ON FIBROIDS OF THE CERVIX UTERI.*

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As is well known, fibroid tumours arising in the cervix are much less common than those occurring in the body of the uterus. The classification usually adopted for fibroid tumours of the uterine body may equally well be used for those originating in the cervix. Thus we have interstitial fibroids of the cervix, subperitoneal fibroids of the cervix, submucous fibroids of the cervix, and fibroid polypi of the cervix. A submucous fibroid of the cervix is one where the greater part of the tumour projects freely towards the cervical canal, one that is attached to the cervix by a constricted portion or neck. Very little of such a tumour remains embedded in the thickness of the cervical wall. I propose to say nothing further in the present paper about submucous fibroids or fibroid polypi of the cervix, since their treatment from below is well understood, and generally the same as when such tumours spring from the body of the uterus.

As regards interstitial and subperitoneal fibroids of the cervix the case is, however, different. Very little is said about them in most of the textbooks on gynaecology, and they have not, I think, attracted as much attention elsewhere as their importance deserves. I may here refer to a short communication on Myomata of the Neck of the Uterus by Mr. Bland-Sutton, in the *Transactions of the Obstetrical Society of London*, vol. xxxix, p. 160, in which two cases are well described. The importance of interstitial fibroids of the cervix is largely a matter of size. Thus a small interstitial fibroid of the cervix will probably cause no symptoms, and especially no menorrhagia; while an interstitial fibroid of the body of the uterus may cause profuse menorrhagia even when comparatively small. As regards subperitoneal fibroids when arising from the cervix, symptoms due to injurious pressure will arise with a tumour of comparatively moderate size, the size for instance of the foetal head at or near term, while a subperitoneal fibroid of the same size arising from the body or fundus of the uterus may cause no symptoms at all. A subperitoneal fibroid of the size mentioned arising from the cervix is fixed, owing to the fact that it opens up the folds of the broad ligament and raises the peritoneum from the pelvic cavity. It also causes the rest of the uterus to be fixed; whereas a similar subperitoneal fibroid of the fundus or body of the uterus remains freely movable, unless peritoneal adhesions should be formed.

It appears to me that when either an interstitial or a subperitoneal fibroid of the cervix has reached the size of a cocoanut and upwards, the tumour should be removed. In either case, owing to the fixity of the tumour, pressure that can hardly fail to be injurious, especially to the ureters, is likely to occur in course of time. As a matter of fact, troubles connected with micturition figure prominently in the history of these cases.

As regards the effect produced on menstruation by interstitial fibroids of the cervix, sometimes there is profuse menorrhagia (as in Case I in this paper); sometimes, on the other hand, menstruation is scanty, or may even be absent for long intervals, as in Case II. It may be suggested that whether in a particular case menstruation will be excessive or scanty depends very much on whether the convex aspect of the tumour towards the cervical canal is merely covered by the thinned cervical mucous membrane, or whether, on the other hand, the tumour in process of its growth upwards has invaded the lower part of the body of the uterus, and so caused hypertrophy of the mucous membrane there.

In two of the cases recorded in this paper (Cases I and II) the cervical fibroid was solitary; no other fibroid was present in other parts of the uterus. In Case I there was menorrhagia sufficient to make the patient profoundly anæmic; while in Case II menstruation had always been scanty, and had, in fact, only occurred on three occasions in the two years before she came to see me. In Case I the cervical fibroid was an interstitial tumour of the anterior wall; in Case II it lay in the posterior wall. In Case IV the cervical tumour was partly interstitial and partly subperitoneal; but

there were also fibroids in the body of the uterus, as well as a left ovarian cyst, so that the part played by the cervical fibroid in producing the menorrhagia cannot be determined. In all my cases of large interstitial fibroid of the cervix the os uteri was found to be dilated at least sufficiently to admit the finger. In Case III, one of large subperitoneal fibroid of the cervix, the os was not patulous.

An important point in diagnosis is to recognise the difference between a submucous fibroid of the cervix or body which is felt through the dilated os uteri, and a fibroid of the cervix that is truly interstitial. In the former case, of course, the tumour may be safely removed by *morcellement* through the vagina, whereas an attempt to remove a large interstitial fibroid of the cervix in that manner would almost certainly be disastrous. This will, I think, be clear on examination of the specimen in Case I. If there is any difficulty in deciding as to what the exact position of the tumour is it may be cleared up by careful examination under anaesthesia, when the finger can be passed sufficiently high into the uterus to recognise what proportion of the tumour is really projecting free towards the canal of the cervix.

As regards the changes likely to occur in cervical fibroids if not removed, I am able to refer to two cases. In one case, recorded in a paper of mine read before the Harveian Society in 1899, a large interstitial fibroid of the cervix sloughed, and was discharged through an opening spontaneously formed in the posterior lip of the cervix. The mass, which was horribly foetid, weighed over two pounds, and left a correspondingly large cavity for absorption in the wall of the cervix and body of the uterus. The patient ultimately died worn out by septic fever. In another and more recent case, not among those here recorded, I removed a large interstitial fibroid of the posterior wall of the cervix, and on section found it to be undergoing mucoid change.

As regards the difficulties met with in removing these large cervical fibroids, the cases have all this in common that the uterus and tumour are practically fixed, and therefore, no matter what may be the size of the abdominal incision, they cannot be drawn up out of the wound till the deep cervical attachments of the tumour have been more or less completely separated. In this respect these cases differ very much from large fibroids of the body of the uterus requiring hysterectomy. For there, apart from the presence of adhesions, when the incision is large enough, the uterus and tumours can be drawn out of the wound, when the attachments can be much more easily dealt with.

Another point is as to the treatment of the stump. In an ordinary abdominal hysterectomy for fibroids when the cervix is not involved my custom is to dissect out a cone-shaped piece of the cervical mucous membrane, and then to pass sutures through the anterior and posterior walls of the stump, and tie them as tightly as possible. In cases, however, of interstitial fibroid of the cervix the wall of the cervix from which the tumour has been removed is very thin, and the opposite unaffected wall has also become very thin, owing to stretching as the tumour grew. In Cases I and II I tied these thin cervical walls together so as to shut off communication with the vagina, but no doubt a portion of the silk used must have appeared on the distal (vaginal) aspect. No trouble ensued in these cases from this method. An alternative is to merely pass ligatures through each cut edge of the stump independently where necessary to control bleeding, leaving the communication with the vagina widely open, and drawing the ends of the ligatures through the cervical canal into the vagina. A gauze drain may also be used passed through the cervix similarly into the vagina. I adopted this method in a recent case not recorded in this paper, and the result has been quite satisfactory. The following are the notes of the four cases on which this communication is based:

CASE I.

A. T., a single woman, aged 38, a housekeeper by occupation, was admitted under my care into the London Hospital on October 4th, 1899.

History.—She said that the periods had been excessive for the past three years and had been attended with pain. During this time the menstrual period had generally lasted for a fortnight or more, and the amount lost at each period has gradually increased. Menstruation began at the age of 11, and she was quite regular every four weeks, the periods lasting about three days, and the loss being less than the average, till three years ago. Till then her general health had been good, and she had suffered from no illness, except measles, which she had at the age of 21. Of late she has noticed that her feet have swelled. During the last two years she has had

* Read before the Medical Society of London, February 25th, 1901.

a great deal of worry. Her appetite has been fair, but the bowels as a rule have been constipated.

Present State.—On admission the patient was profoundly anæmic. There was a loud systolic *bruit* heard over the cardiac area, soft and blowing at the apex and harsh at the base. The *bruit* was also heard in the left axilla, and at the angle of the left scapula. The pulse was 114, soft and regular. The urine was normal.

On examining the abdomen old *linere albicantes* were seen on the lower abdomen. A hard fairly central swelling was felt rising out of the pelvis, and extending to within three fingerbreadths of the umbilicus. *Per vaginam* a hard mass was felt bulging down the anterior fornix, it was continuous with the swelling in the hypogastric region. The external os was very far back and difficult to reach; it admitted the finger easily, and a short way within the os the finger came on a hard convex body projecting from the anterior wall into the cavity of the cervix. The patient was so very anæmic that I decided to keep her at rest in bed taking iron and other tonics for some weeks before attempting any operation. By November 5th her colour had improved a good deal, and on that day she was examined under anæsthesia. I intended if the tumour had been found to be definitely submucous, that is to say, one where the bulk of the tumour lies free in the cavity of the uterus and only a small fraction lies in the thickness of the uterine wall, to have removed it by *morcellement* after further dilating the cervix. Under the anæsthetic, however, it was evident that the tumour was really interstitial, and about the size of a cocoanut. The uterus was practically fixed, so that the cervix could not be drawn down at all. Under these circumstances it seemed to me much more dangerous to try and deal with the tumour from below than to perform abdominal hysterectomy, so that

tion of the fibroid, and removed. The cervical canal was swabbed out with 1 in 20 carbolic acid, and the edges of the cervix were closely sutured together. Owing to the stretching of the cervix by the upward growth of the tumour the walls of the cervix were very thin, in places no thicker than about one-twelfth of an inch. Several oozing points in the neighbourhood of the stump required ligatures. The peritoneal flaps were then sewn together over the stump, and a Keith's tube having been inserted, the rest of the abdominal wound was closed in the usual way. The patient made an uneventful recovery, and left the hospital on January 27th, 1900.

Note on the Specimen.—The mass removed weighed 4lbs. 5ozs. It was roughly the size and shape of a large cocoanut, except for a projecting knob at the top, which is the unaltered fundus and upper part of the body of the uterus. On sagittal section it is seen that the fibroid is truly interstitial in position, the thickness of uterine tissue being the same over the outer and inner aspects, and in both directions the lamella of uterine tissue is only very thin. The tumour lies for the most part in the anterior wall of the cervix, a small portion of the upper part of it may have encroached on the lower part of the body of the uterus. A small shaving was taken off the lower part of the tumour in removing it from the stump during the operation. This was taken away from the stump subsequently. Before making a sagittal section of the mass the opening into the cavity of the uterus admitted four fingers.

CASE II.

Mrs. M., aged 37, was sent to see me by Dr. Reeve, of Leytonstone, on March 26th, 1900. She had been married seven years, but had had no children. She had an incomplete miscarriage about two years ago, and I

Fig. 1.—Case I. Interstitial fibroid of the cervix—anterior wall.

on that occasion nothing more was done, and the patient was put back to bed. After the examination the patient bled a little every day up to November 8th. Her period began on November 12th, and continued till the 20th; the loss was very considerable, and large clots were passed. She then felt very weak, and was again much more anæmic. On December 17th the patient had a severe flooding; the bleeding was checked by hypodermic injections of ergotin and hot vaginal douches; it continued, however, though the loss was only slight, till December 18th. The position of matters was thoroughly explained to the patient, and she readily consented to abdominal hysterectomy.

Operation, December 28th, 1899.—The abdomen was opened by the usual incision in the middle line. It was then seen that the fundus and upper part of the body of the uterus were of about the normal size, and perched upon the top of the tumour, which was evidently situated chiefly in the cervix. The whole mass was firmly fixed, though there were no adhesions, so that at this stage it could not be pulled up at all. The upper part of the right broad ligament was divided between double ligatures, and the same thing was done on the left side, thus securing both sets of ovarian vessels. Still the tumour was quite immovable. Anterior and posterior peritoneal flaps were then made, and the bladder separated well down from the front of the mass. The abdominal incision was prolonged upwards for about one inch, and an assistant pressed the mass firmly upwards from the vagina. The right uterine artery was then found and tied, the left uterine being secured with Wells's forceps, and tied at a later stage. The mass was then pulled up as firmly as possible, and by a circular incision the body of the uterus and the cervical tumour were separated from the small portion of the cervix remaining below the posi-

Fig. 2.—Case II. Interstitial fibroid of the cervix—posterior wall. The extremely thin anterior cervical wall is well seen. The body of the uterus practically unaltered.

was called in to remove the part of the ovum that had been retained. On the present occasion she complained of soreness in the lower part of the back, going round to both iliac regions, which she had had for some time. About six months ago she had been unable to pass water for a whole day. For the past three or four months she has been troubled by a difficulty in holding the water. Menstruation appeared when she was between 13 and 14. She has never been regular, generally going more than a month between the periods. The loss has always been slight, and has been unattended with pain. She has only menstruated three times since the miscarriage. The last period occurred about ten days ago, and was very slight; before that she had "seen nothing" for six months. The bowels have latterly been much constipated.

On examining the abdomen a hard swelling was felt rising from the pelvis, and reaching nearly to the umbilicus; a portion of the tumour about the size of an egg was felt in the middle line and at the upper part of the general swelling, which could be moved somewhat on the underlying portion. (This subsequently proved to be the fundus and body of the uterus practically unaltered.) A loud uterine *souffle* was heard all over the tumour. The breasts showed no changes.

On vaginal examination the upper part of the vagina was found to be occupied by a smooth convex swelling. The external os, widely dilated, so as to form a crescentic slit with the convexity forwards, lay in front of the mass. The anterior lip of the cervix was thin, and exactly like its condition during the first stage of labour. The mass was evidently an interstitial fibroid of the posterior wall of the cervix, which on the one hand had carried the body and fundus of the uterus unaltered in shape

upwards to the neighbourhood of the umbilicus, and on the other hand had burrowed downwards into the posterior lip of the cervix, so as to completely obliterate it. The mass had little or no mobility.

The patient went into Fitzroy House shortly afterwards, and on April 7th, 1900, I performed abdominal hysterectomy. The same difficulty was met with as in the preceding case—the tumour could not be brought out of the wound, even after the upper part of the broad ligaments and the round ligaments had been divided, and the anterior and posterior peritoneal flaps had been dissected down. A somewhat circular incision was made rather low down into the tumour; anteriorly this divided the anterior wall of the cervix, which was extremely thin, and was spread out tightly over the tumour lying behind it. The circular incision posteriorly opened a thin capsule of cervical tissue, out of which the lowest portion of the tumour was with some difficulty enucleated. The most noticeable points about the case here were the extreme thinness of the walls of the cervix constituting the stump, and the wide communication with the vagina. The question occurred to me whether to leave this open for drainage, or to close it. I decided to close it, and therefore sutured the anterior and posterior walls of the cervix together, endeavouring to let as little as possible of the suture (silk) appear on the vaginal aspect. The peritoneal flaps were then sutured over the stump, and a Keith's tube having been inserted the rest of the abdominal wound was closed in the usual way. The patient made an uninterrupted recovery. I saw her about five months afterwards. She was quite well. On examination what remained of the vaginal portion of the cervix was freely movable, and in what represented the external os some silk was seen. This was not loose, and as it was giving no trouble I made no attempt to remove it.

Fig. 3.—Case III. Large subperitoneal fibroid springing from the posterior aspect of the cervix. Body of uterus little altered.

Note on the Specimen.—The specimen consists of the body of the uterus and the upper part of the cervix with the right uterine appendages. The posterior wall of the cervix is occupied by a large interstitial fibroid; the lowest convex portion of the tumour is what represented the posterior lip of the cervix on vaginal examination. The tumour measures 7 inches vertically, 5 inches transversely, and 3 inches from before back. The fundus and anterior wall of the uterus are not at all involved by the tumour. The anterior wall of the cervix has been stretched and thinned so as to constitute a layer only about one-tenth of an inch in thickness. The tumour extends upwards so as to involve the posterior wall of the body of the uterus to within a quarter of an inch of the fundus.

CASE III.

A. M., a single woman, aged 49, a housekeeper, was admitted under my care into the London Hospital on January 23th, 1900. She was sent to me by Dr. Birch, of Dalston, and Dr. Marston, of Clapton. She gave the following history:

She was fairly well till May, 1898, then she had difficulty and pain in passing water, which lasted for about four months; at that time she noticed the abdomen was rather swollen. The greatest difficulty on micturition occurred after the menstrual periods. Menstruation began at the age of 13, and she has been regular every three weeks since, the period lasting about seven days. The amount lost has never been excessive. She has always had pain for a few days before the flow, relieved by it. For the last year and eight months the catamenia have been less and less. She has thought the swelling in the abdomen became greater at the menstrual period, and that recently it has not diminished in size afterwards as it used to do. She first noticed the swelling in the abdomen a year and eight months ago. At that time she began to be troubled with frequent desire to pass water, and often inability to do so for many hours. At such times she said the abdomen swelled considerably, and

that her feet and legs also swelled. She has never had a catheter passed. She has not lost flesh.

January 29th. *Abdominal Examination.*—The abdomen is irregularly prominent from the lower part of the epigastric region to the pubes. An irregular hard tumour is felt rising from the pelvis and reaching to a handsbreadth above the umbilicus. Laterally the tumour reaches outwards and a little beyond the anterior superior iliac spine on each side. The tumour has a slight range of mobility, both up and down, and from side to side. A loud uterine *souffle* is heard over the centre and left side of the tumour.

On vaginal examination a hard lump is felt bulging down the posterior fornix and the left lateral fornix. This lump is continuous with the tumour felt in the abdomen. A projecting part of the tumour, thought to be the body of the uterus, is felt anteriorly, but it could not be separated from the rest of the tumour. The lump in the posterior fornix is fixed. The vaginal portion of the cervix is not involved; a small mucous polypus projects from the os uteri. The sound passes $4\frac{1}{2}$ inches. It could only be passed after fixing the cervix with a volsella.

Operation, February 9th, 1900.—The abdomen was opened by an incision from a point 2 inches above the umbilicus to within $1\frac{1}{2}$ inch of the pubes. It was subsequently necessary to extend the incision upwards. When the peritoneal cavity was opened it was found that as regards the greater part of the incision—that from the level of the umbilicus downwards—there was no peritoneal cavity to the left of the incision, the peritoneum was reflected from the surface of the tumour to the abdominal wall on the left side about 1 inch from the incision. The sigmoid flexure lay to the right of and partly above the umbilicus. The body of the uterus was easily seen

Fig. 4.—Case IV. Fibroid of cervix partly interstitial—projecting into cervical canal—partly and chiefly subperitoneal. Panhysterectomy. Other fibroids of uterine body. Small (left) ovarian cyst.

about the centre of the anterior aspect of the tumour. The uterus lay somewhat obliquely, so that its anterior surface looked to the right. The upper part of the right broad ligament was secured and divided, so that the right ovary was not removed. The left ovary was removed with the tumour. There was no pouch of Douglas, nor any peritoneal cavity in the left of the pelvis; there was a small pouch of peritoneum in the right side of the pelvis. The tumour had grown from somewhere about the back of the cervix, and had raised the peritoneum entirely from the pouch of Douglas and the left side of the pelvis, also from the greater part of the left iliac fossa.

All the usual relations were therefore entirely altered. The tumour was removed by first incising the peritoneum over it, and then carefully enucleating it from the extensive retro-peritoneal bed indicated above. Large vessels going to the tumour were tied as they came into view; ultimately the region of the cervix was reached. The lower part of the cervix was not involved by the growth, and accordingly it was possible to make a cervical stump in the usual way. The incision made into the peritoneum in order to enucleate the tumour was then stitched together, a Keith's tube was inserted, and the abdominal incision closed in the usual way.

The tumour consisted of two main masses with secondary outgrowths: (1) The larger lay entirely under the peritoneum of the left broad ligament, the left side of the pelvis, and part of that in the left iliac fossa. (2) The smaller part lay under the peritoneum that should have formed Douglas's pouch. The body of the uterus, comparatively little altered, is seen about the middle of the specimen. The whole mass weighed 9½ lbs.

After-Progress.—In spite of the severity of the operation, which I think was the most difficult one of the kind that has occurred in my practice,

the patient did very well. The stitches were removed on the tenth day, when the wound was looking well. It was strapped as usual, but unfortunately burst open as to its upper 3 inches, the part above the umbilicus, the next day. It was resutured, and no bad symptoms ensued. The rest of the convalescence was uninterrupted, and she went home on March 17th. I have heard of her recently, and she remains quite well.

CASE IV.

Miss S., a single woman, aged 32, a bookkeeper at a hotel, came to see me on June 14th, 1900.

She said that she had noticed a lump in her abdomen for eighteen months, and that lately it had greatly increased in size. For some years she has lost a great deal at the menstrual periods; the last two periods have not been quite so profuse as usual. At Easter she had a very excessive loss, the period lasted ten days, and large clots were passed. She has not had much pain at the periods. There has been no trouble with micturition, and the bowels have been regular. She has not felt strong for some time, and has suffered from neuralgic headaches.

On examining the abdomen, a hard, irregular tumour was felt, reaching to the umbilicus. A softer portion of the tumour to the left suggested that there might be a small ovarian tumour as well. On vaginal examination the os uteri was found to be displaced forwards and dilated sufficiently to admit the finger. A hard tumour was felt within the os, projecting towards the cervical canal. The sound passed 5½ ins. The diagnosis was a more or less interstitial fibroid of the cervix, with multiple fibroids, and possibly a small ovarian cyst on the left side. The patient was very anæmic. She was admitted into the London Hospital shortly afterwards.

Operation, June 28th, 1900.—An abdominal panhysterectomy was performed. The ligatures on the uterine vessels were left long, and together with those on the cut edges of the vaginal walls were drawn down into the vagina. A strip of iodoform gauze was also drawn from above into the vagina; about 1 inch of it was left projecting into the peritoneal cavity. The rest of the wound was then closed in the usual manner. The patient made a good recovery.

Note on the Specimen.—The specimen consists of the whole uterus with the left ovary and Fallopian tube. There is a portion of the vaginal mucous membrane behind the cervix. There is an interstitial and partly subperitoneal fibroid of the posterior wall of the uterus rather to the left side. It measures 6 inches long, 4½ broad, and 4 inches thick. It is largely cervical in position, reaching down almost to the external os, which is about the diameter of a shilling. There are several subperitoneal fibroids, chiefly to the right and behind, the largest about the size of the fetal head at seven months. The left ovary forms a unilocular cyst of about the same size.

EXTRAUTERINE FETATION.*

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THE phenomena of an extrauterine foetation are very remarkable, and in studying the subject it is important to remember that a child conceived outside the womb may develop to the full term of ordinary intrauterine life without causing the mother sufficient distress to induce her to consult a medical man, and even without causing her any anxiety. She may believe herself pregnant in the ordinary way up to and beyond the full period of gestation.

OVARIAN AND INTRAPERITONEAL GESTATION.

It has been a source of doubt whether the ovum may be impregnated and develop anywhere outside the uterus except in the Fallopian tube, but at a meeting of the Obstetrical Society of London last January, it was very generally accepted that occasionally the impregnated ovum may be found in the ovary. It is also a matter of dispute whether an extrauterine gestation may occur in the peritoneal cavity. It is not really known how and why the ovum passes from the ovary into the Fallopian tube, and there is good reason to believe that an ovum from one ovary may pass into the uterus through the Fallopian tube of the opposite side. There seems, therefore, no reason why an ovum should not be fertilised after it leaves the ovary and before it reaches the tube. If conception should take place in this section of its journey towards the uterus, the ovum would be very apt to drop or be pushed into a part of the peritoneal cavity at a greater or less distance from ovary and tube. Our knowledge of the peritoneum would lead us to believe that an abundant blood supply might be derived from any portion of its inner surface, and a free blood supply seems to be all that the ovum requires for its development. It appears to me, therefore, quite likely that, sooner or later, proof will be forthcoming that a true intraperitoneal extrauterine gestation may arise.

TUBAL GESTATION.

Even when developed in the tube an ovum may be not strictly extrauterine. It may be situated in that part of the

* A paper read before the Watford Medical Society.

tube which passes through the uterine wall. Hence Lawson Tait called his book on this subject *Ectopic Gestation*. Gestation "out of place," of course, includes those cases in which the ovum develops in the part of the tube nearest the uterine cavity, as well as those which may be described as truly outside the wall of the uterus.

There is no doubt, however, that in the great majority of cases of ectopic gestation the ovum becomes arrested in and attached to the inner surface of that portion of the Fallopian tube which is outside the uterus, and I propose in the following remarks to simplify the subject by describing only the conditions which follow the development of a pregnancy in that part of the Fallopian tube which is truly extrauterine.

When a child is conceived outside the uterus its mere bulk at term is not a cause of trouble. But although the size of a pregnancy is of no significance as regards the belly wall, it is all important as regards the relations of the foetus to the tube. When submitted to gradual pressure, as in some cases of chronic and especially in tuberculous salpingitis, the Fallopian tube may distend to a very great extent, but it is not capable under any circumstances of sufficient expansion to allow of its accommodating a full-term child within its lumen. Hence the tube must give way if the normal development of the foetation continues, and the period of its rupture may be one of great danger to the existence of the foetus and to its mother. At present, however, I am endeavouring to follow the development of an embryo which progresses to full term with little or no disturbance of any kind.

It was at one time thought that when the tube ruptured without terminating the existence of the pregnancy the foetus escaped into the peritoneal cavity, where it developed free among the intestines. It is almost inconceivable that a foetus could escape into the peritoneal cavity without setting up an amount of inflammation which would necessarily attract attention, and would eventually cause the formation of some sort of sac limited by inflammatory adhesions. If the child and the mother could survive, the sac when formed might possibly serve the purpose of the membranes in a normal pregnancy. Nevertheless it appeared to be a fact that the foetus might and did develop in the unchanged peritoneal cavity, for cases are recorded in which the child was supposed to have been found thus free. These records were made, however, from inexact information.

Dr. John W. Taylor, of Birmingham, during an operation which he performed on December 11th, 1896, observed certain facts from which he deduced the true explanation of the phenomena under consideration. He noted that the cavity in which the foetus lay was everywhere bounded by a membrane stretching over the peritoneum, but so thin that it was only visible when the intestines were placed so as to show it passing from coil to coil. He traced this membrane to the placenta, and he believed it to be the amnion. Hence he argued that unless the amnion is intact the pregnancy cannot advance, but the foetus must die in a very short time. This view is much more reasonable than the idea that a child may develop free in the peritoneal cavity, and it almost carries conviction with it as soon as it is suggested. Moreover, subsequent observations have fully confirmed Dr. Taylor's teaching.

COURSE OF EXTRAUTERINE GESTATION.

In the earlier stages of the development of a foetus the outer membrane of the embryo consists of one membrane—the chorion—covered everywhere by villi, and, if in the uterus, enveloped by the decidua reflexa, which is a mass of cells heaped up around and over the ovum by the mucous membrane of the uterus, the whole being well supplied with blood. At one part of the chorion the placenta develops, and then the rest of its circumference becomes less vascular. The amnion or inner lining of the sac containing the foetus develops round the embryo inside the chorion at an early stage of the pregnancy. It forms the outer covering of the umbilical cord, and is continuous with the child's skin at the navel. Its outer surface is at first separated from the chorion by a space, but after a time it becomes approximated to the chorion as the air-tight bladder of a football is pressed against the leather. The amnion and chorion unite to form "the membranes," but, according to Playfair,¹ there sometimes remains between them a fluid analogous to Wharton's jelly, which may be in