survival.

2. Maternal mortality lowered.

The mothers, by this mode of treatment are kept constantly under observation and any pathological occurrence could be immediately treated; and also, the mothers being kept in hygienic surroundings, there is less likelihood/

likelihood of puerperal sepsis - an ever-present danger in cases of Placenta Praevia.

Of course, at present, antenatal work has not developed sufficiently and beds at the disposal of ante-natal clinics are far below requirements, but I do not think the time is very far distant when we shall have a whole ward for the treatment of Cases of Ante-partum Haemorrhage.

THE TREATMENT.A. THE PRIMIPAROUS PATIENT.

The condition of Placenta Praevia is primarily one of Multiparae but, as shewn earlier in the thesis, it does occur in Primiparae though in a lower percentage of cases. For instance, in the series of cases under review, we find that 35 of the 194 occurred in primiparae, or 1 in 5.5.

The possible causes of such a condition occurring in a Primipara have already been mentioned, so that we will proceed directly to the treatment. This subject divides itself into two parts, viz:-

- (1) Treatment of cases before the child is viable.
- (2) Treatment when the child is viable.

(1) With regard to the first variety, it has already been stated that placenta praevia is a common cause of Abortion and if the os dilates and the ovum is spontaneously expelled or dilates sufficiently to enable the ovum to be removed by a simple operation, then all is well and subsequent trouble is rare, but we have another variety which causes us rather more concern.

We have in this case a primipara, 4 to 6 months pregnant/

pregnant, who is losing blood per vaginum in a steady trickle; on vaginal examination we find the os tightly closed. In this case it is perfectly obvious that something must be done - to do a Caesarean Section or trans-peritoneal Hysterotomy is out of the question as the foetus is not viable and the only course open to us, provided intervention is absolutely necessary, is to produce an abortion. This procedure is best carried out by the two-stage operation, the vagina being first packed tightly with sterile gauze under anaesthesia. This operation will in all probability start labour pains, so that at the end of 24 or 48 hours the cervix will be partially taken up and the os dilated sufficiently to admit one or two fingers. When the packing is removed there may be a considerable gush of blood from the separation of the placenta so that the ovum will have to be removed speedily by digital curettage for preference or, failing that, by the ovum forceps. An injection of 1 cc. of pituitary extract will then cause the uterus to contract and the haemorrhage will probably cease.

Such a procedure proves satisfactory in many cases of this category though the patient is open to many dangers, of which the chief is sepsis. Case IV, which is more fully reported below, illustrates this point:-

Mrs M., primipara, married, aet. 30, was admitted to the hospital on account of several Haemorrhages before admission, the vagina being lightly packed with gauze. On examination the patient was found to be about $6\frac{1}{2}$ months pregnant, the vaginal plug was soaked with blood and she was still losing, and the os was firmly closed.

Under general anaesthesia the vagina was firmly plugged with sterile gauze, after a preliminary douche. During the next 24 hours, the patient had a considerable amount of pain, and vomited several times. The vomiting was taken to be caused reflexly by the vaginal pack. There was no albuminuria. At the end of 24 hours the pack was removed, again under anaesthesia, a douche was given and on examination the os was found to be barely 2 fingers dilated. The placenta could be felt jutting down into the Lower Uterine Segment indicating a marginal attachment; and the ovum was removed first by loosening it with the finger and then snaring it with the ovum forceps.

The patient was very comfortable next day, but on the 3rd day the temperature rose and a typical Septicæmia set in from which the patient died on the 18th day despite all treatment.

Such a case is a very regrettable one and one which clearly demonstrates the dangers to a Primipara.

In/

In a multipara, although liable to sepsis, the dangers as regards a fatal issue do not seem to be so prevalent possibly because the body has become immunised by the previous labours. In the case above, the only possible treatment was carried out but unfortunately one of the dangers connected with child-birth intervened.

(2) Treatment when the Child is viable.

(a) Central Placenta Praevia.

A patient with this condition forms a very definite indication for Caesarean Section. Such a case, I consider, leaves no loophole for forceps, De Ribes bag, version or other methods, and should be performed even if the cervix is one half or more dilated. In any primigravid woman, a tremendous amount of dilatation has to take place and with the placenta completely occluding the birth passage, delivery by any means, Caesarean Section excepted, very seriously imperils the mother's life. The folly of Bipolar Podalic Version in such a case was very fully shown in the description of Case II where we had a primipara of 34, full time, os 2 fingers, pulse good, treated by Bipolar version and death from postpartum haemorrhage and shock. The only contra-indications are: (1) Definite Sepsis. (2) Exsanguine patient. If there is only a possibility of sepsis the vagina should be thoroughly swabbed/

swabbed with Iodine and section then performed. In the type of case where there has been such severe Haemorrhage as to render the patient pulseless, then I think one should try to improve the patient's general condition sufficiently to enable Abdominal Section to be performed.

(b) Lateral Placenta Praevia.

In this type, also, I am in favour of Caesarean Section though a few cases may be suitable for De Ribes Bag. All other methods I consider valueless unless there is some strong contra-indication to these two methods of treatment being performed.

A typical case for Caesarean Section would be one in which there has been bleeding sufficient to indicate intervention, the os is 2 fingers dilated or less, the placenta occupies one half or more of the os, and one in which there is no other contra-indication to operation, such as sepsis.

The type of case suitable for De Ribes' Bag are those in which the os is one half or more dilated and where it is possible to rupture the membranes and put in the bag to the side of the placenta. In such a case the bag will be expelled first and in doing so the cervix and vagina will be dilated, the head will come down and the child should then be born alive.

Any/

Any other method, such as version, is needlessly sacrificing the child's life whilst you have other methods, no more serious to the mother, which can present her with a live child.

(c) Marginal Placenta Praevia.

In this type our methods of treatment are widening though each has its special indications and uses:

(1) Caesarean Section. This method is indicated in a few cases at or near full time, where the haemorrhage calls for active treatment, and where the os is rigid and only partially dilated.

(2) Champetier de Ribes' Bag is very useful in cases where the dilatation has reached 3 or more fingers, so that one can rupture the membranes, insert the bag and then leave the uterine pains to compress the bag against the placental side.

(3) Simple Rupture of the Membranes. This may be all that is necessary in some cases where the os is $\frac{1}{2}$ or $\frac{3}{4}$ dilated and where the pains are good. The pains will thus dilate the os and vagina and force the head on to the perineum where it could be assisted by the application of forceps if necessary.

It will be noticed that in no instance is Bipolar Version recommended. This is so because the half-breech is not a good dilator and so, by the time that cervix/

cervix had dilated sufficiently to allow birth, the child would have died from asphyxia due to pressure on the placenta or cord. Great trouble, also, would be experienced in delivering the after coming Head and there would be a great possibility of a bad perineal tear. On these grounds I consider Version in a Primipara, bad treatment.

B. THE MULTIPAROUS PATIENT.

In dealing with this type of patient there are several other points which must be carefully considered beside the actual obstetrical condition. We primarily have to consider whether the patient is very anxious or not to have a living child. In better-class families naturally a live child is hoped for although the child should be sacrificed if the mother's life is in danger. In some working class families where the husband is unemployed or working for a small wage and where the wife has already 8 to 10 living children, the life of the child should be neglected for the safety of the mother; and, in fact, in such a case an operation such as Caesarean Section is definitely contra-indicated unless delivery otherwise renders the mother liable to more serious risks. In the following statements we take it as understood that a living/

living child would be welcome. We will discuss the three types of Placenta Praevia separately:-

(1) Central Placenta Praevia.

In cases where bleeding becomes evident before the child is viable - the treatment is practically the same as with a primipara, i.e. the vagina must be packed and the ovum removed in much the same way as is used in the case of any ordinary Inevitable Abortion.

If the child is viable the treatment depends to some extent on the dilatation of the os, though in the case of a Central placenta praevia the size of the os does not cause so much difference in our treatment as it does with the remaining two types.

If the os is anywhere between being tightly closed and being about half dilated I consider Caesarean Section to be the operation of choice, that is, providing that none of the contra-indications mentioned previously are present. Berkeley and Bonney³ also recommend Caesarean Section provided there is not too much shock and bloodlessness. If such conditions are present they recommend restoratives and then operation.

Eden³ in his "Manual of Midwifery" states that the best time for operation is after the first severe Haemorrhage and that if the haemorrhage has been severe, the operation would be best performed by Spinal Anaesthesia. If the os has been allowed to dilate itself up/

up to 3 fingers size without haemorrhage calling for treatment (a very unlikely occurrence) then a de Ribes' Bag may be considered or even Bipolar Podalic Version. With regard to the former, the placenta should be ^{punctured} fractured, if one cannot gain entrance at the side, and the bag speedily inserted. This operation will cause a tremendous amount of bleeding and is not recommended unless access can be gained through the membranes at the side of the placenta. Bipolar Version, however, could be used in such a case as this, provided the labour pains are strong, with beneficial results to mother and child. The great drawback to Version when the os is just 2 fingers dilated is that the prolonged pressure on the placenta or cord produces asphyxia and subsequent still-birth in the child. If, however, the os is nearly fully dilated, the pains are good, and the patient a multipara - then the child will be delivered in one half to three quarters of an hour, and with this short interval the prospects of a live child are very good.

In the cases in which version was performed in Hospital, whether for Placenta Praevia, Transverse Lie, or other condition I always noticed that those children delivered within an hour after version, survived whilst those with a longer interval were frequently still-born. For these reasons I consider Caesarean Section to be our first choice though Version may be useful in a small minority of cases.

(2) Lateral Placenta Praevia.

In this variety we have a greater selection of methods of treatment to choose from.

Caesarean Section is indicated in a small number of cases where the bleeding becomes aggressive when the os is completely closed (in which case it is impossible to diagnose the exact type) or when the os is only one finger dilated. In the former case Caesarean Section is indicated, and in the latter also it may be advisable though an alternative method of treatment is to pack the vagina until the os has dilated to 2 or 3 fingers' width and then other methods of treatment are available.

If the os is 2 or more fingers dilated then the best method of treatment is the de Ribes' Bag. Caesarean Section in this instance is unnecessary because we have in the de Ribes' Bag a method of treatment which is equally satisfactory for mother and child. The membranes are ruptured, and the bag is rapidly introduced and filled with Sterile Boric Lotion. The pains then press the bag against the placental site - all bleeding is stopped and the cervix is gradually dilated. Eventually the Bag is expelled followed by the Head and a live child is born.

The Bipolar Podalic Version with formation of the
Half/

Half breech has only a limited field of usefulness and should only be used in that type of case mentioned in the last Section, viz. those cases where the baby will be born under an hour after the version. In all other cases, the use of Version is causing a needless risk to the life of the child. This method may be used in conjunction with De Ribe's bag in those instances where, after the bag has been expelled, there is a large amount of Haemorrhage owing to the Head not coming down satisfactorily and filling the pelvis. Version in such a case is quite satisfactory.

In some cases of Lateral Placenta Praevia where the os has dilated up to about three quarter size - mere Rupture of the membranes may be sufficient especially in that type of case as outlined in Case VII.

The application of forceps may be found to be suitable for some cases where the Head has descended into the Pelvis, but there continues to be a gentle ooze coming down by the side of the head.

Berkeley and Bonney recommend that if the os is half dilated, one may dilate the cervix manually, apply forceps and deliver the child. Such a method of treatment is not, I think, advisable on account of the great shock it may produce, the risk of lacerations, and the increased probability of Severe Haemorrhage.

3. Marginal Placenta Praevia.

The coincidence of the Marginal type in a Multi-para may present itself in several different forms, each of which may call for a different method of treatment. Thus, we may have haemorrhage coming on at about the 8th month, with the os tightly closed, before labour has commenced, or we may have haemorrhage appearing when the os is already three-quarters dilated.

The operation of Caesarean Section is practically never required unless there is some associated condition such as a concealed Accidental Haemorrhage, contracted pelvis, etc.

The de Ribes' bag is our most successful method of treatment and should be used in all cases as soon as the os is 2 fingers dilated. If the bleeding requires treatment before the os has opened sufficiently to admit the Bag, then the vagina should be thoroughly packed with sterile gauze - this will cause the os to dilate and check any alarming haemorrhage. If the os has not dilated sufficiently to allow the Bag to be introduced after one packing, it would be advisable to re-pack the vagina and the os will then, in all probability have dilated sufficiently.

The disadvantages of the Bipolar Podalic Version are the same in this type as with the others, viz. that it is necessarily a sacrificial operation unless the os/
os/

os is very friable and will dilate up rapidly, ensuring a speedy delivery. If there is any possibility of using the de Ribes' Bag it should be used in preference to Version, though we sometimes come across cases where the bag does not seem to check the haemorrhage satisfactorily, some cases in which the bag is discharged prematurely before the head has come down to control the bleeding, and some cases in which the bag may burst. Such cases may bring on a serious haemorrhage, making it necessary to perform version on account of the risk to the mother. Any imminent risk to the latter must at once dispel any efforts to save the child, as the mother is always our first consideration.

In some Marginal cases mere rupture of the membranes may be all that is necessary and in one or two of the marginal cases that were treated at the Hospital, this was done with very satisfactory results. The modus operandi is that after the membranes have been punctured with escape of amniotic fluid, the uterus contracts down, forces the head against the placental site and thus prevents further haemorrhage.

These methods comprise the bulk of our armamentarium in dealing with this condition, and in all cases one or other will be found to be suitable. Some few cases, however, with the placenta definitely marginal, are only discovered after the placenta is born and the rent in the membranes is examined. In all probability these/

these cases really belong to the last variety, except that in this instance the membranes rupture spontaneously and by so doing cause the Head to compress the placenta before it has commenced to separate.

Whitridge Williams^s in his well known book "Obstetrics" is inclined to deplore the present-day tendency to rush to Caesarean Section in cases of Placenta Praevia, and states that such a course of action reflects on the skill of the obstetrician. In his opinion there are only two indications for Caesarean section, viz:- (1) "In the very rare case of a primipara whose cervix is too rigid to prevent the introduction of a balloon and (2) in cases of complete placenta praevia in women nearing the end of the child-bearing period who are especially desirous of a living child."

These indications are, I consider, far too stringent and are not in keeping with the advancing science of asepsis. If we have a septic case - then we have a definite contra-indication but in selected cases and with careful technique we have no reason to be afraid of a very useful operation.

ANTE-NATAL CARE.

The science of Midwifery, so far as the normal cases are concerned, should always be conservative. The process of child-birth is essentially a physiological process and should certainly, whenever possible, be left as such. To-day the inevitable tendency of the age is to hurry the process too much by artificial means and thus great damage is done to mother and child. The epoch-making discovery of forceps undoubtedly reduced the maternal death-rate and, properly used, the application of forceps is still the obstetric operation par excellence; but unfortunately at the present time we see too many bad and often fatal results from the injudicious application of forceps, and the skilful obstetrician of to-day is judged not by his daring in delivering a child as rapidly as possible, but by allowing Nature to do its uttermost and then, if these powers are insufficient, by skilfully using whatever mechanical means he has at his command.

A well-known example of the progressive and perhaps rash Obstetrician is Potter¹⁰ who recommends the performance of version to effect delivery in every case; he, himself, states that he delivered over 900 mothers by this means in one year. Such an operation is entirely unnecessary and may be decidedly harmful to mother/

mother or child or both although Potter, who has undoubted skill at this manoeuvre, presents very satisfactory results.

With pathological processes such as Placenta Praevia our rules as to procedure have to be revised. We here have a definitely abnormal pregnancy in which our policy to "wait and see" may well mean disaster. The results from these 194 cases clearly give room for improvement both as regards maternal and foetal mortality. The operation of Bipolar Podalic Version has for a long time been our chief method of treatment of these cases, in the series under review 90% being treated by this operation. Such a manoeuvre may be an absolute necessity in private practice, where there is no skilled assistance available and where the doctor can only remain with the patient for a limited time, but in a hospital where medical assistance is always at hand we have no excuse for such a comparatively high foetal mortality rate as these figures shew.

How then can we utilise our present day knowledge to improve matters in this respect? The most outstanding addition to our obstetrical knowledge of recent years has been the provision of the Ante-Natal Clinics which are now springing up in various parts of the country. This subject was fully discussed at the recent British Medical Association meeting held at Bradford. In opening the discussion Willett¹¹ of the City/



City of London Maternity Hospital states that in slight cases he advises rest at home and to return if haemorrhage recurs. He also mentions that in only two cases did he diagnose a Placenta Praevia before dilatation and these he diagnosed by Bimanual examination when he felt the placenta in front of the Head.

With regard to the latter, it is certainly a very difficult matter to diagnose definitely a Placenta Praevia before dilatation; and at the same time I do not agree with some writers who state that if we have a sudden unaccountable haemorrhage before full time the cervix should be forcibly dilated and an examination made for a lowly situated placenta. Such operations could be avoided if we had sufficient accommodation to admit into Hospital all cases of suspected Placenta Praevia and thus keep them under close observation until near full time when we have a much better chance of a live child. The disadvantages of such a procedure are that, even in Hospital a patient may have a very sudden haemorrhage and die before the Hospital Medical Officer can be summoned. Such cases must be very, very rare because if these patients are in Hospital medical attention would always be within two minutes' call. If a patient is not in a Hospital it is quite conceivable that an uncontrollable haemorrhage may take place before help can be summoned, and so I certainly consider that if conservative means are to be/

be tried, these cases must be in a hospital.

Such, then, must be our ambition in the future. The abnormality of Placenta Praevia in relation to Child-birth will continue for all time and it is for us to endeavour to reduce the maternal and foetal mortality to vanishing point. Sufficient ante-natal care, cleanly surroundings, strict enforcement of the principles of asepsis, increased surgical knowledge, education of the public as to the value of ante natal care, - these are but a few of the tasks that face us in the future so that we can reduce to a minimum the dangers and fears of woman's greatest joy - The Joy of Expectant Motherhood.

In conclusion, may I most sincerely thank Professor Watson and the Physicians of the Royal Edinburgh Maternity Hospital, not only for the great privilege of having served as a House Surgeon in the Hospital but also for their kind permission to make use of the Hospital records which have made this Thesis possible.

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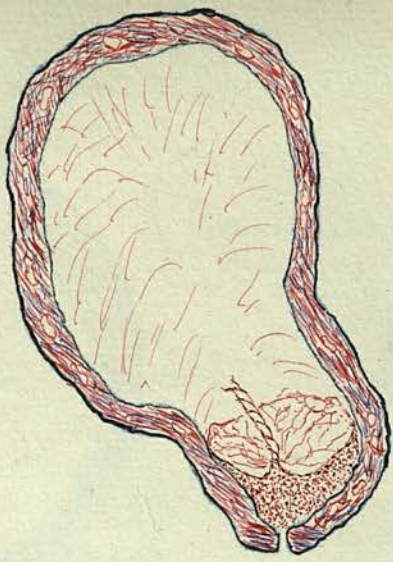


Fig I. CENTRAL PLACENTA PRAEVIA.

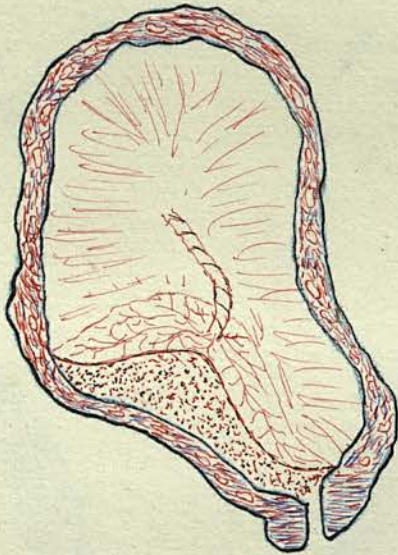


Fig II LATERAL PLACENTA PRAEVIA.

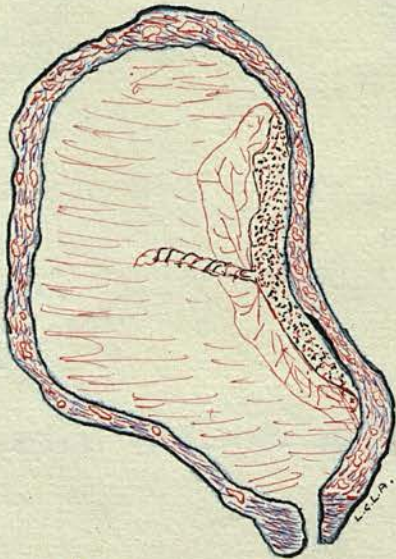


Fig III MARGINAL PLACENTA PRAEVIA.

THE THREE TYPES OF PLACENTA PRAEVIA.

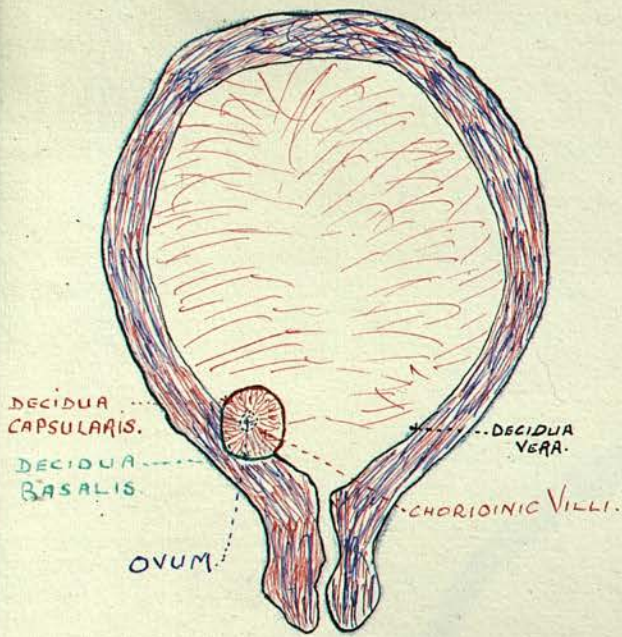


Fig I. EMBEDDING OF OVUM AND FORMATION OF CHORIONIC VILLI.

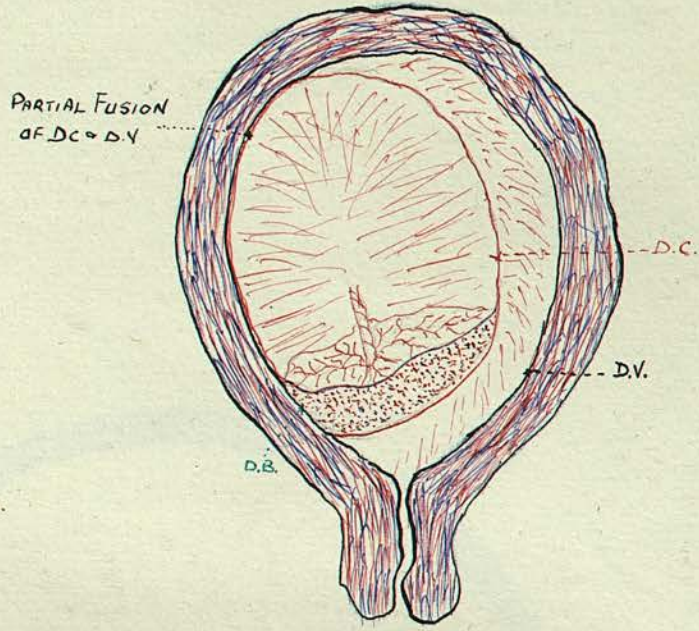


Fig III. FORMATION OF PLACENTA FROM D.B & D.C.

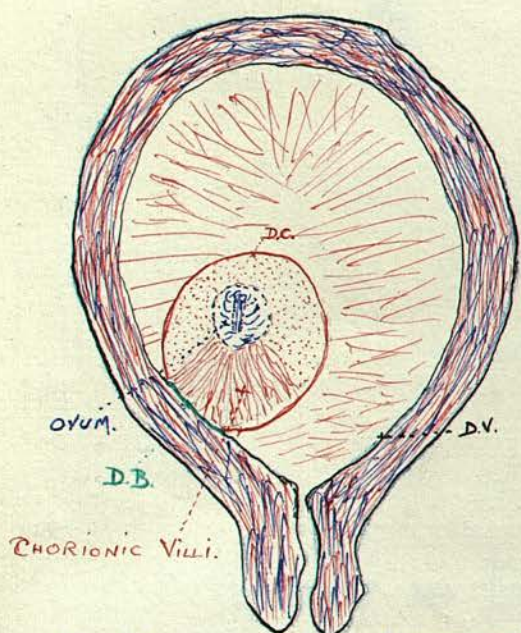


Fig II. PORTION OF VILLI REMAINING TO FORM PLACENTA FROM D.B & D.C.

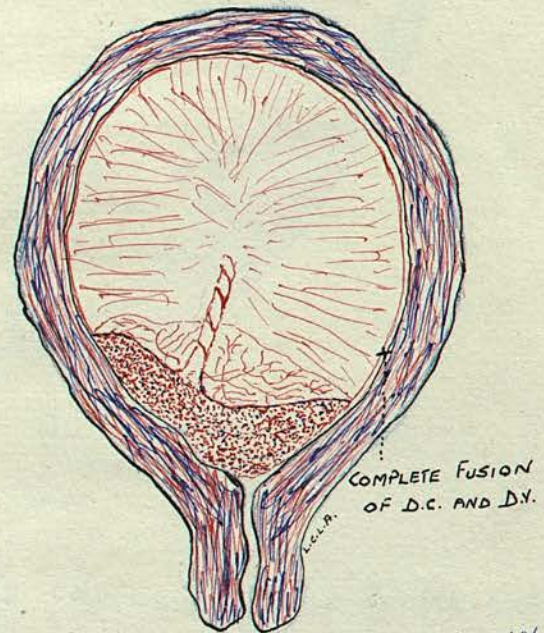
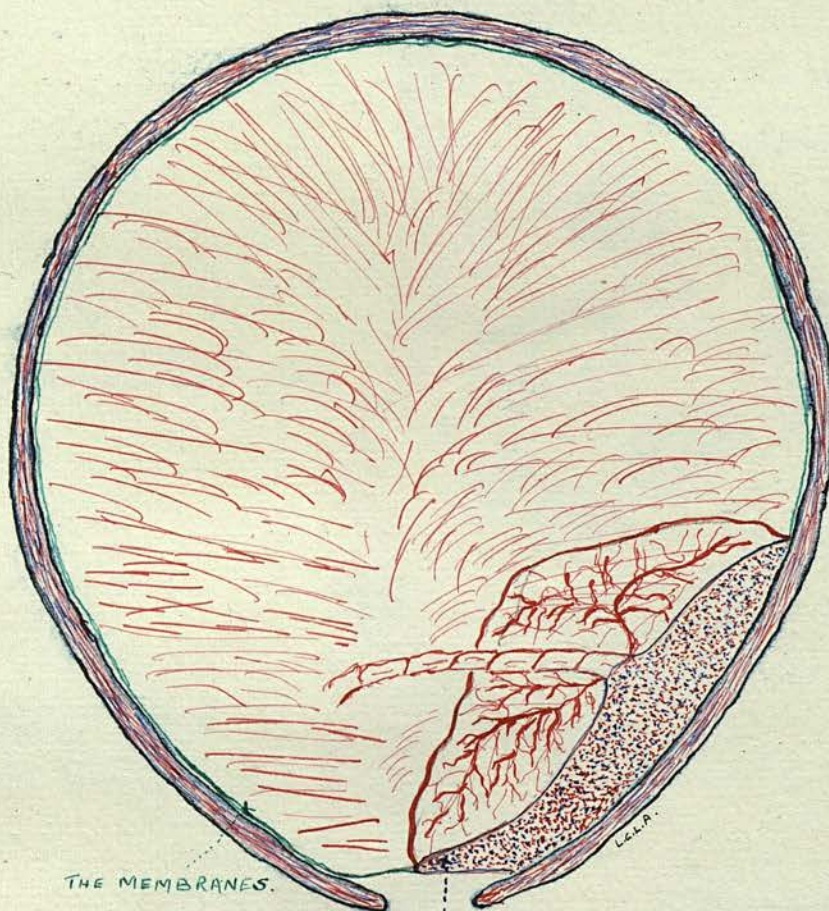


Fig IV. PLACENTA SETTLED DOWN OVER INTERNAL OS.

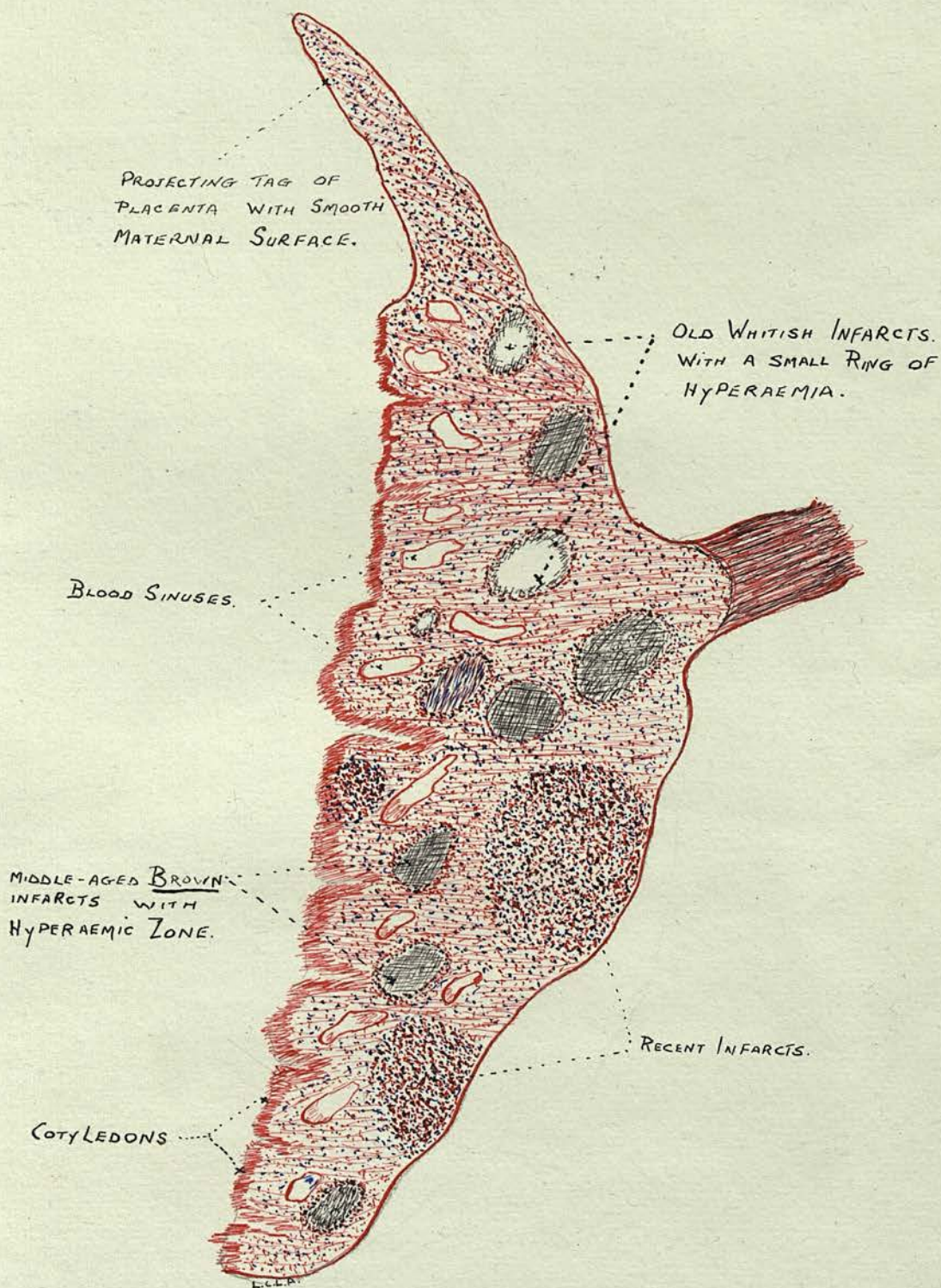
DIAGRAM TO SHEW DEVELOPMENT OF CAPSULAR PLACENTA PRAEVIA.



THE MEMBRANES.

TAG OF PLACENTA PROTRUDING
OVER DILATED OS.

SITUATION AND TYPE OF PLACENTA FOUND IN CASE VII (see text).



CROSS SECTION OF PLACENTA IN CASE VII SHEWING INFARCTION.