Tubal gestation, with special reference to its early diagnosis and treatment : an address delivered before the Oxford Medical Society, November 12th, 1897 / by Charles J. Cullingworth.

TUBAL GESTATION 9.

WITH SPECIAL REFERENCE TO ITS EARLY DIAGNOSIS AND TREATMENT.

BY

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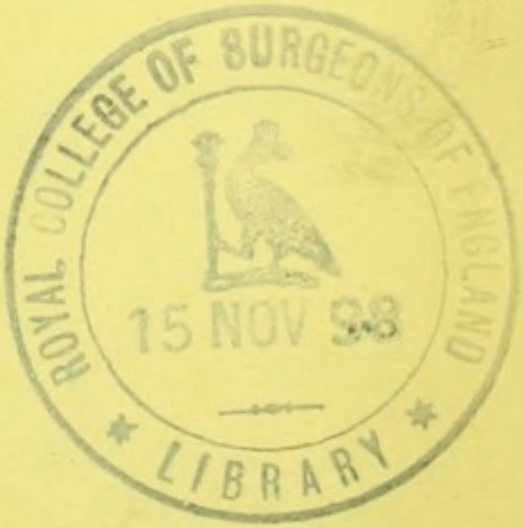

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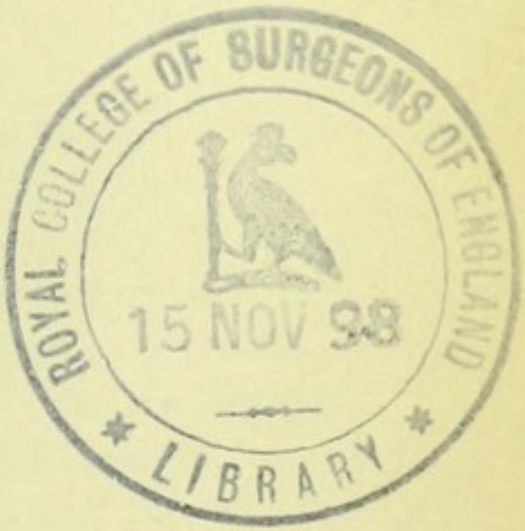

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AN ADDRESS

ON

TUBAL GESTATION,

With Special Reference to its Early Diagnosis and Treatment.

Gentlemen,—I have chosen for this evening's address the subject of ectopic gestation, partly because I think it will be of general interest to the members of this Society, and partly because it has happened to me to have under my care a somewhat unusual number and a great variety of cases, so that I have been enabled to test, by actual and repeated observation, some of the current opinions and teaching.

Until a very few years ago, ectopic gestation was considered to be a rare condition, almost a curiosity. This is one of the many erroneous opinions that modern abdominal surgery has swept away. It is now known that the condition is one of frequent occurrence. Its recognition, therefore, has become a matter, not of merely academic interest, but of great, and indeed vital, importance. My own experience of cases in which

the diagnosis has been verified by operation,—and it is only cases that have been verified by actual inspection and handling of the parts concerned that are of any scientific value,—includes up to the present time forty-two instances of early ectopic gestation, and seven advanced cases, making together forty-nine cases. By advanced cases I mean cases in which the fœtus has survived to an age at which, if rescued from its dangerous position and born alive, it would be capable of continued independent existence. As I do not purpose to detain you this evening by a consideration of advanced ectopic gestation with its many difficult problems of diagnosis and treatment, I merely call your attention to the table before you, and shall now dismiss for the present that part of the subject, confining myself in what follows to the more numerous class of early cases.

The impregnated ovum may be detained in any part of the Fallopian tube. The most usual position of a tubal gestation sac is the outer half of the tube, but occasionally it is found in the inner, straight portion or isthmus, and still more rarely in the intra-mural portion of the tube, when it forms the variety known as interstitial or tubo-uterine pregnancy. It is this occasional arrest of the fecundated ovum *within* the wall of the uterus itself that led Dr. Robert Barnes to object to the term extra-uterine as not embracing all cases of abnormally situated gestation. He proposed to substitute the word ectopic for extra-uterine, as

Cases of Advanced Ectopic Gestation Operated upon.

Child Living.

No.	Date of Operation.	Period of Pregnancy.	Result to Mother.	Result to Child.	Reference to Detailed Report.
1	Jan. 13th, 1894.	9 months.	Died.	Lived.	'Brit. Med. Journ.,' Dec. 22nd, 1894.

Child Dead.

No.	Date of Operation.	Age of Fœtus at its Death.	Interval between Death of Fœtus and Operation.	Condition of Child.	Result to Mother.	Reference to Detailed Report.
1	July 2nd, 1875.	7 Months.	5 Months.	Decomposed.	Died.	'Obst. Journ. of Gt. Brit.,' Oct., 1875.
2	Nov. 10th, 1875.	8 ,,	4 ,,	,,	,,	,, ,, Jan., 1876.
3	Aug. 16th, 1888.	8 ,,	8 ,,	Not decomposed.	Lived.	'Trans. Obst. Soc. Lond.,' 1888, p. 480.
4	April 1st, 1890.	8 ,,	1 Month.	,,	,,	,, ,, 1893, p. 155.
5	Oct. 3rd, 1892.	8 ,,	1 ,,	Decomposed.	Died.	'Clin. Journ.,' Mar. 27th, 1895.
6	Feb. 1st, 1895.	9 ,,	1 ,,	,,	,,	

being more strictly correct; and this term has since been widely adopted (see Figs. 1 and 2).

It is now generally held that Mr. Lawson Tait was right when he declared that every case of ectopic gestation was primarily tubal. Those cases that have been described as abdominal pregnancy

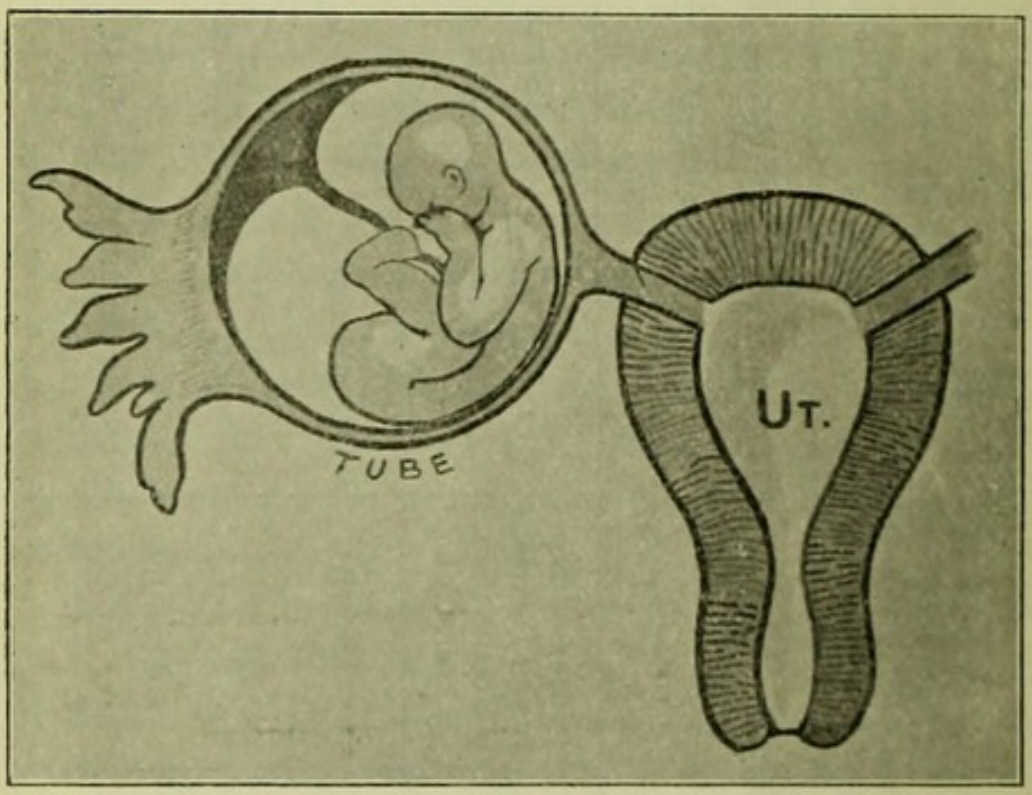


Fig. 1.—Gestation sac in tube. (Diagrammatic after Auvard.)

are simply cases in which the fœtus has escaped from the tube by primary or secondary rupture into the peritoneal cavity, and continued for at least a time to live and grow there; whilst the cases classified under the head of ovarian pregnancy are really tubal pregnancies, in which the compressed

and flattened-out ovary has become closely incorporated with some part of the outer wall of the gestation sac, and so has furnished misleading microscopic evidence of the existence of ovarian tissue in the sac wall.

With regard to the causes of tubal pregnancy

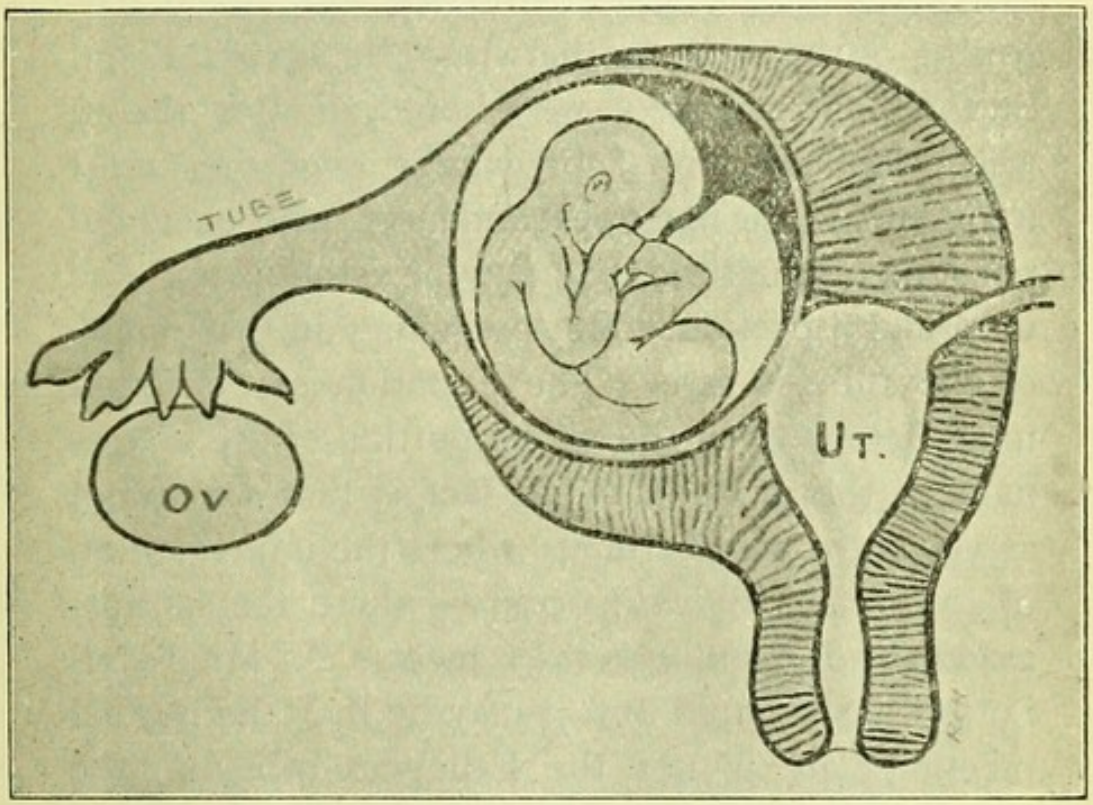


Fig. 2.—Interstitial or tubo-uterine pregnancy. (Diagrammatic after Auvard.)

we are as yet completely in the dark. It has been stated by a high authority, and the statement has been so frequently repeated that it has almost come to be accepted as a well-ascertained fact, that this condition only occurs when there has been desquamative inflammation of the mucous

lining of the tube. Observation, however, has shown this theory to be untenable. It is true that in some specimens evidence of old tubal inflammation has been found, but it is an exceedingly rare event to meet with desquamative endo-salpingitis, whereas, if this theory were true, it ought to be met with frequently. Another cause that has been assigned is mechanical obstruction, either from narrowing of the tube or otherwise. But, as Mr. Bland Sutton has remarked, we should, if this theory were true, find tubal pregnancy occurring most frequently in the narrowest and most easily occluded portions of the tube, namely, the isthmus and the intra-mural portion. But pregnancy in those parts of the tube is rare. The gestation sac is found most frequently in the widest portion of the tube—namely, the ampulla. The fact is that we do not as yet know with certainty where the impregnation of the ovum *normally* occurs—where the spermatozoon and ovum *normally* meet. As Mr. Bland Sutton has pointed out, it may be that the normal meeting-place is not the Fallopian tube but the interior of the uterus, and that when the ovum becomes impregnated before reaching the uterus, the process is abnormal, the fecundated ovum being arrested in the tube as a consequence.

Leaving, however, these difficult problems of ætiology, we may proceed to consider what happens when an impregnated ovum is thus arrested. On this point our knowledge is in a much more satisfactory stage. We know at least

something about it, and every year is adding to our knowledge. When the Fallopian tube becomes pregnant, there is at once excited great vascular activity in that part of the tube where the ovum has become engrafted. All the tissues composing the tube-wall share in the hyperæmia. As the ovum grows, the walls of the tube become stretched and thinned, and the mucous membrane loses its folds. The abdominal end of the tube is differently affected according to whether the pregnancy has taken place in the outer or inner portion of the tube. When the inner half is the seat of the gestation, the fimbriated mouth of the tube is sufficiently far from the scene of activity to remain, as a rule, unaffected. But in the much more common event of the gestation occurring in the outer half of the tube, the abdominal ostium almost invariably becomes closed between the sixth and eighth week, provided the gestation continues to that date without interruption. Previous to that, the effect of the pregnancy is not unfrequently to cause abnormal expansion of the mouth of the tube. I have seen it under such circumstances quite an inch in diameter (see Fig. 3). It is necessary to lay stress upon these changes, as they help to explain certain concurrent and subsequent events.

Concerning the ovum itself, I think I may say that the general belief is to the effect that the usual course is for development to continue until

the tube has become stretched to its utmost limits, when, as the result of some comparatively insignificant strain, rupture occurs, and a hæmorrhage ensues, which in the majority of cases is abundant and tends towards a rapidly fatal issue. It is also part of the current teaching that, in a certain proportion of cases, the hæmorrhage consequent upon the rupture, being less abundant, results in the formation of a pelvic hæmatocele, and that the majority of pelvic hæmatoceles originate in this way, the tendency in these milder and exceptional cases of rupture being towards the ultimate absorption of the extravasated blood, and the recovery of the patient.

Now in this teaching, of which I have here only attempted to give the main outline, there is an element of truth, but there is also a considerable admixture of error. It is a great step in advance to have come to recognise that, save in the rarest and most exceptional cases, pelvic hæmatocele is in some way or another connected with and the result of tubal gestation, and that the bewildering variety of causes that used to be enumerated is for the most part mythical. So far, so good ; but the new teaching is erroneous in this, that it ascribes to rupture a position it does not really occupy, namely, that of being the most common mode of termination of a tubal gestation ; and secondly, that it assigns, as the ordinary cause of rupture, the inability of the tube longer to accommodate the growing ovum.

In 1889 the attention of the profession was called by Mr. Bland Sutton to the occasional occurrence, in the course of a tubal pregnancy, of a condition of the ovum closely akin to that often met with in the course of an ordinary intra-uterine pregnancy, and known as a fleshy or carneous mole. Observation has since shown that what was then regarded as an exceptional

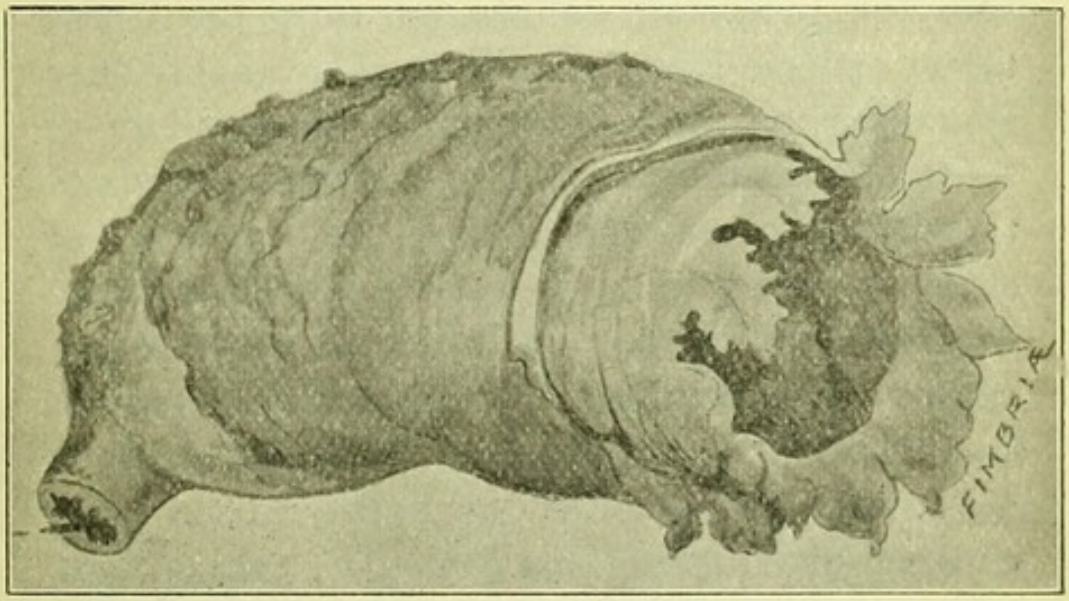


Fig. 3.—Fallopian tube distended with blood-clot.
(*Ad naturam* from a drawing by R. E. Holding.)

occurrence is in reality the most common of all the modes in which a tubal gestation may terminate. The abnormal conditions surrounding a tubal gestation sac render it far more prone to hæmorrhages within and around it, than is the gestation sac of a normal intra-uterine pregnancy. These hæmorrhages may and often do occur very early in the pregnancy, often before the end of the

first month. The blood is poured out into the space at that time existing between the chorion and amnion—the subchorionic space, the usual results being the distension of the sac by effused blood, the compression of the amnion and its cavity by the extravasated blood, the destruction of the life of the embryo, and the provoking of external hæmorrhage in addition to the internal as a consequence of the disturbed relations of the ovum with the tube wall. When an early tubal gestation undergoes rupture, it almost invariably does so, not as the mere consequence of the failure of the Fallopian tube to adapt itself to the needs of the growing ovum, but owing to the occurrence of such a series of events as I have just enumerated. The sudden increase in the size of the ovum caused by hæmorrhage puts a new and sudden strain upon the already thin and stretched tube wall, and a covering that might have been quite capable of adapting itself to the gradual and uncomplicated increase in size of a developing ovum, gives way under the more sudden strain occasioned by the formation of a tubal mole. This is the ordinary mode in which rupture is caused. A slight effort or a slip in walking may determine the precise moment of rupture, but the main cause is the more or less sudden demand made on the capacity of the tube by the occurrence of hæmorrhage between and outside the fœtal membranes.

But my experience goes to show, and the experi-

ence of others accords with it, that although the formation of a tubal mole is of very common occurrence in tubal gestation, rupture is not by any means the necessary result, and that there are modes of termination which are much more common than rupture. I have already pointed out that the abdominal ostium of the pregnant tube remains open until the sixth to the eighth week; and that in cases where the ovum is situated in the inner half of the tube, it does not usually even then become closed. So long as the abdominal ostium remains unclosed, there is obviously a way of escape for blood effused within the tube; and, as a matter of fact, the blood extravasated as a consequence of the formation of a tubal mole in the earliest weeks of gestation usually finds vent in this direction. Rupture is not unknown even when the abdominal ostium is open, but the risk of rupture is enormously lessened under those circumstances, and the number of cases in which it occurs is comparatively very small. After the abdominal ostium has become closed, the risk of rupture becomes greatly increased, and it is then that most instances of rupture are met with. As a rule, the blood that finds its way out of the tube through the unclosed abdominal ostium is poured out slowly and in small quantity. It is a gentle stream or even a mere trickle. This gives time for the formation of a pelvic hæmatocele, and the immense majority of cases of pelvic hæmatocele originate in this way.

It is commonly taught that pelvic hæmatocele is

usually due to *rupture* of a tubal gestation. I have shown in an address recently delivered at Nottingham, and published in the 'Lancet,' that, so far at least as my own experience goes, that is not the fact. I was able, on that occasion, to point out that of twenty cases of pelvic hæmatocele in which the source of the hæmorrhage had been actually verified by operation, eighteen were instances of bleeding from the open mouth of a pregnant Fallopian tube, and only one was a case of rupture. During the seven months that have elapsed since that address was delivered, I have had five additional cases of operation for pelvic hæmatocele. In not one of the five had rupture occurred. All were instances of hæmorrhage from the open abdominal ostium of a Fallopian tube in which there had been formed a tubal mole. So that the figures now stand thus: of 25 cases of pelvic hæmatocele in which an opportunity occurred of verifying by actual inspection the source of the bleeding, 23 were instances of hæmorrhage from the open abdominal ostium of a pregnant Fallopian tube, and only one was due to rupture. The remaining case was altogether exceptional. The blood was derived in that instance from the rupture of a blood-containing cyst of the broad ligament, though, curiously enough, even in that case the hæmorrhage was connected with tubal gestation, for the Fallopian tube on the side opposite to that on which the cyst had given way contained a tubal mole. I merely mention this,

however, to account for the case that does not come within either of the two main categories. The figures I have given are from my own practice only, but other observers both in France and in Germany and in this country have expressed similar views and published cases in support of them. I may specially mention, as being in agreement with me on this point, Mr. Bland Sutton and Mr. J. W. Taylor of Birmingham, both of them men of accurate observation and large experience in this department of work. The reason why rupture is so seldom associated with hæmatocele is obvious. The condition necessary for the formation of a hæmatocele is that the blood shall be poured out sufficiently slowly to give time for encapsulation either by adhesions around the effusion or the formation of a firm wall of clotted blood at its periphery. This condition is seldom present in a case of rupture. When a rent in the tube occurs, the hæmorrhage is usually very sudden and very copious. There is no time for the blood to collect in one spot and become surrounded by adhesions or a wall of blood-clot. It is poured out as an unlimited effusion into the peritoneal cavity. Hæmatocele resulted in only one out of the ten cases of rupture of an early tubal gestation in which I have operated, whilst in no fewer than seven cases the blood was freely effused in the peritoneal cavity.

Before passing on to speak of the various forms

of rupture, I may just point out that occasionally the mole itself, with the ovum embedded in it, is discharged along with the stream of blood that issues from the open mouth of the tube. This has been spoken of as a complete tubal abortion. An instance occurred in my own practice, and is represented in one of the drawings before you (Fig. 4). In that case a firm clot was found just

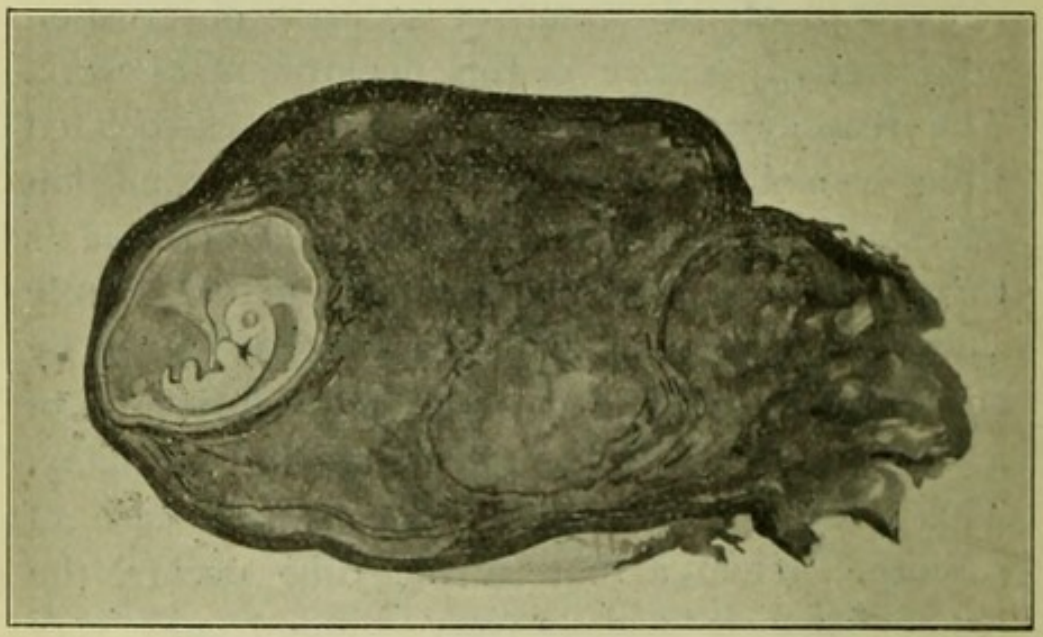


Fig. 4.—Clot and ovum from a complete tubal abortion. (From a drawing by R. E. Holding.)

outside the mouth of the tube. On opening the clot an amniotic cavity was exposed, and lying within it was a three weeks embryo. Usually, however, the mole remains within the tube and adherent to the tube wall. The condition is then that of a *threatened* tubal abortion. And just as a woman is exposed to the constant risk of re-

current hæmorrhages whenever an ordinary intra-uterine mole is retained and adherent within the uterine cavity, she is exposed to a similar risk of repeated hæmorrhages when a tubal mole is retained.

I must apologise for having detained you so long with this part of the subject. My excuse is that the phenomena I have been describing occur with great frequency, and constitute the most common of all the modes of termination of tubal gestation. In my own experience it is certainly so, as the table before you sufficiently shows. The total number of cases of early tubal gestation on which I have operated up to the present time is 42. Of these, no fewer than 26 were cases in which hæmorrhage had occurred from the free end of the tube. The result in 24 out of the 26 cases, *i. e.* in nearly 62 per cent., was the formation of a pelvic hæmatocele ; in the other two cases the blood was found freely diffused in the peritoneal cavity.

CASES OF EARLY TUBAL GESTATION OPERATED UPON = 42.

	Case s
Tubal mole, without rupture or hæmorrhage external to the tube	6
Tubal mole, with hæmorrhage from the free end of the tube	26
Rupture of the gravid tube . . .	10

The next most frequent mode of termination of an early tubal pregnancy is by rupture. This

occurred in ten of my cases, *i. e.* in about 24 per cent. As you are aware, rupture may take place either in that larger portion of the circumference of the Fallopian tube covered by peritoneum (Fig. 5), or in that smaller portion of its circumference in relation with the connective tissue of the mesosalpinx (Fig. 6). In the former case the

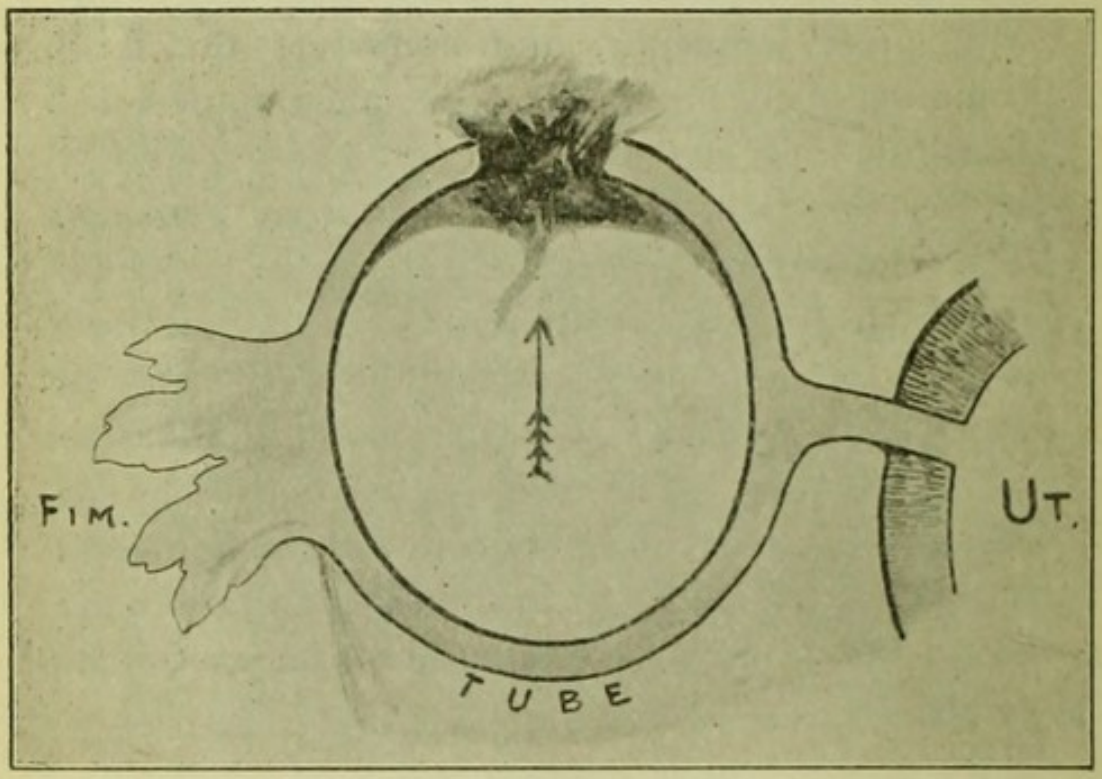


Fig. 5.—Rupture into peritoneal cavity. Primary peritoneal rupture.

rupture takes place directly into the peritoneal cavity; in the latter case it takes place into the connective tissue of the broad ligament. Both varieties of rupture are usually accompanied with hæmorrhage, and this hæmorrhage may be and often is of the most formidable character. The

most terrible cases are those in which the rupture takes place directly into the peritoneal cavity, and where large vessels are injured. When the rupture is intra-ligamentous, the space at the disposal of the effused blood is limited, and the immediate danger to life is not so great. Out of my ten cases, rupture occurred into the peritoneal

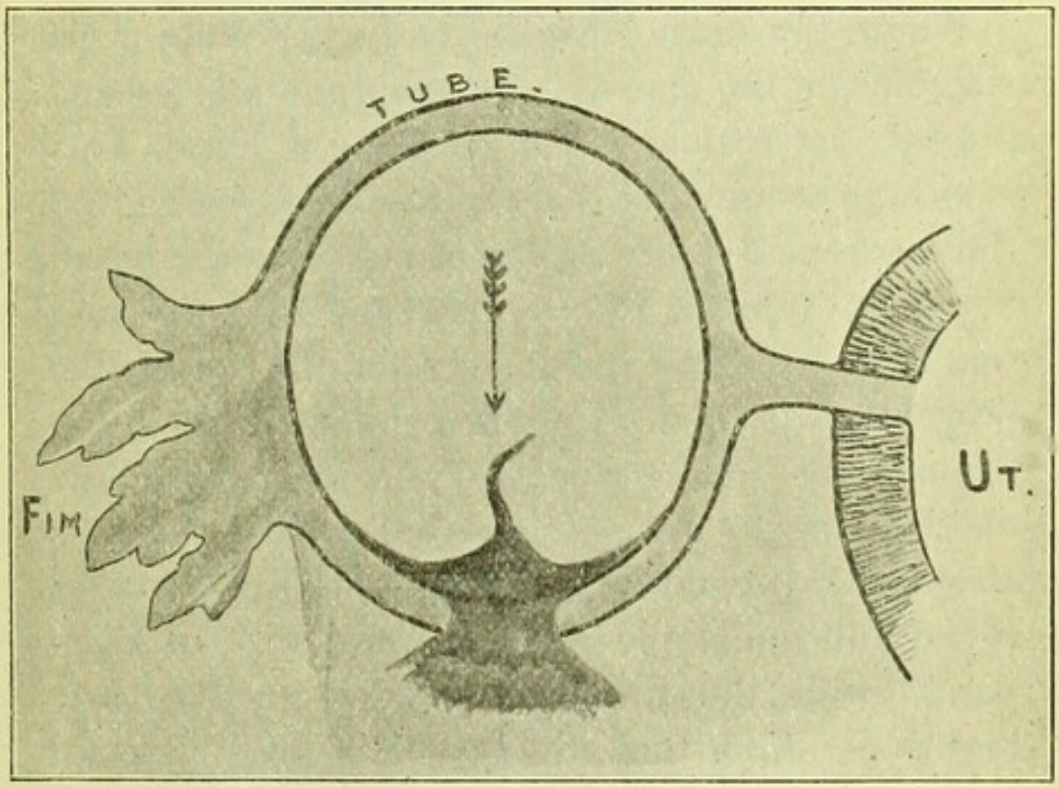


Fig. 6.—Rupture into connective tissue of the meso-salpinx. Primary extra-peritoneal rupture.

cavity in nine, and into the connective tissue of the broad ligament in one only. Of the nine intra-peritoneal ruptures, one was by some rare chance unaccompanied with hæmorrhage, another was attended with hæmorrhage so moderate in amount that a hæmatocele was formed, whilst in

the remaining seven the blood was found free in the peritoneal cavity.

So far, then, as the evidence afforded by my own individual experience extends, the ordinary result of rupture of a tubal pregnancy is free hæmorrhage into the peritoneal cavity, the occurrence of hæmatocele (as a result of rupture) being quite exceptional.

Where the hæmorrhage attending the rupture is insignificant in amount, the embryo may escape through the rent and may continue to live. This may happen whether the rupture be upwards into the peritoneal cavity or downwards into the broad ligament. In the former event the case becomes one of abdominal pregnancy, in the latter the pregnancy is henceforward spoken of as intra-ligamentous. In either case the chances of the child living to a viable age are small. This is abundantly proved by the small number of cases of advanced ectopic gestation met with as compared with the number of cases in the early months. And the difference is even greater than appears at first sight, for whilst every case of advanced ectopic gestation is recognised sooner or later, many cases of early tubal gestation, especially those which terminate within the first few weeks in tubal abortion and hæmatocele, are not diagnosed, and therefore escape unrecorded. Let me take the cases in my own practice by way of illustration. It will be seen from the table on page 3 that I have operated seven times for

advanced ectopic gestation. The number of my operations in the early months, as I have already stated, is forty-two. At first sight it would therefore appear that the proportion of cases terminating early to cases going on until a viable age has been reached has, in my practice, been as six to one. But such a conclusion would be erroneous. The cases of advanced ectopic gestation in the table cover the whole extent of my hospital experience, a period of over twenty-four years, and may be held to include every case that came under my care. It is not likely that any case was unrecognised or overlooked. But the table of early operations covers a much shorter period. The first case occurred in 1889, so that all the forty-two cases have been observed within the last nine years. It is morally certain that in the preceding years a certain number of cases came under my care and passed without recognition. At that time scarcely anyone thought of operating unless the indications were singularly clear, and our very imperfect knowledge of the subject prevented most of the cases from being diagnosed. There is still another fallacy in the comparison. The cases tabulated include operation cases only. No others are available for the purposes of such an inquiry as the present. The element of certainty is wanting. But many cases of pelvic hæmatocele occurred in my practice in which no operation was performed. At least the majority of these may fairly be considered to have been due to an early tubal abortion. Yet they are

of necessity left out of account. So that the real proportion of my cases of ectopic gestation in which the child lived to a viable age is much smaller than the tables might at first sight lead one to infer.

There is still another group of cases to be mentioned, a smaller group than the other two, but one, nevertheless, possessing considerable interest. I allude to the cases where the vitality of the ovum had been destroyed by the formation of a tubal mole, but where the result was simply a hæmatosalpinx without hæmatocele and without rupture. In most of these cases, no doubt timely intervention saved the patients from the perils of rupture. One of the cases was of singular interest. A drawing taken from the museum preparation is before you (Fig. 7). The specimen is in longitudinal section. The Fallopian tube was greatly distended, and filled with clotted blood. At one end of it there was a sausage-like excrescence clinging to, and as it were embracing the rounded extremity of the tube. On closer inspection this excrescence was seen to be a fœtus enclosed in a thin sac, through the wall of which the bones of one of its limbs were protruding. I thought at first the sac would prove to be the amnion, and that the fœtus had effected a bloodless escape through a rent in the tube-wall. But on careful dissection the sac was found to be a sort of diverticulum of the tube itself, communicating with the main cavity of the tube by means of a small

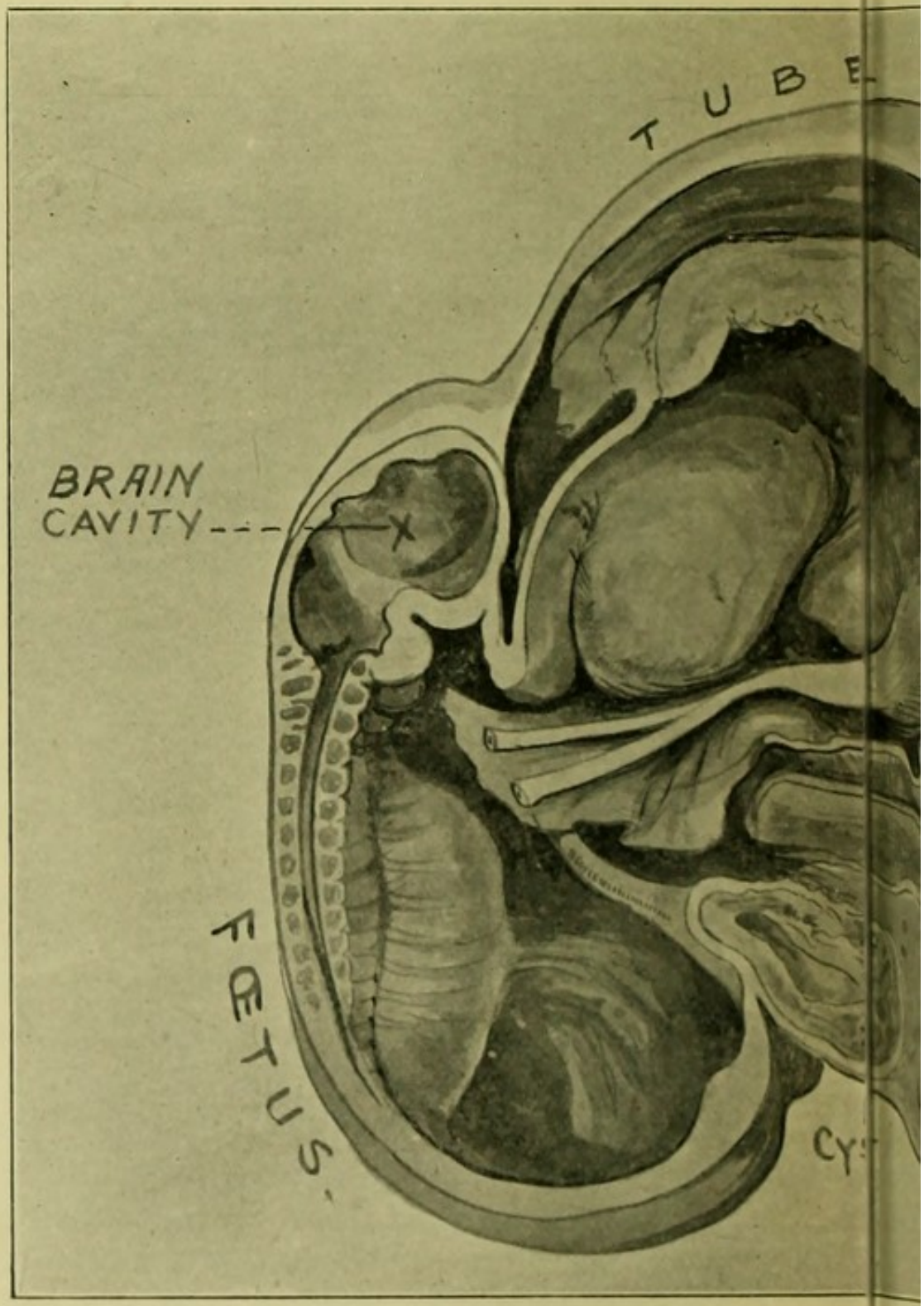
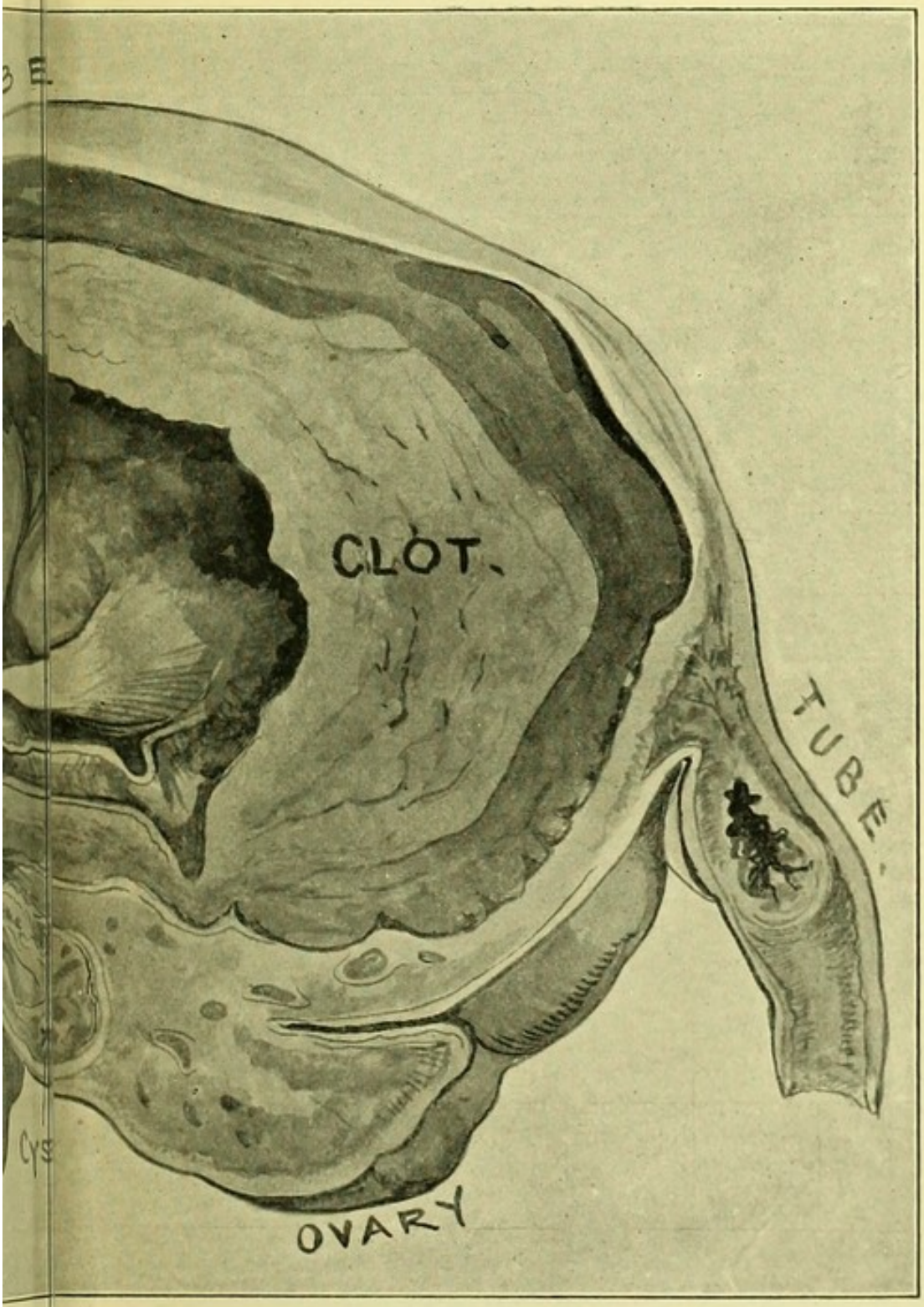


Fig. 7.—Longitudinal section. Unrupt tuba
(*Ad naturam* from a d ing b



...l tubal gestation with apoplexy of ovum.
...m a drawing by R. E. Holding.)

aperture, through which the embryo had passed, rupturing its funis in the process, and leaving the placenta behind. The section is made through the vertebral column of the fœtus, and shows the cranial cavity at one end, and the displaced ribs lying over the lower part of the spine.

I must not, however, forget that I have undertaken to speak more particularly of the diagnosis and treatment of early tubal gestation. With regard to the diagnosis of this condition in cases where as yet there has been no hæmorrhage within or around the ovum, it can only be by a happy accident if the abnormal gestation is discovered. The diagnosis would then rest upon the co-existence of amenorrhœa and other symptoms of pregnancy, along with the physical signs produced by an enlarged Fallopian tube, and a slightly enlarged (but empty) uterus. A good many instances have now been recorded as having been diagnosed "before rupture," but, so far as I know, all of them have been cases of tubal mole. In such cases the diagnosis is easier. For, in addition to amenorrhœa and a tubal swelling there are usually also pain and irregular hæmorrhage. The pain comes on suddenly, and is at first very severe; but it soon abates, and in a few hours passes off altogether for the time. It is ordinarily situated in the lower part of the abdomen, a little to one side of the middle line. The pain often recurs, the recurrence being in all probability due to fresh hæmorrhages. But pain is not a constant symptom.

For example, in the case I was describing a few minutes ago, where there had been a large amount of hæmorrhage within the tube, and where the fœtus had found its way through a narrow opening into a pouch of the tube-wall, the patient had no pain or interference with the general health throughout. This is very remarkable, and deserves to be noted.

The irregular hæmorrhages are of very great importance in the diagnosis. They are probably due to two causes—first, the irritation of the presence of a tubal mole in a part of the tube that has not been entirely cut off from its communication with the uterus; and, secondly, the efforts on the part of the uterus to dislodge and expel, now that the vitality of the ovum has been destroyed and the pregnancy terminated, the decidual membrane that is invariably formed within its cavity in every case of ectopic gestation. There is a peculiarity about these hæmorrhages that, so far as I know, has not hitherto received attention. *The blood is almost invariably dark in colour, moderate in amount, thickish in consistence, and steady in its rate of flow.* Gushes of bright red blood occur occasionally, but are quite exceptional. The characters of the discharge that I have just enumerated have not unfrequently been of great assistance to me in arriving at a diagnosis in a difficult case. The condition above all others for which early ectopic gestation with tubal mole is likely to be mistaken is a threatened or incomplete uterine

abortion. The two important points in distinguishing the one condition from the other are—(1) the presence or otherwise of an abnormal swelling in the situation of one of the Fallopian tubes; and (2) the character of the blood discharged *per vaginam*. In the hæmorrhage due to threatened or incomplete uterine abortion the discharge is often very copious, fitful in its rate of flow, and variable in its colour and consistence. In some cases of incomplete abortion it is, of course, highly offensive, which the uterine discharge in a case of ectopic gestation scarcely ever is.

With reference to the amenorrhœa, when this symptom is present it is of course an enormous help in arriving at a correct diagnosis. But it may be absent, and yet the case may be one of tubal gestation. For the ovum may be of too early a date for the symptom to be available. A mole may have been formed before a menstrual period is due. Hence, amenorrhœa is not a constant symptom, though when present it is of extreme value.

One word must be added as to the tubal swelling. It is generally stated that this is situated at the side of the pelvis in the fossa behind the broad ligament. This is not always the case. I have repeatedly found it in other situations; sometimes behind and adherent to the uterus low down in Douglas's pouch, and occasionally above the uterus and adherent to one of its cornua. The possibility, therefore, of the con-

dition being tubal gestation must not be dismissed because the abnormal swelling detected on palpation is not in the situation expected.

Two other diagnostic signs remain to be considered. It is often possible to detect marked pulsation in the vaginal fornix of one side only—that, namely, on which the tube is enlarged. I have often been greatly helped by this sign. And, lastly, there is the examination of any membrane or membranous débris shed with the discharge. In the case of ectopic gestation such a membrane would consist of the uterine decidua entire or in fragments (Fig. 8). When floated on water it would present no trace of chorionic villi. Whereas in the case of a uterine abortion there would be the fœtal membranes, and the villi of the chorion would be easily recognised.

I have so far dealt with the diagnosis in very early cases of tubal mole, where there has been no hæmorrhage external to the tube. When the gestation has proceeded to a later stage, the presence of some of the ordinary signs of early pregnancy will usually come to our aid—missed menstruation, morning sickness, and breast symptoms. And when hæmorrhage into the peritoneal cavity has occurred, the conditions will be still further altered. The pains will be more violent, and will often be accompanied with pallor, vomiting, rise of temperature, abdominal distension and collapse. As a rule, the first attack occurs between the fourth and eighth week, and other attacks

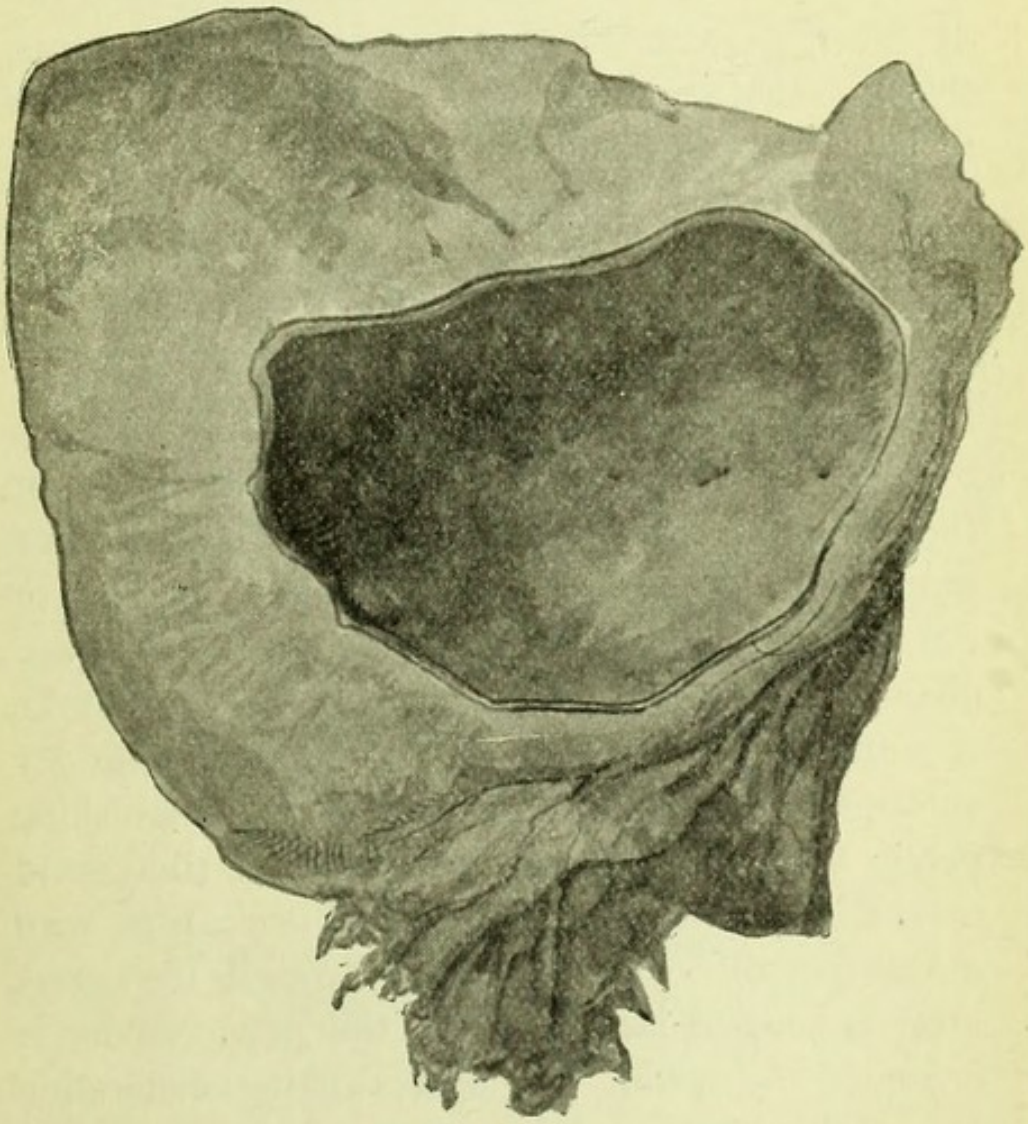


Fig. 8.—Decidual Cast from uterus in a case of ruptured tubal gestation, with window cut to show interior. (From a photograph.)

usually follow at intervals of a few days. If the hæmorrhage has been of sufficiently moderate extent to allow of the formation of a hæmatocele, a careful bimanual examination will reveal the presence of a pelvic swelling behind the uterus, pushing that organ forward, distending the pouch of Douglas, and rising into the abdomen above the level of the pelvic brim (Fig. 9). The upper limit of this swelling will be irregular, and obscured by the abdominal distension. In a few days the intestinal distension usually subsides, and the outline becomes easier to define. It will still, however, be irregular, owing to the varying character of the adherent viscera that form its roof. I do not purpose to detain you with a detailed account of the physical signs of pelvic hæmatocele ; they are given in every text-book. But I should like to take this opportunity of saying that writers do not lay sufficient stress on the importance of distinguishing pelvic hæmatocele from retroversion of the gravid uterus. In both there is missed menstruation, with other signs of early pregnancy. In both the cervix uteri is pushed forwards, and the pelvic cavity is occupied by a soft but firm swelling distending Douglas's pouch, and depressing the vaginal roof. The distinction is important, because serious harm may ensue if an attempt be made to push up a pelvic hæmatocele under the impression that the case is one of retroversion. No other condition is so liable to be mistaken for a retroverted gravid uterus as a pelvic hæmatocele. I have made the

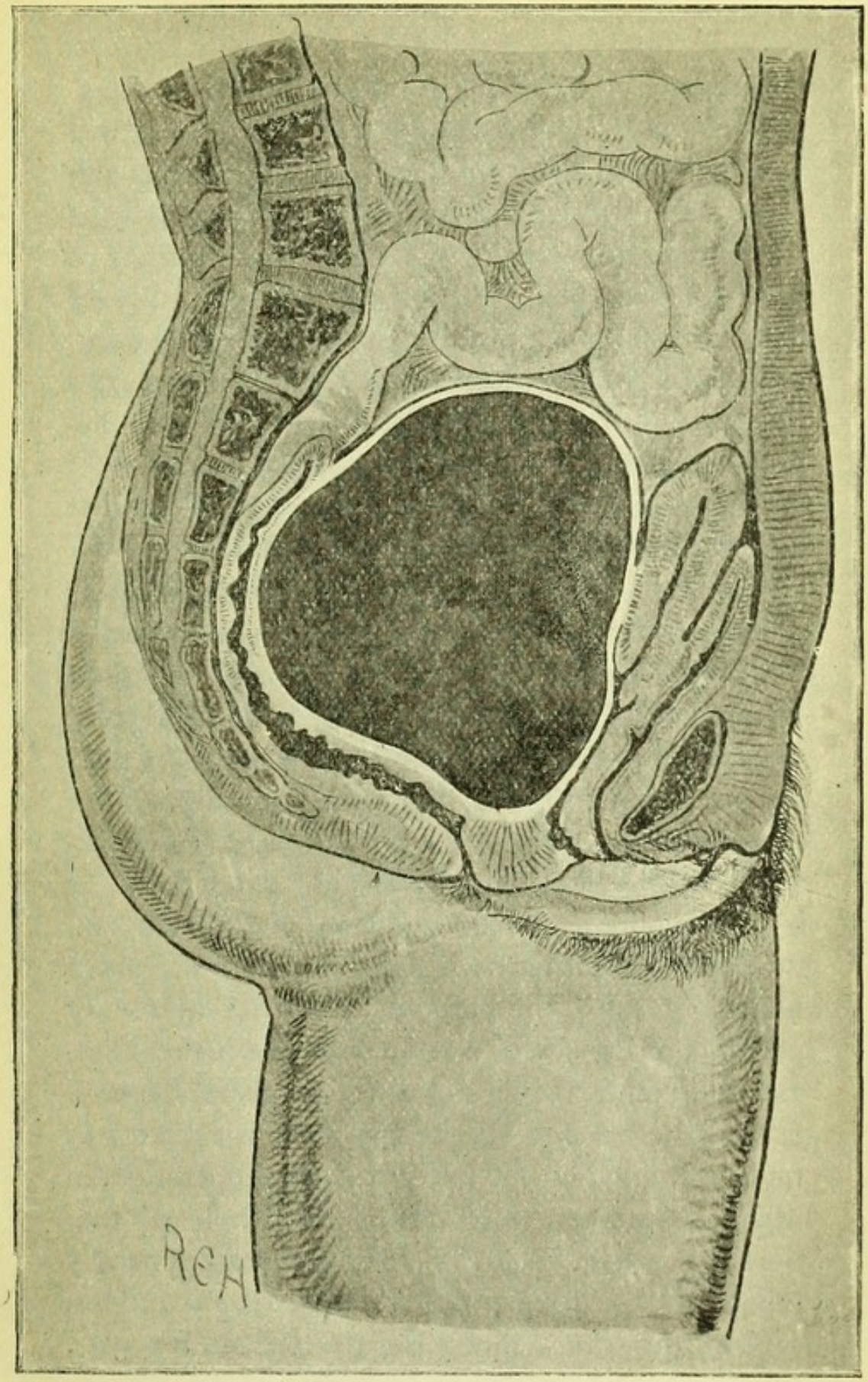


Fig. 9.—Pelvic hæmatocele. (Diagrammatic.)

mistake myself, and known it to be made by others How are we to guard against it? The history will help us. But the one distinguishing sign is the presence in the case of hæmatocele of the body of the uterus lying above the pubes, and in front of the swelling, whereas in retroversion the body of the uterus is, of course, absent from this situation.

It will have been noticed that I included a rise of temperature amongst the more frequent phenomena that characterise the acute attacks of illness in cases of tubal abortion. I believe that it is the non-recognition of this liability for the temperature to rise when internal hæmorrhage is going on that leads to so many cases of tubal gestation with hæmatocele being erroneously diagnosed as cases of pelvic peritonitis. The abdominal pain, the extreme tenderness, and the distension tend further to mislead, and the gradual development of the swelling caused by the formation of the hæmatocele is regarded as a peritonitic exudation. It is remarkable that this question of the temperature has not hitherto received attention. As a matter of fact it is rare to meet with a case of pelvic hæmatocele without at least temporary rises, and sometimes the rise extends to several degrees. I have before me the notes of a case that was under observation for five days before operation, in which the temperature during the whole of that time was never below 99·6°, and was generally much higher, frequently reaching 102°, and on several occasions mounting to 103° and 103·4°.

Yet the case was an ordinary hæmatocele, with only the usual amount of adhesive peritonitis, and with no evidence of putrefactive or other morbid alteration of the effused blood.

Another point that appears to me not to be made sufficiently clear in the books is that a pelvic hæmatocele is not always or necessarily central in its position. It is often situated in one or other of the lateral fossæ behind the broad ligament, and limited to the one side, without even encroaching upon the pouch of Douglas at all.

The fact is that the localisation of a hæmatocele, due (as hæmatoceles usually are) to the escape of blood from the open abdominal ostium of a pregnant Fallopian tube, is determined not so much by the influence of gravitation as by the position which the mouth of the tube happened to occupy at the time. The hæmatocele is usually central, because the most common position of the mouth of the tube is in the direction of Douglas's pouch. But it is not by any means always so, and the circumstance of there being no actually central swelling must not blind us to the possibility of the case being one of hæmatocele notwithstanding. I have recently had a succession of cases in which the hæmatocele was unilateral, and the pouch of Douglas empty.

The diagnosis of tubal gestation, with hæmorrhage so profuse that the blood becomes at once diffused in the peritoneal cavity, is based chiefly on the history and on the alarming character of

the symptoms. It is in such cases that the pallor is extreme, the pain intense, the tenderness excruciating, and the collapse sudden and severe. The history and the pallor help to distinguish the condition from that due to intestinal perforation or perforation of a gastric ulcer.

I have left myself but little time to speak of treatment. Fortunately, what I have to say can be summed up in a few words. Considering the appalling nature of the risks that have to be encountered by a patient with tubal gestation, and considering the signal success that has attended operative interference in the earlier months (thirty-nine, for instance, out of my own forty-two cases made a perfect recovery), I have no hesitation in proclaiming my strong conviction that, with the exception of some few cases of very early tubal abortion accompanied with hæmatocele, the proper treatment is to operate at once in every case in which the diagnosis of ectopic gestation has been established.

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