"Placenta Praevia"

by

François Gerhard Myburgh.

Edinburgh, 1858.
The subject which I purpose discussing in the following pages is one, not only of great physiological interest, but also of extreme vital importance. And no concurrence of opinion is wanting to establish the fact, that the existence of the placenta as a presentation in pregnancy is one of the most dangerous, and most fatal complications to which the unfortunate female is liable. It would, therefore, constitute as
Serious a case as might be allotted for treatment to the practitioner of the obstetric art, and it will frequently be requisite, for the main-tenance of his reputation, and for the support of professional dignity, to act with a considerable degree of courage and promptitude; for although we are taught that "meddle with some midwifery" is highly reprehensible, yet we cannot but admit that in many cases delay would be exceedingly dangerous.

It is evident that the appearance of the placenta at the mouth of the womb, before the child was known to, and described by, authors very many years ago, but those practitioners laboured under a great mistake as to the nature of its origin, and most erroneously supposed that the placenta was not implanted over the uterus, but having been fixed to its...
Rigby's Synt. of Briden. Libr. of Med. p. 249
ordinary situation at the fundus or body of the uterus had become separated from its attachments either accidentally, or by the contraction of the uterine fibres, and had fallen down so as to present at the or uteri. Thus constituting what is very correctly termed "Placenta Praevia". We thus find Gul
lemean quoting the words of Hippocrates, when he says: "that the "afterbirth then should come forth "after the child, for if it come first, "the child cannot live, because he "takes his life from it, as a plant "both from the earth." From this it will be seen that Hippocrates supposed the placenta to lie quite loose at the or. After having been removed from its attachment to the higher segments of the uterus it has also been recognized, and described by Mauriceau, Pecourti Pugh and others. But they all thought that it had sunk down from its or
Theory and Practice of Midwifery.
final position higher up. Portal seems to have been the first author who clearly pointed out that the afterbirth was naturally fixed over the os uteri, and did not present an account of accidental separation from its original position. Poeder, Levet, Giffard and Smellie followed up Portal's views on the subject, on which, however, medical attention was not bestowed by the profession generally, and it was not until the late Dr. Rigby published his excellent essay on "Uterine Haemorrhage" in the year 1775, that medical men became fully aware of the importance of this obstetric complication. The result of experience fully proved what has already been alluded to, that the attachment of the placenta over the os uteri is attended with utmost danger to the mother. Dr. Churchill has made a collection from various sources, of 174 cases of Placenta Previa, and it is stated...
Obstetric Memoirs Vol. 1. p. 679
that out of these 174 cases, 48 were fatal to the mothers, or the enormous mortalit of nearly 1 in every 3. Prof. Simpson again fully verifies this statement. He has collected in a tabular form the different recorded cases of placental presentation from the works of Maurizian, Pottal, Giffard, Smellie, Ranaldston, Pepis, Lee and others, and we find from this table that out of 654 cases of Placenta Previa "the result was fatal to the mother in 180 instances, or, in other words, 1 in every 3 5/6 of the mothers perished in connection with this complication." Prof. Simpson then attempts to impress this awful fact still further on our minds by drawing attention, and comparing it, to the mortalit in two of the most fatal epidemics which have occurred in modern times, viz., that of Yellow Fever which visited Gibraltar in 1828, when among those attacked 1 in 4 1/2 died, and of
The epidemic Cholera in England during the years 1822–33, when about 1 in 3 of those affected were buried into eternity. "Hence" says Dr. Simpson, "those women who are the subjects of placental presentations, are subject to as great peril of life from this obstetric complication, as they would be if seized with Yellow fever or malignant Cholera." Again, it is stated in the Med. Times and Gazette of 26 Nov. last, that in the present epidemic of yellow fever at Liverpool, the number of cases according to the latest accounts had been 10,250 and of these 3,040 had perished, or about 1 in every 3. Thus equalling the mortality in cases of placental presentation. We also find that in one of the most dangerous operations in surgery—i.e., Lithotomy—the mortality among those subjected to it is 1 in every 6 or 8. Comparing this then, to what occurs in cases of Placenta Praevia, it appears that...
Op. Cit. p. 698
The latter is twice as fatal as the former. These show in an admi-
able degree the great value of Statistics, as bringing to light im-
portant facts regarding the result of different pathological con-
ditions, and enabling us to ana-
lyze the mortality in various fatal diseases, and operations, and to
compare the one with the other.

In Placenta Previa, as misfortu-
tune will have it, it is remark-
able that praeternatural presenta-
tions of the fetus are very frequent. Thus, it will be observed in a table
given by Prof. Simpson, that out of
90 cases of placental presentation
in 4, the feet presented in 6, the breech
in 21, the trunk or upper extremity and
in 59, the head. An arm presented al-
ong with the head in 14 of the last
named cases. Making in all in-
cluding the latter 4, 35 cases of
malpresentation. What the
cause, or causes, of these fearful
complications are, has not been satisfactory, or, not at all determined. And although the causes were known, I do not think it would in the least assist us in determining upon any remedies by means of which we may prevent their unfortunate occurrence. It would seem to be one of those laws or freaks of nature, which baffles and renders futile all artificial, or human interference, and leaves us in extreme regret at our utter incapacity to act as opponents to the mighty arm of nature. Yet man's presumption has often led him so to act, but he has failed, and the lesson has taught him his own fault and weakness, whilst it has left him to admire and to marvel at the strength of his opponent.

Let me now direct attention to another portion of the subject of this dissertation—namely, the causes
Lettsomian Lectures—Lancet 1864
of Placenta Previa. These have not at all been satisfactorily ascertained, and those explanations which have been offered regarding them are but vague and theoretical. Some, indeed, appear to be on no means improbable, and but few can lay any claim to a position as having been constructed from direct or indirect observation.

The ovum, on its entrance into the uterine cavity, after having been in pregnant, is usually fixed to the thickened and softened mucous membrane close to the aperture leading to one or other of the Fallopian tubes, and that portion of it which is immediately in contact with the decidua becomes developed into the placenta, while the remainder of the chorionic villi either disappear or are converted into certain abnormal conditions. Dr. Barnes thinks it probable that these may be some portion of the surface of the chorion destined, or, rather, more liable to be...

*villi
come the seat of placental formation. He remarks that Placenta Praevia is often complicated with disease of the uterus, and ascribes to the placent a selective power of attaching itself to that organ. For the villi would not be converted into placenta if they came in contact with an unhealthy portion of the decidua and, therefore, should the raccon men brane at the fundus or the body of the uterus be diseased, the healthy coming in connection with it would not be converted into placenta, but the villi on the free surface would extend downwards and firm on some point at the lower segment of the uterus. It is not uncommon to find the villi, all over the surface, permanent, and having vascular connections with the decidua. These may be regarded as analogous to the undeveloped placenta. He thus describes an instance which came under his notice. "In a most re-
"A remarkable case of placenta previa with "Dissecto, the placenta was found "at the end of the 9th month, spread over "at least 5/6 of the entire surface of the "uterus, leaving but a small space "at the very fundus of the uterus, "which was unclotted by placenta" and thus explains it. "The placenta "was everywhere extremely thin. He "ordinary superficial development "was insufficient for the nutrition "of the fetus. More and more vessels "were therefore called for, until they "had formed a placenta of the enormous "extent we see." In a preparation, in "the museum of Eng's Hospital, of a case "of extra-uterine pregnancy, the whole "superficies of the chorion is developed "into placenta. Because as Heubner "was in an out of the way place, the "supply of nourishment would otherwise "have been very deficient. From "this it may be concluded that "any portion of the chorion may "become developed into placenta."
Sarnet August 22, 1858
and that any portion of the decidua may furnish a nidus for it. As Leevius asserts that placenta praevia mostly occurs in pluriparous, and that it is due to the greater than normal enlargement of the uterus, which thus allows the ovum to spread its attachments lower than is possible in the more inferior contractile, or pyriform, uterus of primiparous. Dr. Barnes observed the frequent recurrence of placenta praevia in the same woman, and therefore believes that it is not an accidental complication in midwifery, but "depends upon definite and ascertainable causes." Dr. Egbert Smith, in remarking on this subject, states that "the causes of placenta praevia have not been determined. It is probably produced by the impregnation of the normal uterus it has descended to the upper part of the cervix uteri, this being the last point at which the ovum
"retains its capability of impregnation and attachment to the uterine surface." If this able author could undoubtedly prove that this is the true cause of placentation, the chance of its occurrence might be said, to a certain extent, to be obviated. It has been proved that the impregnation of the ovum by the spermatozoa generally takes place in either of the Fallopian tubes, according to the circumstances of the case, on its passage from the ovary to the cavity of the uterus. Of sexual intercourse therefore, be delayed, the ovum will pass gradually into the uterus, down towards the uterus, where, should the spermatozoa reach it, it might be impregnated, and there take up its station, and fix the placenta over the whole or a part of the os. If impregnation however does not take place, the ovum will of course be expelled.

Dr. Rigby attempts to account for
Op. Cit. p. 254
The occurrence of placenta previa by considering that the condition of the decidua may influence in a marked degree the situation of the placenta. He says, "under the ordinary circumstances, this fusion of plastic lymph has already attained such a degree of firmness and coherence as to prevent the ovum from passing beyond the uterine extremity of the fallopian tube from which it has emerged, but in cases of placental presentation it may be presumed that at this period the decidua was still in a semi-fluid state, had formed little or no attachment to the walls of the uterus, and had therefore no effect in preventing the ovum gravitating to the lower part or even to the mouth of the uterus itself." This opinion could now, I think, scarcely hold ground. It seemed, no doubt, quite rational at the time it was offered, when the decidua was considered
Obstetric memoirs vol 1. p. 797.
to be an effusion of coagulable lymph, but we now know that the decidua is simply the mucous membrane of the uterus in an hypertrophied condition, and would be quite firm enough if according to Dr. Parkes to support the ovum at the upper part of the uterus, and prevent it from falling down over the os.

It has been observed that with the exception of rupture of the uterus, complications in midwifery are more dangerous and more frequent in first than in subsequent labours. The presentation of the placenta, however, is another exception to this rule, as shown by Dr. Dinsmore, who collected 136 cases of placenta previa, in which it was found that only 11 of these occurred in first labours. "D5" says the Professor, the rarity of placental presentation is due to the fact that it is more often increased in first pregnancies by more...
tensive data, may it not afford us some clue to the explanation of the cause or causes leading to the origin or production of that deviation in the site of the development of the placenta which constitutes placenta previa?—De me def ask this question, and offers no explanation. It seems to me that the following may probably be a reasonable answer. Believe that in the virgin uterus, its cavity is so small as not to admit of the ovum, which has been impregnated in the fallopian tube, falling from the aperture of this tube to the lower portion of the uterus, and there form its attachment. This may be objected to, arguing that the cavity of the uterus is generally large enough to contain, as Dr. Penistonbottom says, a split almond, and will therefore be full fit before transit to the minute ovum with out any obstruction. Such may be the case in a virgin uterus, during...
The interval between the catamenia, but as the period when the ovum is prepared for impregnation, the mucous membrane has become hyperplastic and encroached upon the cavity of the uterus, so as to have the surfaces very near, if not altogether, opposed. Then, I say, it would be difficult for the ovum to descend, and implant itself at its os. This, however, can not well happen in cases when women have borne one, or, still better, more children - for then the uterus never returns to its former small dimensions. The extent of its cavity is consequently also increased. When the ovum, then, unimpregnated, as Dr. Tyler Smith will have it - or, already impregnated, as Skelton although I do not wish to deny his theory, when it enters the cavity of the uterus, will have a free road before it, certain, if it will have a greater tendency to gravitate to the os, than if the organ were in the condition it first descreas
Another cause which I should like to suggest is—and this is also purely theoretical—as we have seen that the ovum has a certain selective power in itself, will it not rather prefer finding itself to a new portion of the inner surface of the uterine, than to a part where its predecessor has been apposed? Independent of any disease conditions, in cases of multiparae, after the placenta has been fixed in two or more portions of the uterus, commencing we may suppose, from its most frequent attachment. If the fundus would it not tend to descend and find itself lower down? for I do think that the internal surface of the uterus would become less liable to produce so perfect a decidua where the placenta has been once attached, than where it has not yet been fixed.

We now pass on to the consideration of the symptoms of Placenta...
ta Prævia— and they may be divided into those which are observed previous to the commencement of parturition, and those which are recognised during the process. A female during her pregnancy is seized with a sudden discharge of blood from the fe[ntal passages—it as sudden as the haemorrhage occurs without any apparent cause. When the woman has not put herself to any exertion, or when she has experienced no accident, or not been exposed to fright, it happens when she is pursuing her ordinary avocations. She may be asleep in bed; or is probably sitting at dinner with her family and friends. This may occur at very irregular intervals, sometimes in the course of a few days, or a week, afterwards, or a month may elapse before any such gush of blood as are takes place. The woman at its first appearance may fancy herself in labour, and make the usual pre-
parations for her confinement, but she is generally deceived and it is frequent, not until several of these haemorrhagic discharges have occurred, to the great terror and danger of the unfortunate patient, that uterine contractions commence and delivery accomplished. The quantity of blood discharged at these periods is very variable. It is sometimes so excessive as to prove instantaneous fatal to the mother, at other times it is just in sufficient quantity to produce fainting and frequently so small as to make no apparent impression on the system of the mother. The continual recurrence, in however small an amount, of these haemorrhages must certainly induce a diminution in the strength of the patient, and perhaps render her incompetent to undergo, with safety, the process of parturition. It may also be mentioned that in some cases of placenta
previa or hemorrhage whatever occurs, at any time previous to the commencement of labour. The most frequent time of its occurrence is during the last five or six weeks of inter-sestation. What then is the cause of these sudden and spontaneous pusses of blood? Before about the fifth month of pregnancy, the cavity of the uterus, containing the ovum and appendage, consists only of the fundus and body. The cervix uteri still remains as in the virgin state. After this, however, the cervix begins to expand, commencing at the os internum, and in the process of its development gradually becomes formed into the general cavity of the uterine, for the purpose of affording accommodation to the increasing size of the contents of that organ. It will be readily understood, therefore, that, if the placenta is attached over the os internum, as soon as the develop-
ment of the cervix into the cavity of the uterine commencement, this process must necessarily be accompanied by a partial detachment of the placental mass, to a greater or less extent, from the uterine surface. And as the connexion which exists between the placenta and the uterine is composed of blood-vessels. When the separation of the mass takes place, the vessels must as a consequence be torn asunder, and occasion the hemorrhage which proceeds from what surface? The placental, or the uterine? The discussion of this we shall defer to the latter part of this paper, for on its establishment depends a principle of practice, which, if a general concurrence of opinion can be obtained will, and must prove of considerable value, as an addition to those rules of practice already laid down for the treatment of placenta previa.
Having thus noticed the cause of the production of this sudden hemorrhage, let us now refer to the cause of its sudden cessation. For we have seen that the arrestment of the bleeding is almost as sudden as its appearance. This is accomplished by a wise provision of nature — by what is known as her hemostatics. A jet of blood issues from the vessels rendered patent by the partial separation of the placenta. These vessels which at the time are not yet fully developed and but of small dimension, not only tend to contract, and by diminishing their calibre, lessen the amount and speed of blood flowing through them, but thereby cause it to coagulate with greater readiness. The mouths of the vessels being plugged by these coagula prevent the flow of blood.

It may now be asked: Why do the pulses of blood occur at irregular intervals, and not take place
as a continual ooze from the separated vessels—so we might suppose this more likely to happen, seeing that the cervix, after it has once commenced its development, goes on expanding, not irregularly, but continuously—leading us to imagine from this, that there would always be a separation of vessels, and an ooze of blood in consequence. No one can account for it by supposing that, besides the increase in growth of the placenta, it possesses a certain amount of elasticity, which admits of being stretched some extent, without a rupture of the intercommunicating vessels taking place: but after a time the increase in the development of the cervix becomes so great as to overcome their resistance—forces them to give way—and thereby occasion the sudden and alarming hemorrhages. We have been that sometimes no gushes of blood occur previous to the setting-in of
uterine contractions. And it has been observed that this is generally owing to a diseased condition of the placenta—its vessels being shriveled up and obliterated to a considerable degree. But there is no doubt that the explanation given in the preceding page may assist in accounting for the no appearance of hemorrhage in some cases.

The symptoms of Placenta Praevia, when the process of parturition has commenced, must now be considered. Suppose, then, a woman in labour. Our suspicions will be aroused, when with every pain, or uterine contraction, which must necessarily slightly dilate the os, there is a gush of blood discharge through the vagina, and when the pain ceases, and during the interval of its recurrence, this flow of blood be either entirely suspended or greatly diminished in quantity.
these day, would lead us to suspect the attachment of the placental mass over the os uteri. But how are we to distinguish this discharge of blood from other haemorrhage which occurs during labour when the placenta is not attached to the os, but to some part of the body, or fundament of the uteruses? We shall generally find that when blood is discharged during a natural labour, the reverse of what takes place in placenta praevia then happens. Namely, during a pain, when the uterine fibres are contracting, and the placenta partially separating, no blood at all issues from the vagina; but during the interval uterine action (as may be maintained, when the fibres of the organ are relaxed, and the divided blood vessels rendered patent, then the bleeding occurs, and is only arrested when the uterine again resumes its action. Hence the
practice, in post-partum haemorrhages, of inducing, by various means, the contraction of the uterus which, according to them, is alone capable of closing the bleeding orifices of the vessels, and relieving the patient from her danger. It will be seen, as we proceed, whether our opinion coincides with this.

In placenta praevia, then, the causes of the haemorrhage before, and during parturition are widely different, and can be separately explained. In the former, as I have already fully stated, the bleeding is caused by the development—the increase of the fibres of the lower portion of the uterus, separating a part of the placental mass, by tearing across the blood vessels. In the latter, the development of the cervix has ceased and it is then its contraction which divides the attachment between the placenta and uterus, and causes the discharges of blood from the
patulous vessels.

Giving to the circumstance that bleeding must necessarily result, before the birth of the child, from the attachment of the placenta over the os uteri. The hemorrhage so produced has been termed unavoidable, to distinguish it from hemorrhage, which may, or may not occur, on the dilatation of the os, when the placenta is fixed to some other part of the uterus, and which has been called accidental. This division was first proposed by the late Dr. Pigot, and will be found in his excellent essay on "Uterine hemorrhage."

Should there be any doubt about the nature of a case, it can generally be expelled by instituting a vaginal examination — and in every suspected case this ought certainly to be made, for important revelations might result from the practice. The best mode of making the examination is by first the two
first fingers of the left hand, because they can reach so much higher in the pelvis, and are therefore better suited for discovering the exact state of matters at and within the uterus. We thus find out whether there is, or not, a placenta presenting at the os, and whether the attachment be central or partial. We also learn the state of the os itself, its extent & its dilatation, if it be soft, thick, moist, even, and painless, or, hard, thin, irreglar, dry, and tender. For the purposes we have vastly different in the two conditions. The placenta will be distinguished as a fleshy, lobular mass, which can be felt pressed on the inner surface of the uterine, by directing the finger round the interior of the cervix. We should be careful in thus pressing the part, not to use any force, because, as the placenta is easily separable, we may detach it from the uterine, and thus cause
mischief. It is not at all likely that we shall, with the tactus ex-
dientes we will be expected to possess, make an error in diagnosis by tak-
ing the protrusion of the membrane, the breech, head, or any other part of
the child's body, for the placenta.
It is not at all unlikely, however, that we may mistake for the af-
terbirth a clot of blood which may be fixed in the os uteri so as to close
the orifice. "How then," asks Dr. Ramsay M'Kinnon, "shall we discrimi-
nate between these two?" He an-
dswers. "The placenta cannot be easi-
ly perforated or broken down; the
"tenacity of a coagulum may without
"difficulty be destroyed. The placenta
"is detached within; a coagulum
"lies loose. The placenta cannot
"be removed by the finger; but we can
"generally bring away a coagulum.
"If there be any doubt we should take
"these means. We should try whether
"it is attached. Whether we can break
Ingleby on Uterine Fibromyoma. p. 142.
"down its structure, and whether we can remove it from its position; but the attempt must be made with the greatest possible care." Another cause of error sometimes arises from the fact, that the free surface of the placenta is frequently covered by a firm layer of coagulated blood, which, interposing between the placenta and finger, prevents us from touching the mass. The practice recommended above will, however, soon undeceive us.

The foregoing remarks relate principally to the complete implantation of the placenta over the os; but we also know that the afterbirth is sometimes only partially attached over the orifice—a half, or a smaller or larger portion of the mass encroaching on the disc of the os, while the remainder is occupied by the membranes, which pass off from the free edge of the placenta. In these cases, the symptoms during the expansion of the cervix
and on the accession of uterine contractions, are similar to what occurs when the placenta occupies the whole of the uterine month. There will happen the same sudden and spontaneous flooding, the same sudden and spontaneous cessation of the discharge. But we shall probably find that the haemorrhage is not nearly so great, as the ruptured vessels will, no doubt, be fewer in number, and perhaps not of very large size. Of course from this we can expect that a case of partial placental presentation will not be nearly so dangerous as a central one. But it will depend much upon the size of the placental segment placed over the os. The diagnosis, also, will generally be found to be accomplished with greater facility. When the finger is introduced and the os reached, the edge and a small portion of the fleshy placental mass will be felt in the disc, and the
membranes, passing off from it, occupying the remaining portion of the os. We may also not infrequently recognize, through the membranes, the part of the child that presents. And this may be important to ascertain, for it may guide us in the treatment of the case.

Should the os uteri be much dilated, we may probably find a large portion of the after-birth, lying in the cavity of the vagina, and suppose it to be entirely detached from the uterine surface, while it is really still fixed. It must not be removed unless necessary, demand interference, for the life of the child may be compromised.

We have now to discuss the Treatment of Placenta Previa. And this may be considered under two heads: first, the palliative, and the radical. Although in some cases we do not require to interfere at all; during the latter weeks, it may
the months of utero-sestation, in a case of placenta praevia, the practitioners may be hastily summoned to the patient, owing to a sudden discharge of blood having spontaneously occurred from the genital passages. On his arrival he will probably find the haemorrhage arrested, and the woman somewhat faint and agitated. Of course, under such circumstances, we must trust to the her mental agitation - and in the second place bring material into action to prevent a recurrence of the haemorrhage. To accomplish this, perfect quietude and rest must be strictly enforced. The patient should recline on a bed - under one if possible - with the pelvis slightly raised, and but few bed clothes covering her. She must be kept cool, and the room freely ventilated. Her diet must be light, and no stimulants should be
allowed, unless the loss of blood has been so great as to call for their administration. We may then order Ammonia, brandy, or beef-tea. It is doubtful whether in a case of unavoidable loss of blood, the acetate of lead, or fulvic acid, as internal astringents, are of any use at all. The latter means will generally be found more efficacious. Bleeding and other agents for depressing the force of the circulation will, in general, not be required; unless in cases of extreme plethora, of fever, and when there is great action of the arterial system. These are rare, however, and the vital fluid had best be little interfered with, for, before the termination of labour, some of it will have been lost, that the remainder will scarce, if at all, be capable of supporting the faltering strength of the suffering patient. She may take freely
op. cit.
of cold and acridulous drinks; and
mild aperients, such as the sulphate
of magnesia, must be adminis-
tered to prevent a constipated state
of the bowels, as the straining re-
quired for the expulsion of hard-
ened fecal matter may cause
the removal of the clot of blood
contained in the separated vessels,
which act as a safeguard, and thus
occasion a return of hemorrhage.
We must also be careful not to
act too strongly on the bowels, as
frequent evacuation may produce
a similar danger. Dr. Rams-
totham also recommends a cold enem
be administered every day, as it
may act beneficial in two ways—
both by clearing the rectum, and by
restraining the hemorrhagic tendency.
In a note at page 466 of this book, he
days: “I would inculcate a caution
regarding the injection of cold fluids
into the rectum. If persevered
with, they are liable to induce
"Cutaneous and conjunctival, of which there are known two or three instances. That in the case, they must prove prejudicial rather than useful, because the succession of the part with each return of labour would be likely to occasion a fresh empyema of blood. Should the nervous system be very much excited opium may be given as a sedative; or other remedies producing a similar effect. Benefit will also be derived, in attempting to arrest the discharge of blood, from applying cloths, steeped in cold water and vinegar, to the vulva, and over the symphysis pubis. In general the practitioner will be summoned to attend the same patient, under similar circumstances several times before the accession of labour pains. He will each time have to enforce the same rules and general directions above given."
of perturbation
When after the first sudden discharge of blood, the bleeding cannot be arrested, but a continuous oozing takes place, with every now and then a slight eruption of blood. The best and most efficient remedy we can apply in such a case is plugging the vagina. This must be done so as to press against the os uteri, thereby arresting the flow of blood, and causing that already effused to coagulate. We must endeavour not to use too great force in plugging, especially before the commencement of the irritation caused, may induce uterine contraction, and consequent abortion and haemorrhage, with certain death of the fetus in cases where it is non-viable. We may best plug the vagina by introducing a piece, or pieces of sponge, or strips of lint, steeped in iced water, or cold water, and vinegar. Or they may be moistened by fluids which readily
* Matter
promote coagulation of the blood, such as tannin, or the Perchloride of Iron. Pieces of ice have also been used, covered by lint. The sponge plug is about the easiest of application, and it readily absorbs the fluids discharged, which become of firm consistence from coagulation, and the vagina is so entirely sealed up as to prevent the occurrence of any hemorrhage. The only objection to the sponge is that, owing to the animal it contains, it soon becomes fetid, and requires to be frequently changed—perhaps every two or three hours. It will, therefore, not answer so well in cases where continuous plugging is required. The introduction of strips of lint, successively, will be of greater utility; they will, however, like the sponge be obliged to be removed, though not so often, for the retained discharges will still be liable to become fetid, and produce
Op. Cit. p. 775
unpleasant result. These con-
clude the Palliative Treatment of
Placenta Prævia. And we now come
to consider the Radical Treatment.
I. Evacuation of the liquor amnii
by puncturing the membranes is a
practice which may, and must be
followed, sometimes, both before and
at the commencement of uterine
contractions. It seems the best
adapted for cases in which there is
only a partial presentation of the
placenta. The uterus being occu-
pied by a portion both of the mem-
branes, and the placenta, and there-
fore the operation so much more
easy of accomplishment. But
Prof. Simpson is of opinion that
"the rupture of the membranes" 
"the escape of the liquor amnii." in
cases of partial placenta prævia,
"would appear to be by no means
"so certain a mode of arresting the
"hemorrhage in this form of pra-
"voidable as it is in accidental
"flooding". This mode is also employed where hemorrhage occurs when the os has not commenced to dilate, or when it has only slightly opened up; in cases also where it is necessary for the safety both of mother and child to induce premature labour. When the child is alive and it is not deemed advisable to separate the placenta entirely. When there is an excess of liquor amnii, so distending the uterus as to prevent it from acting in an efficient manner. When the hemorrhage is not excessive: and, lastly, when the operation of turning cannot be safely undertaken. When the membranes present with a part of the placenta, they can be easily captured by the finger nail, a pen, the stilette of a catheter, or a probe, at the part free from placenta. Immediately the waters are expelled, the uterine contracts, and pushes down the head, or whatever part may present, which acts
as a plug by pressing the separated portion of the placenta against the wall of the cavity, and thus restraining the flow of blood. When it is requisite to puncture the membranes in central placental presentation, it will not be found so easy of performance, as we have to pierce the substance of the mass. If a wise, a probe, or stylet be passed through the placental substance, and the membranes be pierced, on withdrawal of the instrument we shall probably find the liquor amnii follow, the passage having closed up. It would not then be proper to lacerate the organ by the finger, or other instrument, because some of the maternal vascular cells might be broken up, and thereby haemorrhage which we intend to arrest, is the certain result. In the attempt the fact may also be wounded, and this should be carefully guarded against. Various instruments have been devised.
Op. Cit. p. 777

Loc. Cit.
for performing the operation by Roeder, Pitger and others, "consisting" as Prof. Simpson describes "of hollow tubes" or cannulas, blunt or rounded at "the extremity," and provided with "a puncturing lanceet worked by a "spiral spring." We have, however, better and safer means at our disposal—for instance a catheter which though blunt at the extremity, would seem to pass easily through the greatly distended membranes. As it has an aperture near the extremity, it might be kept in the stumps, and the waters allowed to flow through it. Prof. Simpson remarks that "a common gill, with a lateral aperture like that of a catheter cut near its extremity, and another at "the opposite end of the barrel, to "allow a free escape to the water, "would perhaps answer the pur- "pose perfectly, could always be "procured, and its blunt point, like "that of the catheter, would not
"endanger the infant." In puncturing the membranes there are two disadvantages: first, should the operation of turning be required to be performed, it would be rendered more difficult and more dangerous on account of the absence of the liquor amnii; second, it is sometimes found quite inadequate to arrest the bleeding. The former objection would not apply, because of premature labour, or where the child is non-viable, also where the fetus is dead, when we could perform craniotomy. With regard to the second disadvantage, it might entirely be dispelled by having in our possession another means for the arrestment of the hemorrhage, namely, that of complete separating the placenta from the uterine wall.

II. Artificial extraction of the child. The principal mode of accomplishing this, and that
most frequently practised, is by the operation of turning, and this when performed at the proper time and under favorable circumstances seems to be often attended with safety both to mother and child, whereas the latter is variable. Very frequent we have no choice at all in selecting any one out of the different modes of treatment when we are compelled to turn the child. I mean in those cases of placenta previa, wide transverse, or some other premature presentation, and this, as we have seen (p. 93), happens more frequently than might be desired. Many excellent authorities on midwifery such as Conger, Merriman, DeWees, Denman, Raffy, Lee and others consider the artificial delivery of the child by turning as the only safe and proper means of delivering the woman, and saving her from the dangerous risks of
Haemorrhage; but in their sentiments we cannot concur.

Turning is particular applicable in cases in which labour comes on at or near the full term of pregnancy, when the child is alive; or in those in which the os uteri is sufficiently dilated or dilatable, and readily admits the hand without fear of doing any injury to the soft parts. Besides this state of affairs, there are other conditions which are also favorable for the performance of the operation, such as the presence of the liquor amnii, dilatable state of the vagina, and other soft parts of the pelvis of moderate size. When the uterus is not in a contracted state and where there is no great exhaustion of the vital powers.

The operation is performed in the following manner: The patient is placed in the ordinary obstetric position, or her left side. The hand is either left, or right, according to the
*palm and inter-digital surfaces excepted?

*the hand must be passed up at the side

*[at the or]
Option and convenience of the operator generally; however, the former, which with the forearm, must be well greased, is to be carefully introduced through the vulva, the fingers being formed into a cone, then along the curve of the vagina to the os, which should be slowly dilated. This completed the hand is passed into the uterus. If it is a partial placental presentation the membranes are at once reached, the hand being directed opposite the placental site. When the mass is centrally placed, however, it must be first separated from its attachment, where it is thinnest, and fixed only to a small extent, or where it is already detached. When in the uterus the hand must be flattened, so as to prevent the knuckles from injuring its walls, and it should be kept perfectly quiet during a contraction or pain. The membranes are then to be ruptured,
*and the hand introduced, and passed up along the anterior surface of the fetus,

*During the operation one hand of the accoucher must be placed over the abdomen in order to keep the uterus as steady and immovable as possible.*
and the feet, are to be sought for — and one or both of them pulled down into the vagina. The rest is generally left for nature to complete. The existing hemorrhage is arrested, first by the use of the accoucheur acting the part of a compressor, and afterwards by the feet performing the same office. Should, however, the bleeding continue after the feet are brought down, and the urgency of the case demands evacuation of the uterus, then the whole body of the fetus must be extracted artificially. Another mode of performing the operation, former practitioners, but now I believe almost entirely out of vogue, was instead of passing the hand by the side of the placenta into the cavity of the uterus, to bore through the substance of the placenta and thus gain admission. In this procedure there are several objections — and the operation is by no means safe, and effect.
ual in procuring its object. It is unsafe on account of the necessary great extent of laceration of the placenta, which must cause an excessive amount of haemorrhage. It would not be an easy matter to pass the hand through the mass without incurring the risk of inevitably raising it from its uterine attachment, and thus occasion the death of the fetus, by suffocation, should it be alive. Also the opening made by the hand would not by any means constitute a capacious passage for the exit of the child, and there would be great chance of its being dragged down from its situation. In which case, if the operation be performed, especial care must be taken in manipulating the soft parts at the lower segment of the uterus. In cases of malpresentation, when turning is had recourse to, delicate handling is strictly enjoined. In cases of placental presentation, this i
Junction holds still more forcibly and why? The operation of turning is admitted by all authorities to be one attended by exceedingly great danger, particularly to the mother—in ordinary cases. It is still more so under the present complication, for then the lower portion of the uterus has become the seat of extreme vascularity, and this must needs render its structure much weaker, and more easily lacerable; wherefore, from any amount of rough handling the organ is here ruptured, the resulting haemorrhage will necessarily be very considerable, very frequent and causing a fatal issue. The chance of subsequent Phlebitis is also very great. The operation appears to be attended with fewer difficulties, and less risk when performed on multipara than when primiparae are subjected to it; because in the latter the soft
parts are generally quite undilated, and exceedingly undilatable. Early performance of the operation, however, the woman being then but little affected, would seem to be attended with much greater success, a great proportion of mothers are influenced, and many of the children are born alive. Sometimes in partial placental presentation, when artificial delivery is required, the head may be so low in the pelvis, that the use of the forceps is called for, rather than the operation of turning. In some cases when the child is dead and the placenta expelled, ovarianotomy may be required, if the head is low enough, or decapitation, in cases of breech as occurred to Dr. Simpson and Weir, in a case where the shoulder and neck presented. The os uteri being so contracted, and the whole organ so small as not to admit of the performance of the operation of turning. After
decapitation. The body was easily extracted by pulling at the
presenting arm, and the uterus soon afterwards expelled the head.

We have now to discuss a mode of treatment which has
been proposed and ably advocated by Prof. Simpson, and
which has of late years created a considerable amount of dis-
turbance in the gymnastics of the obstetrical world.

In the year 1844, he read before the Medico-Chirurgical Society a
memoir in which he discussed at full length the treatment of
certain cases of placenta praevia, by artificially separating the pla-
centa from its position over the cord, and extracting it before the child.
This novel method was, like everything new, and still is, most strenuous
ly opposed by many of the most distinguished members of our
profession, and we are told that the opponent denounces this practice mostly on account of the mistaken idea that the proposer was desirous of altogether superseding the operation of turning, and other prescribed modes of practice. Many years ago it was occasionally noticed by accouchers that in some cases of placental presentation, the spontaneous separation and expulsion of the placenta occurred before the child, with this unexpected result, that the haemorrhage was immediately arrested. Mr. Chap- 
man, some five years ago, having met with some cases of this kind remarked "how far does this sug-
gest a different practice from that generally followed? I mean the delivery of the placenta previous to delivering the child in those cases of alarming haem-
orrhage where the placenta is situated at the side of, or over,
"The os uteri". The placenta was also removed in a few cases, artificially by Mr. Binder Wood of Manchester, and by Dr. Radford. We find Dr. Ransodotton mentioning that in earlier times obstetricians "had recourse to this expedient as a matter of necessity, not of choice," that they might free the maternal passages from the presence of a body which would be likely to embarrass them in the subsequent operation of turning, for me have already seen what their views were regarding the nature of placenta praevia, p. 23. Dr. Simpson, then, was the first to lay this down as a proper rule of practice in some cases, and he has clearly and explicitly described the advantages resulting from the operation; the cases to which it should be applied, and the principles upon which he endeavored to establish it. He has undoubtedly shown that, in 141
cases of placental presentation, collected from the records of various authors, the placenta was expelled and extracted before the child and the hemorrhage, which was previous by great, immediately stopped. Dr. Parnalottan, one of the most zealous opponents, at this exclaimed: "It is curious that such an effect should follow." Eight of these occurred under Dr. Parnalottan's own superintendence, and Dr. Lee, also of the opposition party, recorded several of them. Since their publication, other cases of a similar kind, with a similar result, have occurred, and been described in the different medical journals, all tending to substantiate this main and curious fact—that hemorrhage is arrested and disclosure of the afterbirth and that therefore such a practice is sometimes highly advisable and commendable. Dr. Simpson.
recommends this mode of treatment in those cases in which the fluid is excessive, and in which the evacuation of the liquor amnii as a means for its arrestment would be entirely insufficient—and when at the same time turning, or any mode of artificial interference is not dangerous and impracticable, on account of the undilated, undilatable, or undeveloped condition of the os uteri, contraction of the uterus, rigidity of the pelvis passage, malformations of the pelvis, and other obstructions. This would apply, chiefly, to premature, and where the labour is premature, the soft being the most fully developed—further, in cases where the child is non-viable or dead, and also where the patient is so much exhausted from the amount of blood lost, that she cannot with any safety undergo
The operation of turning, or any other means of speedy, or forcible delivery. When the placenta is detached and extracted, and the haemorrhage as usually happens, ceases. The child should not be artificially brought down. Nature must be allowed to accomplish this unless a praetor: natural presentation, or some other complication exists. For observe Dr. Simpson. "But to detach the placenta and extract the child would be hazarding a double in:

nted of a single operation." Of the placenta, however, has been dislodged, and the child is living and viable, often, for its sake, delivery must be forced by turning or the forceps, as soon as possible. Should the patient be thought capable of undergoing the operation with safety. For we must remember that it is preferable, in far, to sacrifice the life of the unborn child than do fatal injury to the mother.
The means by which the placenta may be separated from the uterine surface are extremely simple. The finger can be passed up to the os, and gently through it. When, by sweeping it gradually round the interior of the lower portion of the uterus, the mass may be detached, a bougie, or a catheter can also be used.

Dr. Tyler Smith doubt whether rigidity of the os should indicate the separation of the placenta, and remarks that: "When the os uteri is sufficiently open to allow of the admission of the finger for the purpose of separating the entire placenta, there will generally be room enough for the admission of the hand." I have already dwelt on the dangers with which turning is attended in placenta praevia when the conditions of the part are favorable. In account of the extreme vascular state of the cervix,
rendering it so much more easy of

- and the consequent risks

- from hemorrhage and Phlebitis

- now much more than will these

- not apply when the os is so rigid

- as must require a certain degree

- of force for its dilatation in

- order to admit the hand, and

- afterwards the larger-sized body

- of the infant. Prof. Simper state

- that one of the circumstances

- which strongly induced him to ad

- vocate this practice was the male

- mortalit attended the delivery

- of the placenta before the child

- as compared to the great numbe

- of women who died after the oper

- eation of turning. This leads

- us to consider the statistical ar

- guments which appear to support

- his proposed mode of treatment

- have already pointed out & c.

- that if those mothers with this

- complication, who were treated by

- the ordinary methods of practice,

- &c.
op. cit. p. 699.
1 in 2 6/10 perished. Prof. Simpson contrast this fearful mortality with that which results from his method of treatment, and says that out of 141 cases of placenta praevia so treated, 10 of the infants were lost, or only 1 in 14. With regard to the mortality among the children, we find that somewhat more than half of them perished, if turning, or the other prescribed modes are practised. Prof. Simpson on the other hand demonstrates by a collection of cases, that by his method, the mortality among the infants was not much greater. In his Table above alluded to, mention is made of the result as concerns the life or death of the child in 113 cases. In 10 of the 113 cases he observes "it was malformed: there was "cephaloma" and incapable of sustaining extra-uterine life, and in 6 "other it was putrid, or had died "before labour commenced. The
following statement shows the result as respects the remaining 106 cases:—In 73 cases the infant was born dead. In 33 cases the infant was born alive. According to these data he continues “near by 1 out of every 3 children survived;—or 31 per cent of the children were saved, and 69 per cent of them were lost.”

Prof. Simpson supports this mode of treating certain cases of placenta previa, not only by the results of practice and by statistical arguments, but also on what he considers, and proves, to be correctly biological*. He maintains—will the late Dr. Hamilton who taught the same doctrine—that hemorrhage occurs from the uterus, in connection with child bearing, not from the vessels left exposed on its walls by the detachment of the placenta, but principally and generally from the separated surface.
of the placenta, via that portion of the mass which still remains in connection with the wall of the uterus. The blood enters the placenta by the utero-placental arteries. These are ramified, and anastomose throughout the maternal portion of the substance of the placenta. They also become dilated into what are termed "Maternal cells" into which the placental villi dip, and bathe themselves, in order to allow the fetal blood to become oxygenated, and supplied with a fresh store of nourishment. The blood is then returned from the placenta by the utero-placental veins. It stands to reason, therefore, that if a portion of the mass is separated from its uterine attachment, these utero-placental veins must be left patent, and the blood which enters at the adherent portion by the arteries, instead of being conveyed by these
veins to the uterine arteries again, is permitted to flow from their open mouths, and thus gives rise to the floodings so frequently met with. That the blood does not proceed from the arteries is proved by the circumstance that when these are torn the contract, and prevent the escape of blood from them. And it has been shown by Prof. Simpson, Goodwin, and others that the peculiar anatomical arrangement of the veins in the walls of the uterine restrains, to a great extent, the blood from regurgitating and flowing from their open orifices, and to a certain degree also assisted by the contraction of the uterine fibres. It may also be illustrated in another way. No one doubts that the cause of the detachment of the placenta is the contracting of the uterine fibres. Let us then take a point, where it has commenced to separate, as a centre. The repeat-
ed action of the uterine would tend to separate other portions, each time a little farther from this centre, while the fibres at the separated portion would still be going on contracting more and more, for they would never cease their action as soon as they had performed their part in detaching the placenta. Thus by the time the whole mass is separated that segment of the uterine where detachment first commenced & in the supposed centre? would be the most contracted, while that where separation last occurred, and which is furthest away from the centre, would be much less contracted. As no contractile power exist in the placenta, the condition of its detached surface remains unaltered, and the exposed veins are left patent & open, unless blocked up by coagula. Those who believe that the sluggish blood proceed chiefly from the venous openings on the uterine wall, in
placenta previa, during each pain, for we have already pointed out that it does so, will perceive that this cannot happen, for the force required to divide the vessels must necessarily also be so great as to constrict them entirely. Blood cannot, therefore, by any means escape from them. Whence then does it proceed? We must reply, from the exposed surface of the placenta. A certain number of utero-placental veins are rendered patent by each sufficiently powerful contraction of the uteri, which also depressing the body of the patient, the presenting part is pushed against the placenta, and aids in causing a great amount of blood to flow from it. The pain gradually ceases. The head gradually recedes, and pressure being removed, the placenta is again filled with blood. Any blood in the exposed vessels in the mean time coagulates, and causes an arrestment of the hemorrhage.
*When the whole mass is removed the bleeding is arrested. Portions of placenta also if adherent to the uterine wall give rise to flooding, and it is not until these are detached that the flow of blood ceases.

*or rather think the arteries.

Gooch, Pigby, and Kelpman.
orrhage, but sometimes this does not happen, and the bleeding is then continuous.

A favorite question put by those who oppose this explanation is, if the hemorrhage proceeds from the placental surface, where does it come from in cases in which flooding continues after separation of the placenta, and in post-partum hemorrhages? In the latter, the blood will generally be found proceeding from the separated portion of the placenta, as that organ will usually be found not altogether detached from the wall of the uterus, a portion still adhering to as to form a channel for the flow of blood.

Again in those cases where the placenta is entirely expelled the hemorrhage, in general, results from great atony of the uterus, leaving the veins* in an exceedingly relaxed and patulous condition. But we also find that in some cases no
bleeding occurs even when the uterus is in this state; and we are sometimes astonished to witness a flooding when the uterus is so contracted that it feels as firm and as hard as a cricket-ball. And further, the os and cervix uteri after expulsion of the fetus in placenta praevia remains open for some time subsequently, to a considerable extent—and yet no haemorrhage occurs. How are these to be explained? Mystery does indeed seem to hang over many cases—and great credit shall be awarded to him who discovers the means of its solution.

Dr. Tyler Smith in supporting the general opinion that the veins are the source of the haemorrage remarks: “The size of the venous openings, the valueless state of the uterine veins, the channel being unimpeded from the right auricle to the open mouth of the vesicles furnishing anatomical
"arguments in favor of this source for the flow of blood, which are stronger than those derived from the anatomical arrangement of the uterine arteries and the placental sinuses in favor of the opposite view. In this opinion, of course, I do not assent. He remarks, he says, are valueless; but it has been shown that their arrangement is so peculiar as to prevent blood, to any extent, from regurgitating. For arguments' sake, however, we will admit the possibility of a free regurgitation of blood through them and the uninterrupted passage leading from the right auricle to the open veins on the uterine surface. That a free flow of blood exists from the left ventricle to the venous openings on the separated portion of the placental mass, via that portion still adherent to the uterus, no one will doubt. Seeing then that the left
Dr. Ramsbotham, who is one of the most strenuous opponents of the notion that the bleeding proceeds from the separate portion of the placenta, also brings forward arguments to prove the contrary. But they are mostly of an exceedingly unsubstantial nature. For instance he thus writes at page 420 of his work on Obstetrics, already referred to: "In a case of Caesarean section, performed last year, at which I was present, the placenta was found to be planted anterior, and the operator cut directly upon it. On the separation of the mass from its uterine connection, the blood appeared to well up from it, and two of the gentlemen who observed it, thought that it flowed from the placenta itself. But I have no hesitation in saying that this appearance was quite delusive. The blood was projected from the uterine veins against the surface of the placenta in an immense..."
"mass, and washed over the maternal face, giving the appearance of it having been afforded by the "placenta." Now if Dr. Ramsbotham had been of our opinion he would have agreed, as we certainly do, with the "two of the gentle men who observed it", and brought the case forward to prove the correctness of the theory we are supporting. In stead of which, however, he considers it as an additional proof that the blood flows from the uterine vein. In connection with this case he also mentions that "one of these divided veins was as large as my little finger, and the blood was projected from it in a stream to the extent of twelve or sixteen inches." This is the only occasion on which I find such a statement made. I have always heard of, and seen, blood spurting from a divided artery, but never from a vein. I consider it therefore an entire mistake."
Dr. Ramsbotham, Lee, Ashwell, and others have adduced further arguments in opposition to the views we have upheld. But consider it quite unnecessary to reply to them, as what I have already stated is, I think, sufficient evidence for us to conclude that the blood does not proceed from the uterine, but rather from the placental surface. Besides, their arguments have been so satisfactory and so clearly met by Prof. Simpson himself, that further consideration of them from me seems altogether uncalled for. And I do not for an instant hesitate to believe, and to say, that if any of those gentlemen who be ardent, and, as I think, so unnecessarily opposed the mode of practice introduced by Prof. Simpson, if they were to meet with a case in which his method of treatment is applicable, they will not scruple, I am sure, at once to adopt it. But...
whether they will be candid enough to acknowledge their practice is not for me to mention. Opposition to the introduction of anything novel into practice is not to be wondered at, and it would have been quite extraordinary, and certainly unprecedented in the annals of our profession if the rule of practice we have endeavoured to inculcate had been once glacially received, and generally adopted by the profession without hesitation. We find that the ligation of arteries was not everywhere practised until about a hundred years after it was first performed by Ambrose Paré. And even that grand boon to mankind, chloroform, has not been generally adopted in the practice of surgery. Much less Obstetrics. Although it is undoubtedly, will rapid strides, overcome those obstacles which narrow-minded individuals have attempted
to place in its course.

And lastly, if any means could be discovered whereby to sus-
tain the animation of the fac-
tus in utero. The separation and extraction of the placenta will be promoted to the primary rank am-
ong the remedies recommended and practised for the treatment of Placenta Praevia, and this may perhaps yet be accomplished, es-
pecially as we find a case related by Prof. Simpson in which the child was born alive after the placenta had been detached for five hours.

In conclusion, I shall briefly con-
sider a method of treatment pro-
posed by Dr. Barnes in 1847. We find a short account of it in the first number of "The Lancet" for 1856, and more extensive re-
marks in his Sethsonian lectures published in "The Lancet" last year. He divides the uterine into cen-
*and the woman does not die in the meantime.*
tain zones or segments, and he believes that in placenta praevia after the placenta has been separated & commencing from below upwards? from its attachment to the lower zones of the uterus, it at last reaches a certain level or segment in the cavity where detachment ceases and, as he thinks, also the bleeding - if the case were left to nature*. He therefore advises that this should be done artificially - for if not interfered with the patient will probably die from loss of blood before the separation of the placenta has reached its safest mark. Dr. Cohen, Credé, &c. have also emulated this rule of practice in Germany and if it can with certainty be proved to be efficacious in attaining its object, it would constitute a remedy both salutary to the mother, and would very materially conduce to the safety of the infant. The operation will require extreme nicety of
discrimination and of manipulation in order to separate the placental mass, uniformly, to the proper and limited extent. While I imagine it hardly possible for anyone to accomplish. The danger of detaching the entire mass is exceedingly great, and then very likely the life of the child will be unnecessarily sacrificed. However, we have already fully stated our views concerning the source of uterine haemorrhage, and therefore believing them correct, we cannot sanction such a procedure, but on the contrary denounce it as founded upon principles which we consider both erroneous and untenable.

When speaking (p. 263) of the diagnosis between accidental and unavoidable haemorrhage, I omitted to mention that what seems to be the true cause of the non-appearance of haemorrhage during inter-
and its occurrence in the interval of action
one contraction, in the former, is that the bag of membranes or presenting part of the placenta is forced down by the contraction of the uterus, and plugging up the os prevents the escape of blood; while as the contraction of the uterus subsides into relaxation, the depressing power being removed from the presenting part, it recedes, and thus a free passage to the issue of blood is immediately afforded.