THESIS
ON
EXTRA UTERINE GESTATION

By

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April 1886.
Extra Uterine Gestation.

The following case came under my charge while House Surgeon to the Royal Maternity and Simpson Memorial Hospital last summer:

Menstruation began at 15; type 28 days; duration 4-7 days; quantity small.
She last menstruated in the first week of July 1886 and first noticed the movements of the child at the end of November.

Previous Obstetric History. Eight and a half years ago she had an abortion between the third and fourth months of pregnancy. This seems to have been incomplete as she suffered from menorrhagia more or less for four or five years. She then became pregnant again but aborted at the 6th month with considerable hemorrhage. Menstruation returned for a short time and then ceased for 5 months, reappearing again without any symptoms of abortion and continuing regular up to the first week of July 1886.

Condition during Pregnancy. In September
1886 she had attacks of severe vomiting for about 3 weeks. This was accompanied with pain in the abdomen & a discharge of blood from the vagina, & something came away which was thought to be an ovum. The pain and discharge continuing she went to the Infirmary and was under Dr. Croom's care for 5 weeks. When she left the pain & discharge had ceased but two weeks later the pain returned although not so severely as at first. She was re-admitted to the Infirmary and remained 4 weeks. During this time the pain diminished but was not relieved. It was felt in the front of the abdomen & the left side below the ribs & was markedly paroxysmal in character, coming on at night about 10 p.m. and lasting till 2-5 a.m. She then had relief till the afternoon when it returned for a few hours. Any movement of the child caused pain.

In the end of January 1887 she was admitted to the Maternity Hospital under Professor Simpson, who on examination suspected the gestation was extra-uterine but she only remained ten days in the Hospital. From
then up to the beginning of April she continued in much the same state but at this time the foetal movements became very strong and then ceased and that night there was a little bloody discharge from the vagina. Since then the pain has almost disappeared, the abdomen has diminished in size and also the breasts, the appetite has improved and she sleeps much better at nights.

Physical Examination on May 9th

Patient is rather under the medium size, delicate looking, dark, face pale and expression anxious. The breasts are small and when squeezed a little milk escapes. The areolae are well marked but not large; no striae are present.

Abdomen: On inspection there are a few striae and a faint linea nigra. It measures 32 inches in circumference at the umbilicus and 30 inches at the xyphoid cartilage (a week later it had diminished 1 inch at the umbilicus). The abdominal walls are lax and there is tenderness in the hypogastric and right iliac regions.

On palpation a swelling is felt to lie obliquely, reaching from the pelvis and right
iliac fossa up to below the level of the left ribs. Its direction is to the left and its size vertically is 8 inches. The head of the fetus can be palpated between the hands immediately below the ribs on the left side. The limbs of the fetus lie to the front and right side and feel distinct. No uterine knot or fetal head can be heard.

**Vaginal Examination**. Pelvis normal. Vagina moist, not very roomy. The cervix is somewhat firmer than in ordinary pregnancy; the 23 admit the tip of the finger 2 rods downwards and backwards. The cervix is in its normal position and movable but this causes pain. Through the vaginal roof a round somewhat elastic swelling is felt which is supposed to be the expanded body of the uterus. Bimanual examination was unsatisfactory and position of the uterus could not be distinctly ascertained owing to the tenderness of the lower part of the abdomen.

**Measurements of the Pelvis**

Shoe crust 9 3/4 inches. Shoe spine 9 inches.

External Conjugate 7 1/2 inches.

Interischium diameter 11 3/4 inches.
After a few days rest the sound was introduced by Dr. Miller into the uterus & was found to pass upwards freely for 4 inches. The following day the cervix was dilated with tripolar tongs and afterwards with Barnes Bag & the uterus found empty.

On May 18th at 4 a.m. she awoke with severe pain in the lower part of the abdomen on the left side. She began to vomit, became pale & somewhat collapsed. Brandy was given internally, 1/4 gr. Morphine hypodermically. Hot fomentations applied to the abdomen. Temp. 101.4

Pulse 130. Throughout the day the pain became worse extending over the whole abdomen. She lies on her back with her knees drawn up. Feces contain large amount of mucus & small quantities of blood. No urine passed. The abdomen is tender & distended. The bowels were opened by rectal examination but no passage. Morphine continued in 1/4 gr. Suppositories every 4-6 hours. Hot vaginal douche were given every 1-2 hours. She gave some relief.

A consultation was held to day when it was decided to delay operating unless if the pain increased. 

May 20th: Yesterday there was no improvement. She had two attacks of vomiting, vomited matter
copious, yellowish, brown smelling. To-day she vomited twice, quantity large, last attack had a faecal appearance + colour. A large copse of water enema was given + bowels moved well with out much pain but the motion was very light coloured. The vomiting became more distressing + feeling by the mouth was stopped + nutritive enemata of beef tea + brandy given every 4 hours. These were well retained.

Temp. 100.4. Pulse 120. Abdomen is not so firm or tender as formerly but has become tympanitic on the right side + slightly distended + still pain in constriction.

May 21st. Patient weaker. Temp. 100.6. Pulse 120 full + still filled. He had two attacks of faecal vomiting, once during the night then this morning. Enemata stomatoptia continued with ice + milk. No flatus or faeces formed by sectum. Abdomen in same condition, does not complain of so much pain.

A consultation was held to-day to consider the new complication of obstruction of the bowels. It was decided to wait 24 hours + see if it continued.

May 22nd. No improvement to-day. Nothing passed by bowel. Vomited faecal matter once
this morning. Temp. 99.2° Pulse 110. Complains more of pain and distension.
At 1.30 p.m. laparotomy was performed by Professor Simpson. On cutting through the abdominal wall the cyst was exposed & an opening made in it, allowing a considerable quantity of liquor amnii to escape. The foetus (dead) was found lying in the above mentioned position. It weighed 5 lbs. Measured 20 inches in length. Seemed quite full; two inches from the umbilicus the cord was contracted & broken (supposed to have snapped during the operation) of the other end attached to the placenta could not be found. The posterior horn part of the sac seemed to be divided by a large placenta, this was not touched. The sac was washed out with warm carbolic solution. A drainage tube introduced at the edge of the sac stitched to the margins of the abdominal wound. The wound was then closed except round the drainage tube so as to allow the discharge & placenta to come away. The obstruction of the bowel (if any beyond the weight of the foetus) was not searched for owing to patient's weak state & the cutting of the intestines from the peritoneum.

Patient slept a little in the afternoon. In the
evening the temp. rose to 102.2° Pulse 126. In-rect
ment. The pain in abdomen was severe but
no flatus escaped. Enemata continued at longer
intervals to-day.

May 23rd. Patient is much weaker. Pulse rapid
feverly perceptible. Temp 99.6° A little flatus
escaped from bowel but no feces. She does not com-
plain of pain. Threes are not drawn off. Bowel
dressed, foulity serious discharge from it. Patient
stimulated freely. In the evening the temp rose
to 105.6° in the vagina. Pulse 144 very feeble.
Breathing 56. Hands cold covered with clammy
perspiration. Enemata rejected but no feces
reduced with it. Stimulants continued by
mouth subsequently.

Patient became gradually weaker it died at
2 a.m. on May 24th.
Extra-Uterine Gestation

Definition. Extra-uterine gestation consists in an arrest & development of the ovum outside the cavity of the uterus, it may be in some part of the Fallopian tube, in the cavity of the abdomen or the ovary itself.

Classification. Until the year 1824, three species were recognized, the ovarian, tubal & abdominal. In this year Brocq added what he supposed to be a new variety of Intestinal Pregnancy, which he thought was caused by the ovum developing in the midst of the tissues of the uterus itself, having found its way into this abnormal position by a venous sinus. Cazeneu suggested it was due to the ovum's arrest in a diverticulum of the canal of that portion of the Fallopian tube which traverses the uterine wall. The true nature of this form of pregnancy was shown later to be simply a variety of tubal gestation, the ovum being arrested in the Intestinal portion of the tube, i.e. that portion of the tube which traverses the uterine wall, there developing; that if it is found in the tissues of the uterus it is the result of a rupture of an Intestinal Pregnancy. In 1834 Degemier described 10 cases. In 1843 (Land. &c. Linn.) a much simpler classification was adopted by Sait...
who maintains that every case of extra-uterine gestation is tubal in its origin and divides it into three varieties:

1. Tubo-ovarian, when the ovum has been fertilized in the infundibulum before the separation has occurred between that structure and the surface of the ovary.

2. Tubal, (3) Intestinal, where the attachment has been formed to that part of the tube lying in the uterine wall. The abdominal variety of gestation he says is due to rupture of the tube at escape of the ovum of this may become intra-peritoneal or extra-peritoneal just as the tube happens to burst.

Gailland Thomas (Diag. Women) divides it into three varieties: (1) Tubal, which consists in the arrest of the impregnated ovum in the Fallopian tube and its development there, or it may develop, just where the fertilized end of the tubeチョップ the ovary. (2) Intestinal, the ovum is arrested in that part of the tube which passes through the uterine wall, it attaches itself, distends the peritoneum of the uterus to make it wider, because it protrudes partly towards the uterine cavity, partly towards the abdominal cavity. (3) Abdominal. Pregnancy, here one of two things occur, either the tube holding the impregnated ovum in its grasp breaks away from its ovarian attachment, falls into the abdominal cavity remains there, while the ovum casing out.
tentacular attack itself to the peritoneum (grows, or, as some suppose possible the impregnated egg falls out of the grasp of the tube & getting its nourishment from the peritoneum develops independently of the lining membrane of the uterus which extends throughout the tube.

Parry (Extra-Utero Pregnancy 1846) classified them thus:

- **Ectopic Pregnancy:**
  1. **Sub-ovarian** (the germ being arrested in the pavilion which contracts adhesions with the ovary)
  2. **Sub-abdominal** (germ arrested in the same locality. The tube may contract adhesions with neighbouring organs. If it does not, the ovum may project into the abdominal cavity with a part of its surface bare)
  3. **Intra-pavilaginator** (germ arrested between the pavilion & that portion of the oviduct which traverses the uterine wall)
  4. **Sub-uterine** (germ arrested in that portion of the tube which passes through the uterus)

- **Ovarian Pregnancy:**
  1. **Ovarian proper** (germ contained in the ovary, that organ remaining free from adhesions)
(2) Ovario-Tubal, (germ contained in the ovary which contracts adhesions with the fallopian of the tube.)

(1) Primary, (ovum developed from the ovary in the peritoneal cavity)

(2) Secondary, (development commences in the tube or ovary, the cyst ruptures, ovum escapes and continues to live and develop in the peritoneal cavity)

A simpler classification one which embraces all the varieties of practical importance in the following:

I. Tubal
   (1) Intestinal
   (2) Tubal Perfor
   (3) Tube-Ovarian

II. Abdominal
    (1) Primary
    (2) Secondary

III. Ovarian

IV. In a Bi-Lobed Uterus

Although pregnancy in the rudimentary form of a bi-lobed uterus is not strictly speaking extra-uterine, yet as it results in a treatment one the same it may be included here.
I. Pelvic Pregnancy. Pelvic pregnancy was first recognized by Michaelis in 1640 in the body of a woman in the service of Anne of Austria. It was described by him in his Anthropographia in 1649. It is now known to be the most frequent of extra-uterine gestations. Normally the ovum on its way from the ovary to the uterine cavity passes from the ruptured Graafian follicle through the fimbriated end of the Fallopian tube, canal of the Fallopian tube, interstitial portion of Fallopian tube, horn of the uterus. It may be arrested at any point in this course, becoming attached here through the stages of fetal development just as it does in the uterine cavity—(1) in the tube at its uterine end where it passes through the substance of the wall of the uterus—interstitial,(2) in the tube proper, this is the Commonest variety,(3) at or near the fimbriated extremity of the tube which contracts adhesions with the ovary so that part of the gestation formed by the tube and part by the ovary - Into-ovarian.

II. Abdominal Pregnancy. The ovum is developed in the abdominal cavity, this development may be primary or secondary. In Primary Abdominal Pregnancy the ovum is developed in the peritoneal cavity without having any connection with the mucous tract of the uterus or tubes. It has denied the occurrence of Primary Abdominal Gestation. He says that every case
of extra-uterine gestation is tubal in its origin & that there are only two forms of misplaced conception, i.e., the one the ovum with its peritoneal layer bursts & the ovum escapes into the peritoneal cavity & develops intra-peritoneally; in the other the tube alone ruptures & not the peritoneum & the rupture occurring on its under surface & the ovum falls down between the layers of the broad ligament & there develops extra-peritoneally (if the patient survives). Thomas believes that in the beginning of its development the impregnated ovum never attaches itself to, or shows its nourishment from, any other parts than those lined by the mucous membrane of the uterus or tubes. He continues to say "knowing as we do the delicate & subtle connections which the chorion establishes with the maternal tissues, it is certainly difficult to believe that an impregnated ovum falling free into the peritoneal cavity or detained within the broad ligament can exist & so unlike the lining of the uterus establish relations almost identical with those which are normal." Barnes (in "Gynecology and Obstetric Medicine & Surgery") thinks it doubtful if abdominal gestation is ever primary. He believes it is always secondary upon tubal or ovarian, the sac in which they were contained having given way & the ovum having retained its vitality through partial attachments to the original sac.
There is no evidence however to show that in most cases there is an early laceration of a total or ovarian sac, which according to these authorities occurs in all cases of abdominal pregnancy. Playfair (Science & Practice of Midwifery) says it is not unreasonable to admit the usual explanation of these cases that the ovule already impregnated escaped the groove of the Fallopian tube it fell into the abdominal cavity where it rooted itself and developed. He also considers it by no means rare for impregnated ovules to drop into the peritoneal cavity and the majority of those that do perish without doing any harm.

Spermatozoids have been seen on the surface of the ovaries 4-8 days after conception, it is therefore probable that they may live for sometime on the surface of the peritoneum. That the secretion of this membrane is most destructive to their life. The possibility therefore cannot be doubted that an ovum may be fecundated by them outside the uterus & Fallopian tubes. That not only this can occur but the ovum thus fecundated may attach itself to the peritoneum it then develop is fully proved by Kocher's case (Keller, Des Grosses Intra-uterines) where the body of the uterus & part of the cervix was removed leaving the ovaries. In the part of the cervix that remained there was a fistulous opening from the
Vagina into the abdomen and through this the germatoga passed, came in contact with the ovum and caused primary abdominal gestation. This case proves that primary abdominal gestation can occur: after impregnation the ovum became attached to the peritoneum and went through the process of development without having any connection with the mucous membrane of the tubes or uterus. Further proof is obtained in the case of Heculesse published in Belgium in 1869. This patient had a fistulous opening on the anterior surface of the uterus, the result of a previous Cesarean Section, through which an ovum escaped into the peritoneal cavity and continued to develop for 7-8 months, the placenta being attached to the anterior surface of the small intestine. In this case the ovum was justified in the usual manner passed into the uterus but before becoming attached to the uterine mucous membrane it passed through the fistulous opening into the peritoneal cavity.

From these cases we may conclude that if an ovum is justified fails to enter the Fallopian tube it may fall into the peritoneal cavity and then attach itself to the peritoneum and continue its development until it is completed. Schroeder (Manual of Midwifery) says, "Then we look at the mechanism adapted by nature..."
for seizing the ovum & conveying it to the womb there to be developed if fecundated, or allowed to pass off with the secretions if otherwise, it seems surprising that extra-uterine pregnancies do not occur more often than is actually the case. The impediments to the entrance of the ovum into the Fallopian tube are various. Thus the Graafian follicle may have ruptured at a spot too far distant from the end of the tube; or an abnormal movement of the abdominal contents, especially of the intestine, may have forcibly deviated the ovum from its right course; or the movement of the cilia on the epithelium of the tube may have ceased from partial or entire destruction of the epithelium in consequence of a catarrh of the tube; or the end of the tube of the same side is occluded & the spermatozoa have passed through the tube of the other side into the pelvic cavity. Parry quotes two cases that assist in proving the occurrence of primary abdominal pregnancy: the first was that of Reigh where the patient died after having carried the child four years & on P.M. the cyst was found attached to the omentum while the internal genital organs were not involved; the second was that of Rupini's where there was a twin abdominal pregnancy, the placenta was situated at the fundus, the tumour being in the retro-uterine pouch. So low down that an attempt
was made to deliver the woman by incising the posterior wall of the vagina in the 6th month of pregnancy. After death nothing unusual was found about the Fallopian tubes or broad ligaments: the right ovary was normal, contained a corpus luteum while the left was somewhat atrophied.

The attachment of the placenta has been supposed to form a certain guide to the variety of the pregnancy. Thus it has been found inserted on the omentum, stomach, between the mesentry, colon, to the upper anterior surface of the bladder, but attachment of the placenta to a portion of the peritoneum however remote from the uterus, tubes or ovaries does not prove the existence of primary abdominal pregnancy.

In Secondary Abdominal Pregnancy, the ovum is originally formed in the tube or ovary where it develops for a variable time, usually 1-3 months, then rupture takes place and the contents are expelled into the peritoneal cavity forming an extra-peritoneal gestation; or in a total case if the rupture occurs on the under surface of the tube the ovum may pass down between the layers of the broad ligament and develop extra-peritoneally.

Hart (Edin. Med. Jour. 1884) describes a case of extra-peritoneal gestation - the foetus, placenta lying in the extra-peritoneal tissue.
Primary abdominal gestations are intra-peritoneal, a secondary abdominal gestation may be intra- or extra-peritoneal.

III. Ovarian Pregnancy. That development of the ovum in the ovary could take place was admitted until 1825 when Delpech, after examining four specimens of supposed ovarian pregnancy, asserted that in three of the cases the ovum was not situated within but on the surface of the ovary. Numerous writers in France, England, and Germany supported him, but authentic cases have since been recorded.

In ovarian pregnancy development must take place in the substance of the ovary. It may be that spermatogonia pass through the walls of the Graafian follicles before it ruptures, meeting the ovum within the cavity of the follicle there fertilizing it. Spermatogonia have been demonstrated on the surface of the ovary, but not their passage through the unruptured wall of a Graafian follicle. The most reasonable explanation is, that the Graafian follicle may rupture, the ovum remain instead of being discharged. Though this rupture in the wall of the follicle the spermatogonia may reach and impregnate the ovule which may develop in the situation in which it has been detained. Péch (Annal. de Gynéc., 1878) admits two varieties of
ovarian pregnancy according as the foetus has developed in a sacule which has remained open or in one which has closed immediately after insemination. Parry says the weight of authority is in favour of ovarian pregnancy. We are inclined to regard the evidence advanced so far concerning the alleged occurrence of gestation within the proper tissue of the ovary as by no means complete and cannot admit its having been proved, for if we consider for a moment the chain of circumstances which alone could lead to such an incident we can readily understand in the first place how extremely rare its occurrence must be; in the second place how difficult it is to prove what is absolutely necessary — that the ovum was developed within the follicle which it had never left.” Playfair and Barnes do not deny the existence of ovarian pregnancy but consider it to be rare and exceptional.

Several authentic cases are published which seem to show that it can occur. Freud relates a case — (Edin. Ms. Trans. 1882-83) Patient aged 24, had had faintness only once and this was disturbed by a sudden fright. During the latter months of gestation he diagnosed an ovarian pregnancy. He felt the round ligament, the tube of the left ovarian ligament distinct from the uterus whose fundus could be defined rising up
on the tumour; on the right side the tube and ovary could be distinctly felt. One year after conception lap-
aproctomy was performed and found it an ovarian pregnancy of the left side, the egg being completely free
in the greater part of its extent, only on the left wall of
the pelvis and the floor of the pouch of Douglas was it adherent.
Harbling (Med. Rec. 1874) records a case of fatal rupture
at the 3rd month. On P.M. there was a considerable
amount of recent and old clots in the pelvic cavity.

Behind the uterus was a tumour about the size of a
fist with two small rents on its upper surface and
within was an ovarian containing a foetus. No


tube could be found, but alongside the cavity was
a corpus luteum.

Yalke (Med. Rec. 1879) relates a case which ruptured
at the end of the 4th month causing death of the
patient. On P.M. two parts of blood were found in
the abdominal cavity. The enlarged ovary was seen
in the field of the broad ligament with a rent in it.
The fimbriated extremity of the Fallopian tube grasped
the ovary at its upper and inner border of usual
size. A careful examination of the tissues near the
rent showed it to be true ovarian tissue.

In Gurnej's case the patient was pregnant for the
ninth time, 4 at the 3rd month fell ill with
collapse from severe edema in the right horn died in 10 hours. The abdomen was full of clot & a small foci was found in the midst. The right ovary was torn longitudinally & in the half of the side not attached to the tube its whole capacity was filled with clot (Barney Dis. of Women).

Spiegelberg has established the authenticity of mine cases. M. Ruch has recently described a case which seems conclusive proof.- The left Fallopian tube like the right was closed behind the ovary by adhesions but had remained permeable. Its peritoneum was closed in great measure but not completely & admitted a probe. The left ovary contained Graafian follicles of various degrees of development. On its outer extremity was a rounded body about the size of a large cherry. Its envelope was transparent & furnished with well marked reticulated vessels. At one spot a deep violet coloration was seen over a space about the size of a lentil & around this the envelope was thickened. On most of the rest of the surface a yellowish substance could be seen through the translucent envelope. On opening the cyst a prominence with a villous surface was found attached at the area of coloration while over the rest of the surface a layer 2 m.m. thick could be easily separated.
from the cyst wall. The villous prominence was for-
mixed with large vessels and formed a semi-ellipsoidal
measuring 11 m. by 10 m. On incising this it
was found to contain a cavity distended by clear
fluid & in this fluid floated an embryo in the form
of a cconiform body 1 m. long curved in the middle
& swollen at one extremity.

Varian pregnancy is a rare & exceptional variety and
as far as treatment & results are concerned does not
differ from tubular or abdominal gestation. It is
rarely diagnosed during life from tubal gestation.
Little is known of its pathology. The false gest
possesses no peritoneal covering as the peritoneum is
not prolonged over the surface of the ovary. The sac
is composed of the proper tissue of the ovary. The
chonion is in immediate contact with the interior
of the sac, but the method by which the ovum becomes
attached to the ovarian tissue is not known. Probably
the process does not differ from that which is to be de-
scribed in tubal gestation. Rupture generally occurs
during the first period of gestation.

IV. Gestation in the Rudimentary Horn of a Bi-
docked uterus. When this occurs the horn becomes
distended by the enlarging ovum & after a time when
further distension is impossible laceration takes place
Rupture may be delayed to a later period than in 
total gestation as the supplementary horn is more 
distensible. In a few cases it has gone on to term 
without rupture. In most cases of this form of preg-

cancy, the cyst in the rudimentary horn is shut off 
from the Fallopian tube on one side & the developed 

half of the uterus on the other. At the same time the 
corpus luteum & the ovum are found on the same side.

Perry concludes that the canal of the rudimentary horn 
becomes occluded after impregnation has taken place.

Barnes agrees with this. Turner (Ed. Med. June 1869) 
describes two cases. In the first case the patient died 
of rupture of the same when 3 months developed. The wall 
of the left cornue (the undeveloped pregnant one) was 
mucosal like that of a pregnant uterus & at the place 
of rupture the placenta could be seen partially adherent 
to its inner surface. There was no canal in the pouch 
connecting the cavity of the unimpregnated horn with 
that of the right horn or the cervix or vagina.

In the second case it was also the left horn that was 
rudimentary of pregnancy. The fetus was retained until 
after the full period of intra-gestation. Labour pains 
came on & on examination the uterus was low 
down in the vagina & the uterus was found of a 
natural size of unimpregnated. There was an
enlargement of the abdomen extending a little to the 
left side. Nearly of the size and shape of a uterus containing 
a fetus at term. The fetal heart was heard. The 
pains were severe & complicated with convulsions. They 
continued several days, then he began to go about again 
as usual; six months later, the child of legitimacy. On 11th M. 
a sac was found containing a mule fetus. One side of 
the sac was affixed by a pedicle to the cervix uteri; there 
was no decidua membrane in the right cornu. A fine 
probe could be passed along the left Fallopian tube up 
to the wall of the sac but its inner orifice was obstructed. 
No corpus luteum was seen in either ovary. No communica-
tion could be made out between the sac of the impreg-
nated cornu & the canal of the cervix.
In both cases the round ligament was found external 
to the sac. Turner is disposed to think that the pedicle 
must have been solid before impregnation was affected & 
he argues in favour of the travelling of the semen along 
the cornu & tube of the more perfectly developed side into 
the tube of the rudimentary cornu & then into the cavity of 
the latter.

Thirteen cases have been collected by Traenmael all of 
which ended in rupture between the fourth & sixth month. 
Skales relates a case described by Flete in 1779 in which 
the sac did not rupture; the embryo died at the end of
the fifth month it was carried for 31 years when suppuration occurred. A case is reported by Campbell Pike (Iver, Nov. 1863) in which the cyst was connected to the left upper angle of the uterus by a pedicle 1/4 mile long, fleshy and consisting of a mass of sinuses which conveyed the principal blood supply to the cyst. There was no channel of communication between the uterus and the cyst. The left appendages, apparently normal, arising from the anterior surface of the cyst; the Fallopian tube on this side measured 6 inches, 3/4 was 1 inch longer than the right tube. No recent corpus luteum was found in either ovary.

A. Macdonald (Ed. No. 1864) successfully operated on a case. The left horn was the portion one of was removed. The patient recovered, the case afterwards able to demonstrate the right horn. Two years before the operation the lady gave birth to a living child which must have been from the right horn.

This form of gestation has often been mistaken for total pregnancy as its progress, symptoms, & terminations are nearly identical. On R.M. examination also they are difficult to distinguish from one another. The position of the round ligament is valuable in diagnosis; in total cases it is attached to the uterine or minor side of the cyst; in pregnancy in a rudimentary horn it is situated external to the case. This however does not
exclude Interstitial Pregnancy, as the round ligament here is also situated on the outer side of the ovary. The distinguishing point between these two is, that in Interstitial Pregnancy there is a membranous wall between the gravid sac and the uterine cavity; while if the ovum is contained in a rudimentary horn the sac is joined to the developed half of the uterus by a muscular band.

If the pregnancy is total, the Fallopian tubes on the two sides will be found entering the womb at opposite points of the normal position on the right and left halves of the organ. The uterus itself will be found symmetrical normal in its development. In Tubal Pregnancy the length of the Fallopian tube on the impregnated side external to the dilatation, is necessarily less than that of the entire extent of the unimpregnated tube, if the diminution in length is more strongly marked the nearer the sac lies to the fimbriated extremity. In normal pregnancy on the other hand no diminution in the length of the tube on the impregnated side occurs.

Again in pregnancy in a rudimentary horn the sac will probably contain a true decidua, which is not the case in tubal pregnancy.
Pathology.

In considering the pathology we may look on extra-uterine pregnancies as forming two great classes, the tubal & the abdominal.

Tubal Pregnancy. In action the normal Fallopian tube is made up of 3 layers—from without inward they are (1) peritoneum & below this is some connective tissue & elastic fibre separating it from (2) non-striped muscular fibre arranged circularly & longitudinally (the former being more) (3) mucous membrane lined with ciliated columnar epithelium. The mucous membrane is thrown into longitudinal folds & contains no glands.

Then the ovum is arrested in the tube proper if this for its covering the different layers of the tube. The mucous membrane hypertrophies becomes more vascular, but unlike the changes that occur in the mucous membrane of the gravid uterus no decidua is formed, there is no decidua basalis to form a maternal portion to the placenta & no decidua reflexa to rise up around the ovum & enclose it. The formation of the chorion around the ovum & the branching of the villi are the same as in normal pregnancy, but instead of sinking into the mucous membrane the villi spread out over the mucous membrane become adherent to it aided by the presence of some plastic material. Hicks, Guy's Hop.
ital Report 1860) examined the eye in a patient who
died of rupture at the 6th week. Found the inner sur-
face of the cecum covered with the ciliated columnar ep-
ithelium proper to the mucous membrane of the Fallopian
tube (which originally lined it) upon this surface the
terminal tufts of the villi spread out, the epithelium
remaining on the parts not occupied by them. The
terminations of the villi did not enter the substance of the
tube wall, which was apparently too solid & dense, but
seemed merely adherent to it, a very minute portion of
plastic matter seeming to assist at the points of contact.
The coats of the villi were single as far as could be detected
so that the placenta was nearly ovular. There was no
maternal structure entering into the composition of the
placenta. The maternal vessels ramified beneath the
epithelium covered surface where they could be seen in
some places only slightly raised above the level. These
capillaries were evidently enlarged enormous, but not so
much as the uterine decidua membrane.

Paget's opinion is the same as Hicky's. Barnes also agrees
with this; he says: "the ovum develops its chorion into pla-
centa which adheres to rather than penetrates the tubal
mucous membrane." Playfair is of opinion that the
hypertrophied mucous membrane forms a pseudo-cidua
but forms no growth around the ovum analogous to the
decidua reflexa, so that the villi engraft themselves into the mucous membrane of the ovum in its new position. Schroeder differs from all in saying that the mucous membrane of the tube proliferates in a way similar to that of the uterus in utero gestation. Consequently a normal decidua serotina, often a very thick decidua vera, even a decidua reflexa is formed, also the villi of the choriion sink into the serotina to form the placenta, the rest of the wrinkling atrophies. From these opinions it appears that the maternal portion of the placenta is absent. The villi of the choriion are applied to it do not penetrate the mucous membrane of the tube. The maternal vessels below the epithelial layer of the tube are enlarged from the ovum takes place by an inter-change of plasma fluids between the maternal and fetal blood. Owing to this arrangement of the villi the ovum is loosely attached to the tube and thus hamartoma can very easily take place from laceration of them.

The non-striped muscular fibres of the tube hypertrophy, as the ovum enlarges it distends the tube, it becomes stretched separated so that the ovum bulges out at parts being only covered by thinned out mucous membrane and peritoneum. The peritoneum rarely undergoes much change in this stage of the pregnancy. The other parts of the tube may remain unaltered if the canal open
but usually it is so stretched or changed that the canal cannot be detected. Most frequently it is that part of the tube nearest the uterus which cannot be made out. Barre says it is generally found occluded, from the pouring out of plastic matter into the tissues, on both the proximal and distal side of the cyst after death from rupture; this is an effect, not a cause of extra-uterine gestation.

Tubal pregnancy at this time forms a smooth oval tumour which on a cut has not formed any adhesion to the surrounding structures. The presence of the ovum here leads to great vascularity of the broad ligaments and Fallopian tubes. This is important in the profuse hemorrhage that follows rupture.

Interstitial Pregnancy — the wall of the sac is formed of the same structures as in the tubal form but in addition we get the thicker layer of muscular tissue belonging to the uterus. The sac thus formed protrudes partly towards the uterine cavity partly towards the abdominal. The uterine orifice of the tube may or may not become occluded. Dr. Poppel (Brit. & For. Medico Chir. Rev) described a case of this form of pregnancy. On opening the uterus longitudinally along its anterior aspect two cavities were exposed. The lower one was clothed with a thick decidua vera, the proper uterine cavity. The upper
cavity was divided from the lower by a septum of muscular structure all but a small opening of communication. It contained a fetus of about the 5th month. Recently (Med. Obs. Iowa, 1882) a case has been related by Doran. The patient died at the end of the second month from rupture. The uterus was 8 inches long, the cavity lined with a well-marked decidua. The right side of the fundus was dilated 1/2 in. It was a rent 2 1/2 inches long which exposed a cavity 1 1/2 inches vertically by 1 1/2 inches antero-posteriorly. The walls were very thin along the line of laceration. The right round ligament was attached to the outer wall of the cyst. The inner wall of the cyst was rough, from it hung broken tags of chorion, but there was no trace of a true decidua. The right Fallopian tube passed into the outer and anterior aspect of the walls of the cyst, expanding slightly into a funnel-shaped orifice which opened into the cavity of the cyst close to the ten in its walls; it was lined with smooth epithelium, and admitted a trocar being passed along it into the cyst. There was also a funnel-shaped aperture from the cyst into the uterus with a smooth lining through which a trocar could be passed. The right ovary contained a corpus luteum. In this case the tube was open on both sides of the cyst.

In tubo-ovarian pregnancy, the cyst wall is formed
Partly of the fimbriated extremity of the tube and partly by the ovary and the adhesion which bind these two together. If it should happen that the portion of the tube alone is involved, only one portion of the ovum may be covered, while the remainder may project into the peritoneal cavity, the chorion being entirely unprotected by any other tissues. According to Barnes the tubo-ovarian sac is more rounded than the uterine.

Progress and Termination of Tubal Pregnancy.

The most favorable termination of tubal pregnancy is when the embryo perishes early and recovery takes place without rupture, the embryo is re-absorbed if the more fully developed embryo dies it may be converted into a little parasitic within the tube without rupture of it.

Tubal pregnancy terminating in this manner is a rare occurrence. The usual course of events is for the cyst to continue growing from one to three months, and in the great majority of cases terminates by rupture causing the death of the patient, death being due to shock and hemorrhage or subsequently peritonitis. The rupture is generally caused by des- tension of the tube which at last yields at the point which is most stretched. It may be hastened by accidental circumstances, as a fall or a blow or excitement of sexual intercourse. Barton relates
a case (Jour. Ob. Trans. 1881) where rupture was caused by a fall during coitus and resulted in death in 9 hours. A patient of Jeeop (Jour. Ob. Trans. 1876) fell a sudden mass in the right side when lifting a heavy washing machine, this was followed by symptoms of rupture. Barnes says rupture usually occurs at the menopause, that the tube does not burst at once, for if it did there would be no premonitory haemorrhage. He draws an analogy between this haemorrhage and that of placental praevia. In both cases the gestation occurs in an abnormal locality. The Fallopian tube, like the lower segment of the uterus, has only a limited capacity for growth. This is soon overtaxed by the growing ovum which, not finding the room it requires, excites uterine con- tractions of the sac. Hence partial detachment of the ovum is caused. Some haemorrhage ensues. In the case of total pregnancy, partial detachment is very easy owing to the scanty development of decidua. This haemorrhage in both cases of placenta praevia and total gestation may escape externally, in the first case the os uteri offers a ready exit; in the second case the exit is not so easy & the sac is comparatively full. Hence a large proportion of the blood poured out by the severance of relation between placenta & sac is retained in the sac. The distension becomes extreme. Renewed spasmodic action of the
muscular wall is excited of the sac bursts. The ovum itself does not always burst it probably rarely does until the sac has done so. The accumulated blood in the tube together with fresh blood proceeding from the torn vessels of the tube is now poured into the abdominal cavity causing the shock & other symptoms attending rupture.

Then the rupture occurs the ovum escapes into the peritoneal cavity along with much blood, or if the tear has been on the under surface of the tube it may pass down between the layers of the broad ligament & may thus continue to develop extra-peritoneally. The intra-peritoneal is the more common variety & the more fatal; while the extra-peritoneal variety is much rarer & Said believes less fatal & more amenable to treatment. He also is of opinion (Brit. Med. Jour. 1884) that the rupture nearly always occurs at the site of the placenta because the veins are thinner, more vascular, more easily torn than elsewhere of that the source of the haemorrhage is the enlarged maternal vessels in this position.

The amount of blood poured out after rupture varies much in different cases. In Bantons case 4 to 5 pints of very dark blood was removed from the pelvis. In Domin case (Ibid. Vol. I. 1882) there were 4 lbs. of clot and 5 pints of bloody fluid. In Forbts case (Ibid. Vol. II. 1879) there was a clot which could hardly be contained in a
gallipot and a pint of fluid blood. In Godson's case (Proc. R. Soc. Sci. 1884) there were 2 pints of blood in the periton- 

eum. In opening the abdominal cavity the blood is found either fluid or partly coagulated. The periton
eum is almost always found to be healthy. Sometimes rupture occurs without haemorrhage or at least without

fetal haemorrhage and the patient survives the accident. The extent of the rupture in the cyst varies greatly and

has no proportion to the amount of haemorrhage. In a case reported by Catlett of Philadelphia in 1873 he

found a gallon of blood in the abdominal cavity while the rupture was only two lines in diameter with sharply de
defined edges. In Dr. Burton's case (already quoted) the

opening was in the upper surface of the cyst and admitted a probe. In Routtie's case (already quoted) a tube of the calibre

g of No. 6 catheter was found in the back of the tumour.

In Harte's case (Brit. Med. Jour. 1886) the rupture was about

as large as the tip of the index finger. As an example of

a large rupture we have a case of Taints (Brit. Med. Jour. 1885) where it was 3 inches long.

The partial or complete escape of the ovum through the

rupture does not increase the loss of blood. Parry thinks

that complete discharge of the ovum is more favourable

than its entire or partial retention. Playfair on the

other hand says that the haemorrhage may cease on
account of the ovmn protruding through the aperture &
acting as a plug.
Rupture usually occurs at an early period of pregnancy
most commonly from the 4th to the 12th week, rarely later.
Hecker reports 45 cases of total pregnancy. In 26 cases
rupture occurred in the first month, in 11 cases in the third
month, in 4 cases in the fourth & once in the fifth.
Spiegelberg & Prof. Simpson report cases in which the
ovum advanced to term in the uterus without laceration.
In Spiegelberg's case (New York Med. Soc. 1871) the patient
died at term. On P.M. a mature dead child was found
with its membranes in a membranous sac composed only
of the Fallopian tube. The folds of the right broad ligament
were separated from one another up to the point where the
sac commenced which then corresponded with the posi-
tion occupied by the Fallopian tube, while a probe passed
from the angle of the uterus into the sac along a short
channel. The placenta was situated on the anterior surface
of the cyst & death was due to separation of the placenta
from the wall of the uterus, its rupture & peritonitis.
In Simpson's case (Ed. Med. Jour. 1876) the patient had
had some pelvic pain about mid term & the fetal heart
was heard faintly. At term false pains set in. These
then passed off. She missed the movements of the child.
Three months later the child died of peritonitis.
Interstitial Pregnancy is less frequent and less dangerous than the preceding. It is more likely to advance to term if the appearances described in the early months of pregnancy may persist to term without change except such as result from the increase in the size. Often however the rupture occurs during the first three months. After rupture of the total mucous membrane the ovum may remain between the separated muscular fibres of the uterus and gradually stretching the peritoneum as it enlarges may continue to develop up to the normal end of pregnancy, in other cases the rupture is the same as in the tube proper, the contents escaping into the peritoneal cavity.

A case is reported by Hicks (med. obs. from 1868) where the uterine opening was so dilated that the fetus afterwards entered the uterus. Thomas reports a case where the fetus was destroyed by electricity afterwards it discharged into the uterus expelled through the natural passages.

Dr. Hodge (quoted from Parny) diagnosed a case of interstitial pregnancy, cut through the layers of tissue which shut off the fetus from the uterus and delivered it successfully.

A supposed case of Intestinal Pregnancy with birth through the uterus is reported by Prim (med. obs. from 1885)

An Intestinal Pregnancy at full term a portion of the ovum may sometimes be found in the uterus while the remainder is in the abnormal uterine cavity e.g.
head of the child has been found in the uterus while the body was in the uterine cavity; again we may have the child developed in the tube while the placenta is attached inside the uterus.

In Tubal or Wemic Pregnancy the sac is much more distensible of the gestation may continue without laceration to a more advanced period or even to term, the case then resembles one of abdominal pregnancy.

Side of the Pregnancy. Barnes says that in a considerable majority of cases it is the left tube which is the seat of the gestation. Perry, Campbell, and Hecker agree with him. He supposes this due to the fact that the left tube is more liable to displacements and compression by the sigmoid flexure of the colon which lies in close relation to it. It is often distended by feces or feculent accumulations. It is a curious fact that in diseases of women the left side is more commonly affected than the right e.g. phleghmoma dolens in the left leg, laceration of the left side of the cervix, pelvic cellulitis of the left side.

II. Abdominal Pregnancy.

In Primary Abdominal Pregnancy when the impregnated ovule drops into the pelvic cavity tumours, the cervix is unsupported during the earliest stages of the pregnancy by any other tissue. It projects uncovered into the pelvic cavity excepting on that part of its surface by which it
becomes united to the venous membrane. Villi form on the chorion, attach themselves to the surrounding structures and eventually develop into a placenta. The mode in which the chorion villi are attached to the arrangement of the maternal blood vessels is not known, but probably it is similar to that described in total gestation. The precise seat of attachment varies, most frequently it is in the broad or Douglas but the placenta has been found attached to most of the abdominal viscera.

In secondary abdominal pregnancy the ovum during the earlier months is attached to the tube or ovary. From rupture of the tube takes place if the patient survives, the membranes may either remain entire or be developed with the fetus, or they may rupture remain attached to the sac of the fetus will then lie loose in the abdominal cavity.

In the former case the ovum becomes attached to the peritoneum and develops a placenta; in the latter case the placenta retains its old attachment to the inner surface of the tube which becomes eroded, and it likewise acquires new attachments as it grows to the front of the rectum, ovaries, various parts of the peritoneal surface down to the small intestine. Wherever the placenta is attached it shows great power of development and induces an enormous enlargement of the vessels in the neighborhood. These vessels are more like sinuses than ordinary vessels, their walls are very thin have no distinct muscular
layer, a fact which at once explains the disastrous results which have followed attempts to remove the placenta in operations for extra-uterine gestation, the hemorrhage being quite uncontrollable. The subsequent changes of the ovum (whether the gestation is primary or secondary) vary much. In the majority of cases it contracts adhesions to form a sac and as it grows these increase until a considerable portion of the neighboring organs may become united to the chorion.

As the ovum commonly falls into the pouch of Douglas the uterus and its appendages are nearly always adherent to the chorion. In a few cases however (quoted by Terek, 1876) upon opening the peritoneum no trace of a cyst or membrane could be found "the child had lodged in the middle of the bowels free in the cavity of the abdomen." Parry says the process by which adhesions are formed is probably not absolutely inflammatory but is analogous to those vital nutritive changes by which the ovum attaches itself to the living membrane of the uterus in normal gestation.

The walls of the sac are not generally very vascular, but large vessels may ramify over them.

As there is plenty of space for the development of the ovum it is the secondary cyst generally situated from along with it, most cases of abdominal pregnancy progress without any marked symptoms beyond
occasional severe attacks of pain until full term of pregnancy has been reached. Very rarely the uterine rupture occurs prematurely, if there is an escape of blood into the abdominal cavity which may cause death of the patient, but usually the recovery from this is the result of changes similar to those occurring in cases progressing to full period.

In extramural gestation there is nothing abnormal or peculiar to the appearance of the ovum itself, it forms and develops in its abnormal position with the same vitality as when it has reached the interior of the uterus. The exact relations between the maternal trophic circulations are not known. In the early stages the villi of the Chorion adhere and do not penetrate the mucous surface. In the later stage the child may lie in any position in the sac. In 7200 cases it was at one time transverse afterwards assumed an oblique position with the head below the ribs on the left side, the breast in the right iliac fossa. In other cases, it has been found in its normal position with its head in the pelvis or on the brim. The development of the child varies greatly in the case of Mr. Born, it was somewhat under weight 5 lbs. but it was 20 inches long; other cases are recorded where it has exceeded the usual size as 8½ lbs, and in one case (quoted by Peng) 11½ lbs, where the patient...
died one year after completion of term. Extra-uterine children frequently die before term, but the rule is for them to live until the end of the ninth month if the gestation is not terminated by rupture during its early stage. Playfair says it has sometimes apparently lived for several months after the natural limit. Schroeder thinks it is not probable the foetus should be alive more than 10 months in the abdomen of the mother.

The umbilical cord is almost always normal in its function. The placenta varies greatly, it is often very broad as it is attached to structures which are not naturally very vascular, and thus its extent makes up for this deficiency. If it be attached to any portion of the peritoneum or within the ruptured foetal cyst, whether it is total or ovarian or it may be in the uterus itself. In Jesso's case (already quoted) on tracing the umbilical cord "the placenta having a large superficial area than natural was seen covering the midline of the pelvis like the lid of a pot & extending some distance posteriorly above the brim where it apparently had an attachment to the large intestine & posterior abdominal wall. Near its centre was a round prominence which seemed to correspond with the swollen fundus of the uterus beneath." 

Twins are more common in extra-uterine gestation than in normal pregnancy. They may be both extra-uterine or one extra-uterine and one intra-uterine. The proportion of
the case remains the same as in normal pregnancy. Monstrosities are rarely met with in extra-uterine gestation. Duncan (Med. Times Gazette 1872) describes a case where the child's abdominal walls were imperfectly developed.

The uterus in extra-uterine gestation. The condition of the uterus in extra-uterine gestation has been a subject of much discussion, but is generally admitted to become enlarged and more vascular. The cervix is softened as in natural pregnancy, often patent, especially towards the last months of gestation. It is said the cervix is always quite open, in this ease admitting the fingers. Within the cervical canal the glossy mucous plug forms as in normal pregnancy. The mucous membrane of the uterus hypertrophies, it develops into a true decidua which may be retained in the uterus till full term, the thread of the umbilical cord being discharged during pseudo-labour, but generally it is discharged in the early months of pregnancy either entire with all the symptoms of abortion, or in small fragments with the haemorrhages which are so common in extra-uterine gestation. This explains its absence in many cases examined post-mortem. The uterus is also found more or less displaced generally forwards, to one side, the cervix being carried towards the pubis.

In Barbour's case (Edin. Med. Journ. 1886) it lay along the anterior wall of the vescic, measured 5 3/4 inches long.
the fundus being 5 miles alone the symphysis & the cervix was drawn up so that the fornices were obliterated.
The size of the uterus at term is not often larger than that of the fourth or fifth month of pregnancy & at this time rarely contains a decidua as it has been thrown off before the death of the patient occurs.
The corpus luteum in extra-uterine gestations is formed as it is in normal gestations & does not differ from that found in the ovary of women dying during uterine pregnancy. Several curious cases are recorded in which a total pregnancy existed while the corpus luteum was on the opposite side. The view of Ahlborn is generally accepted to explain this—that the firm-tubed extremity of the tube in which the ovum was found had twisted across the abdominal cavity and grasped the opposite ovary & in this way the ovum passed into the tube. Winslow says it is not necessary for the firm-tubed extremity of the ovary to be brought together in order that the tube should receive the ovule. He believes that in the human female, as in amphibians, the germ has to traverse a portion of the peritoneal cavity in order to reach the tube. An intra-peritoneal current has been described which constantly flows from the ovary to the peritoneum of the tube & it is probably carried by this current. That a current does exist is
very possible as the eggs in the tube are constantly passing towards the uterine cavity and would thus tend to produce such a current. In these cases the cause of the ovum developing outside the uterus may be due to a current produced in the twisted tube which prevents the ovum onward passage. Tyler Smith's explanation is that the ovum passes down the Fallopian tube on the same side as the corpus luteum and into the uterus of the side failing to become attached to the mucous membrane finds its way into the opposite tube. Huchel reported a case in 1863 where the ovum was in a rudimentary horn of the uterus while the corpus luteum was in the opposite ovary. No communication could be found between the sac of the rudimentary horn and the cavity of the developed half of the uterus, so that passage of the ovum across the uterine cavity may be excluded in this case. Buntin (Eng. Med. Jour. 1881) mentions a case where the ovum was developed in the right Fallopian tube, the left ovary contained the corpus luteum; the right ovary contained no ovum and was streaked. He makes no remarks about the relation of the tube to the ovary.

Terminations of cases that advance to term.

In most cases at the natural termination of pregnancy a false labour comes on, there are more or less frequent strong irregular contractions of the uterus often accom-
panied with an escape of blood from the vagina +
piece of broken down decidua membrane from the uterus
if this has not been expelled previously. After a variable
time the labour ceases & the fetus dies. With the death
of the fetus the secretion of liquor amnii ceases and it
becomes partially or entirely absorbed. The now dead
fetus undergoes various changes. It may (1) remain
unalterated + that too for a considerable time. Playfair
describes a case where it remained 52 years + was
found to be fresh + unaltered as a new born child.
(2) the liquor amnii is absorbed, the cyst walls contract,
the fetus shrinks + all its soft structures are changed
into adipose, the bones only remaining unaltered.
This may occur very rapidly -- in less than a year in a
case of Playfair's. (3) the fluids are absorbed, the fetus
is greatly compressed + is converted into a hard mum.
mified mass. (4) the scattered contents atrophy + shrink
+ lime salts are deposited in them, the whole being
converted into a solid mass known as a lithopedion.
Deposit of calcaneous (sometimes cartilaginous) matter
in the walls of the cyst is not uncommon when the
child has been carried for a long time but it is rare
to reach it in the child itself.

Under any of the above circumstances, the fetus is con-
vected into an innocuous mass which may remain
in the mother's abdomen for an indefinite period without producing any serious discomfort, or in many cases of this kind sexual normal pregnancies and deliveries have subsequently taken place. Johnston reports a case (Med. Times & Gazette 1872) where the patient carried an extra-uterine foetus for 4.4 years & it was then discharged by the rectum. Chirac (Laeret 1876) mentions a case where the foetus was carried 50 years.

The cases however in which the retained foetus gives rise to no mischief are quite exceptional. Generally we get (5) Inflammation of the sac, the body of the dead foetus setting it up through irritation. The inflammation may spread causing general peritonitis & death of the mother, or death may result from septicemia. If the escape these the inflammation leads to adhesions which stink off the end from the general abdominal cavity, the pus humour in various directions 4eps externally, it may be through the abdominal wall, into the bladder, vagina or alimentary canal - generally the sigmoid flexura of the large intestine or the rectum. Pamy says it is most frequently into the intestinal canal, next through the abdominal wall & last through the vagina & bladder. Mattei says through the abdominal wall is most frequent, next the bladder, bladder, vagina. One or more fistulous
Openings are thus formed through which the escape passes to the bones and other parts of the broken down foetus. This may go on for months or years until the whole contents of the cyst are expelled. Recovery takes place or it may cause the death of the mother from exhaustion or septicemia. In some cases rectal, fecal, vesical or vaginal fistulas remain. The time at which the sac may thus open varies greatly. Pany says it is most frequent between the first and sixth months and between the first and second years after the completion of the ordinary term of pregnancy but it may be as late as 30 or more years. Carter (Lond. med. Jour. from 1860) relates two cases, in the first case suppuration occurred 4 months after the death of the foetus, opened first through the abdominal wall close to the umbilicus, afterwards through the vagina; in the second case the foetus died at the 6th month and not until 6 years afterwards did suppuration occur when it was discharged by the uterus. Both cases recovered. Freund (Edin. med. Jour. from 1882-83) relates a case of elimination by the vagina, the patient had carried the foetus for 9 years when she again became pregnant in the term was delivered of a fully developed dead child. During the puerperium severe troublesome pain in the back and protracted blood stained discharge took place; 6 months later a fragment of bone was
expelled from the vagina, the remainder was removed by dilating the fistulous opening. Patient recovered.

The chances of recovery are best when the cyst opens through the abdominal wall, next through the vagina or bladder. Least favourable when it takes place by the bowel. In a few cases the child has been expelled entire through the bowel, it has also been forcibly extracted by the accouchers through the same channel.

**Etiology.**

Extra-uterine gestation is a rare disease. Bandel mentions that out of 60,000 obstetric gynaecological cases at Vienna it only occurred in five cases. In a general way it may be stated that anything which prevents the ovum from reaching its normal site for development in the cavity of the uterus, yet does not prevent the access of the spermatozoa to the ovule should be looked on as a cause. This it may be from inflammatory adhesions from old standing peritonitis pressing on the tube.

Hollam (Guy's Hospital Reports) describes a case where the gravid sac was found at the distal end of the tube while close to the uterine end of the sac the tube was constricted by an inflammatory band which was wound round it like a ligature. In many cases of extra-uterine gestation we find there is a history of a previous peritonitis. An inflammatory thickening of the coats of
the tube may also be a cause by becoming its cavity and preventing the ovum passing along to the uterus at this moment, it does not prevent the spermatozoa getting up. Tumours of the uterus surrounding organs may constrict the tube by pressure upon it. The lumen of the tube may be obstructed by inspissated mucus or a tumour. Breslaw in 1864 (Brit. J. Med. Chi. Rev.) describes a case of intestinl Pregnancy which he considered due to a small mucus polypus obstructing the uterine end of the tube. Destruction of the ciliae action of the mucous membrane of the tube from catarrh may be a cause. As the onward course of the ovum is in a large measure due to it. Moral and mental influences are supposed causes, such as fear of discovery in the practice of illicit intercourse, fright during or shortly after coition. Sperm of the Fallopian tube may thus be produced which either interfere with the passage of the ovum or direct it into the abdominal cavity.

Frend (Edin. No. 2, anno 1853) relates a case where the patient had had coition only once if this was disturbed by a sudden fright. In the next few days attacks of sickness, general depression with frequent severe abdominal pains set in. Abortion went to term.

Injuries such as blows in the pelvic region received about the time of conception may prevent the ovum reaching the uterus. Panja reports a case of Jackson's
who believed the ovum was arrested in the tube by peritonitis induced by a blow a week after intercourse. Barnes believes that women who have to work hard are more liable to this form of gestation. Young also remarks that the most curious examples of extra-uterine gestations which occurred in America were met with in negro women of the Southern States while in a state of slavery.

Spasm, paralytic, too great relaxation & inaction of the muscular fibers of the Fallopian tube have been supposed causes. Malformation of the internal genital organs may be cause as the Fallopian tube entering the uterus at some point on the body or even the cervix. In Haydon's case (Ann. Ob. Trans. 1863) the right tube passed from the uterus 1 1/2 miles below the fundus; while that on the left at only 3/4 of an inch, which gave the appearance as if the right tube arose from the middle of the uterus. In Meacher's case (Ann. Ob. Trans. 1876) the Fallopian tube of the affected side joined the uterus at some distance from the fundus seeming to be the cause of the extra-uterine gestation by obstructing the passage of the ovum along the tube.

Hernia (inguinal, umbilical, abdominal) of some portion of the internal genital organs may be a cause. Displacements of the uterus may lead to it as prolapsed uteri which interfere with the caliber of the tube, or retroflexion as in a case described by Meacher (Ann. Ob. Trans. 1873).
Twin conceptions are about four times as frequent in extra-uterine as they are in normal gestations; one extra-uterine being much more common than both extra-uterine. Barnes suggests that the two may obstruct each other in their descent to the uterus.

Extra-uterine gestation is more common in multiparae than primiparae. It may occur at any age but most frequent about 30. Of 500 cases investigated by Perry, the youngest was 14, the eldest 47; at the time conception occurred, the greatest number were between the ages of 30 and 40. Bandell explains the relative greater frequency of extra-uterine gestation in older patients by the fact that extension of the tube (which produces adhesions with obliteration of the lumen) is more frequent in them.

A large proportion of cases occur in women who have either been previously altogether sterile or in whom a long interval of time has elapsed since their last pregnancy.

The frequency with which the different varieties occur varies. Perry from an analysis of 500 cases found 214 were tubal, 27 ovarian, 29 abdominal + 230 doubtful. Heckel considers abdominal the most frequent, nearly tubal that intestinal.
Symptoms.

In the early stage - 4-12 weeks - In the majority of cases symptoms the same as those of normal pregnancy are present in addition to the special symptoms to be described. Menstruation in most cases ceases if the patient supposes herself pregnant, but this is not always so for many cases are recorded where menstruation has continued, although it may have varied in intensity, time, equality. In Buttin's case (indic. ob. Trav. 1887) two days before rupture, a 5 days menstruation had just ceased, again in Pouth's case (indic. ob. Trav. 1879) menstruation was quite regular & the flow large. The breasts enlarge and the areolae darken. There may or may not be morning sickness, Tanner (Signs & Diaries of Pregnancy) says this is often absent & is seldom very severe. More frequently she is annoyed with diarrhoea & troublesome tenesmus as well as with incontinence of the bladder. Freund (Edin. ob. Trav. 1882-83) says when the placenta is situated on a part of the intestinal canal, there is intense intestinal catarrh with severe colicky pains amounting to dysenteric at the beginning of the gestation; if the foetus dies the case decomposes (owing to its attachment to the bowel) & the whole system becomes affected.
In other cases there are none of these signs of pregnancy present, the patient feels well, perhaps better than she has done for some time, she may not even know she is pregnant. Usually about the end of the first month she has the first indication of something wrong in a sudden attack of pain in the hypogastrum, commonly called colic, by her. This pain is agonising and is often accompanied with tenderness in the hypogastric ileae regions. It may cause great prostration with clammy skin, feeble and rapid pulse, there may or may not be vomiting, sometimes it is so severe as to cause syncope. It is paroxysmal in character. It may last a few minutes or several hours, it then passes off and gets relief, only to return however with more or less regularity. She experiences these attacks of pain up till the time of rupture of the egg, or if the child is carried to term they may continue to term; in other case they cease after the 5th month not to return or they may return again towards the close of pregnancy as was seen in Meadows case (and in Dr. Lam. 1573).

In Mrs. Bowni's case pain was a constant symptom throughout, it was felt in the front of the abdomen of the left side below the ribs. It came on about 10 p.m. and lasted till 4-5 a.m., she then had relief till the
afternoon when it returned for a few hours.
In other cases the pain instead of being paroxysmal is
shock grinding, fixed in one chair joint or extending
down the thighs as the pregnancy advances it may
become paroxysmal. In some cases again the child
may be carried to near term with pain or unusual
symptom experienced. Spiegelberg's patient reached
the 4th month without any abnormal symptoms.
These paroxysms of excruciating pain are due to con-
tractions of the fetal cyst & it may be pressure on
neighbouring structures. Contractions can take place
in a fetal cyst from the muscular fibres present
probably in cases where the pains are absent there
are no muscular in the sac. Barnes thinks
they are due to peritonitis. This however seems dis-
proved by Daly's case (Lond. Med. J. 1882) where there
was intense pain increased by defecation, difficulty
in micturition & dyspareunia, Rupture occurred
at the 3rd month & there was no trace of peritonitis.
Dr. Hein of Berlin said there may be a characteristic
whining tone of voice but this is not verified by other
observers. Another important symptoms at this
early stage is a discharge of blood from the vagina,
this is usually metorrhagie in character, occurring
at uncertain & irregular intervals & may or may not
accompanied the attacks of pain. Pieces of decidua membrane are often discharged with the blood or in some cases it comes away entire as a cast of the uterus. The condition simulates abortion. If this metrorrhagia does not occur early it is likely to do so immediately before rupture of the cyst (Barnes). The cause of this haemorrhage is probably partial detachment of the chorion villi produced by the ovum growing out of proportion to the tube in which it is contained; separation of the decidua from the interior of the uterus is an additional cause.

On vaginal examination we may notice pulsation of vessels in the vagina as in normal pregnancy. The temple rise of the vagina (fundus) is often well marked; in a case recorded by Routt (Lond. Med. Jour. 1879) the right fundus was so blue that it first suggested to him the idea of the patient being pregnant. The uterus is enlarged. At this early stage the enlargement is about the same as at the corresponding period of normal pregnancy, it is also displaced to one side or forwards, by a tumour which exists at one side or posteriorly to it, more rarely is the tumour anterior to the uterus pushing it backwards. It is often also lifted up in the pelvis so that the cervix is reached with difficulty. Beyond the change in position, there is
little change in the cervix itself at this time. Through
the lateral fornices, a tumour can be felt
in many cases; however it is difficult to detect anything
owing to the tenderness of the parts. If a tumour can
be felt it is as a rule nearly immovable, slightly sen-
sitive on pressure, sometimes it is possible to make
out a globular form and may be able to detect the in-
creased vessels of the tissues around it. In
Dr. Math's case this was very marked, he felt arteries
beating in every direction whether examined by
the rectum or vagina. By dilating the uterus +
introducing the forefingers of one hand into the bladder
forefinger of the other hand into the rectum the
condition is made clearer. As the pregnancy advances
these signs become more marked.

or about this time in the majority of cases we get
rupture of the sac. The patient may have shown the
alone symptoms, or she may have been entirely free
from them or not even have known she was pregnant.

Suddenly she is seized with agonising pain in the
lower part of the abdomen, usually to one or other
side. She has a feeling as if something had given
way. This is frequently accompanied by a discharge
of blood from the vagina. The pain gradually
increases in severity up to a certain point and then
suddenly & completely subsides, the abdomen sinks & the tumour disappears (Lanner). The accumulation of blood in the pelvic cavity may give rise to a sense of fulness which can be felt through the vagina & behind the uterus. There may be frequently recurring attacks of syncope, in others none. She becomes prostrate, the skin cold & pale & covered with clammy fever. Perspiration, the pulse rapid & easily perceptible, the face has an anxious expression, vomiting is common & may be most distressing. Convulsions may occur accompanied with delirium, or the mind may remain clear & usually death results from the shock and internal haemorrhage. So this assemblage of symptoms Barnes gives the name 'abdominal collapse.' He remarks that the injury sustained is compound, there is traumatic violence attending the rent, & the sudden impression upon the sympathetic nerve centres producing shock & the haemorrhage. He distinguishes this 'abdominal collapse' from the collapse which attends sudden injuries in the head by the preservation of the mental faculties, from the like injury in the chest by the absence of the difficulty in respiration. Death may result in a few hours or she may survive the shock, reaction sets in & she may imperfectly rally to be again frustrated by a
Second escape of blood which proves fatal or she may escape this. She lives for several days & we get all the symptoms of acute peritonitis setting in, the abdomen becoming distended, tympanitic & tender, the pulse rapid, the temperature raised. Barnes, Lawers, Playfair & Schaedel say this is acute peritonitis, but Parry does not agree with them. After examining many cases he concludes that (1) Peritonitis is a rare sequel of rupture of the cyst & even when pain, tenderness & other symptoms of peritonitis occur, often the escape of the ovum they do not necessarily indicate the existence of inflammation. (2) Peritonitis so rarely follows rupture of an extra-uterine fluid cyst that the possibility of its occurrence need not be taken into consideration in the decision of any questions relating either to prognosis or to treatment. This opinion of Parry is supported by the P.M. examination of some cases of rupture e.g., Routh's (Lord Ho. From 1849) case where "not a trace of peritonitis could be detected," also MacBook case (Lord Ho. From 1846) where all the organs were healthy & pale, also Baker's case (Lord Ho. From 1882) where there was no trace of peritonitis.

If the patient should survive rupture of the cyst, the case is transformed into one of abdominal pregnancy, the placenta may remain undisturbed after the rupture.
or if the rupture occurs early the omen escapes & may attach itself to some portion of the peritoneum & there continue its development.

In the late stages. After the 4th month there is quickening; the foetal heart is heard & that often with great distinctness, also the placental bruit. The enlargement of the abdomen becomes more visible, the breasts dete, milk & the areolae round the nipples are marked.

This may or may not be metorrhagia. If the decidua has been expelled during the early part of the pregnancy the metorrhagia is apt to be absent during this stage. The abdominal pains are usually present but are not so severe in some cases they may cease altogether. Very often the movements of the foetus cause pain, this was well marked in Dr. Bovis case & that of Pretori (and the Drans, 1876). Pressure symptoms may be present e.g. on the bladder causing dysuria or retention, on the rectum causing difficulty of defaecation or complete obstruction. Duncan relates a curious case (Med. Times Gazette 1879) when 4 months after onset of menstruation the patient had bearing down pains & difficulty of pain in menstruation & defaecation. The urine was larger in quantity voided more frequently than usual with this. The catheter had to be passed & instead of giving relief it caused violent strangury.
At or near term the child dies, immediately before death it often makes violent movements which may cause great pain. In most cases there is a suspicious labour.

**Physical Examination.** The abdomen is enlarged to that month on one side; the umbilicus is often drawn in (Bannos). On palpation we find it differs from that of normal pregnancy in being developed more in a transverse direction than a vertical, and the rounded outline of the gravid uterus cannot be detected. In many cases however we can make out the uterus enlarged forming a separate tumour generally on the side opposite to that on which the child is developed; in other cases it can't be palpated either owing to the tenderness present or to its being in some other position as lying flat along the surface of the tumour (Barbours case) or retroflexed as in two of Breasts cases (Edin. Med. Jour 1882-83) often the different parts of the fetus are felt with more than usual distinctness, in other cases not.

**Vaginal Examination.** the cervix is often tumeled displaced forwards to one side. As the uterus is frequently raised up in the pelvis it is often felt immediately above the symphysse tubic in contact with the anterior abdominal wall. The state of the os varies, but says it is always quite open, in his cases admitting the finger. The uterus may be movable or fixed by peri-metric adhesions
It is enlarged usually separate from the tumour, this enlargement however is not in proportion to the duration of the pregnancy. Through the posterior fornix of the vagina a tumour can be felt which may completely fill the pelvis, it may be firm or fluctuating the tumour may get ballottement, sometimes parts of the fetus can be distinctly felt in it. By introducing a sound into the bladder we can make out if it is displaced, it may be pushed to one side or drawn upwards to become adherent to the anterior abdominal wall. It is important to decide whether the uterus is empty or not, this can only be done by passing the sound or introducing the finger under chloroform. Examination by the uterus is also valuable to make out the position of the tumour more clearly.

When the pregnancy goes on to term false labour generally comes on. These are regular and strong uterine contractions usually accompanied with an escape of blood from the vagina. It also deciduial membrane if it has not been expelled before. The vicious labour pains continue at intervals till the fetus dies from effusion of blood into the placenta or it may be from pressure. The duration of the false labour varies from a few hours up to 2-3 weeks. It is followed in many cases for a few days by a discharge which resembles the lochial
discharge of normal pregnancy. Lactation is often estab-
lished, the milk is of its normal quality & the quantity
is the same as after natural labour. It may last only a
few days or for the normal period of lactation.
Sometimes the contractions of the abdominal muscles
produced by this labour have caused laceration of the cys-
round the foetus or escape of blood & liquor amnii with
the abdominal cavitie freely leading to the death of
the patient. If rupture does occur at this time, Parry
says it is generally into the vagina, rectum or uterus &
not the abdominal cavitie. Rupture at this period is
rare, the usual course is for the foetus to die and then
it undergoes the changes already described under Pathology.
After the death of the foetus the abdomen diminishes
in size from the absorption of the liquor amnii and
shrinking of the tumour. As long as the patient
carries the child she is now safe. Attacks of peritonitis
are common but are generally not severe, tending
rather to cause adhesions between the sac & the abdom-
nal wall or the internal organs.
When suppuration occurs in the cyst & elimination
takes place by the abdominal wall, the skin becomes
red, an abscess forms which bursts & pus escapes &
hits the pieces of the broken down foetus. If it
occurs by the bowel there is diarrhoea or some
difficulty of pain in defecation, tenesmus, perhaps obstruction of the bowel, then a foul discharge mixed with blood & afterwards the bones of the fetus. When it opens into the bladder she has all the symptoms of stone. If by the vagina there is inflammation of the discharge that is the fetus.

Discharge by these channels may lead to the formation of various fistulae e.g. fecal, vagino-rectal, vagino-vulval, vesico-abdominal. During the discharge of the fetus there is hectic fever, anemia, night sweats, exhaustion of the patient may die under it, or all may be eliminated and recover completely.

**Twins in Extra-uterine Gestation.** The usual condition is for one child to be developed inside & one outside the uterus, both outside the uterus is rare. Of the former condition Penny found 21 examples in 500 cases of extra-uterine gestation examined by him; of the latter condition only 2 in the same number of cases.

The presence of intra- or extra-uterine pregnancy does not increase the risk to the mother. Both children may be carried to term & the uterine one be born in a natural manner, or it may die & be discharged early in the pregnancy of the extra-uterine one develop to full term. A case of intra-complicated with extra-uterine gestation is recorded by Pennyfeather.
(Anast 1863) the uterine child was born at full term, the extra-uterine child being later discharged through the vagina. More recently, a case is reported by Galabri (Proc. No. London, 1881). Patient was 36 years old with one child one year old. Physical examination showed the abdomen distended by two tumours with a distinct separation between them. Fluctuation was felt in both. Fetal movements felt. Heart heard on the left, nothing on the right. The diagnosis was ovarian tumour and pregnancy. Two weeks later the examination showed that the outline of the right tumour had disappeared and fluctuation was felt all over the abdomen with increased swelling. Considering it a case of ruptured cyst (ovarian), he operated. Blood was found in the peritoneal cavity, the extra-uterine foetus enclosed in its thin membranes lying to the right side somewhat behind the uterus. The placenta was attached chiefly to the posterior surface of the right broad ligament of the pregnant uterus. The child was dead. The cord & a drainage tube were left in the wound. Two days later labour pains came on & the child delivered a breech, the placenta following immediately. There was little bleeding from the vagina but a great deal through the drainage tube which continued till next day caused death.
probably due to separation of the extra-uterine placenta by the contraction and diminution in size of the uterus after labour.

Pregnancy may occur while the patient is carrying an extra-uterine foetus. The gestation may go on to full term and normal labour follows. Cases are known where a patient has had a second or even several children while carrying an extra-uterine foetus. The patient is always in danger however of (1) premature expulsion of the foetus from the uterus not having sufficient space to develop (2) rupture of the uterus during labour from the extra-uterine cyst blocking the pelvis (3) inflammation being set up in the sac or surrounding structures from the pressure of the growing uterus or the pressure during labour.

The question has been raised, can a woman become pregnant with an extra-uterine child during the first 9 months after an extra-uterine conception? This seems possible as the cavity of the uterus never becomes closed in extra-uterine gestation, the decidua reflexa not being formed at the canal of one Fallopian tube at least may remain patent; also twin pregnancies are more common in extra-uterine than in normal gestation, in the majority of which one ovum is developed inside the true or outside the uterus. Parry is of opinion
that impregnation does not occur in extra-uterine gestation during the normal period of gestation and not until the woman regains her natural condition, these phenomena which belong to the pseudo-pregnant state have disappeared.

A case is related by Prof. Simpson (Edin. Obs. 1876) where the patient carried the extra-uterine fetus for 10 years of age, birth of two children, the first, seven years after the false labour, the second, three years later.

After this one she died & the extra-uterine cyst was found communicating with the vagina containing fecal matter. Found also relate a case (Edin. Obs. 1882). Repeated Extra-uterine Gestation. Pregnancy may occur more than once in the same patient. Haydon reports a case (Edin. Obs. 1864) A young woman became pregnant twice supposed to have aborted but no fetus was seen. At that time she was seriously ill. Four to five years later she again became pregnant and six months afterwards died with symptoms of rupture of an extra-uterine cyst. On post mortem a cyst was found in the right Fallopian tube which had burst and allowed a three months fetus to escape; it attached to the edge of the ten & a small irregular solid mass which proved to be a small fetus packed up tightly within a membrane. The conclusion drawn was that the
patient had had two distinct total gestations, that the first ended in rupture, that the second occurring some years afterwards ended by fatal rupture of the sac, six months after conception, the embryo having died three months before the rupture. This case also proves that rupture of a total cyst is not necessarily fatal.

**Diagnosis.**

The diagnosis is usually more difficult. During the early stages, the patient (1) supposes herself pregnant: (2) She has had gastric and mammary symptoms of pregnancy; (3) has had paroxysmal attacks of severe pain in the lower part of the abdomen at one or other side; (4) if this were accompanied with discharge of blood from the vagina, perhaps also decidua membrane; (5) enlargement of the uterus; (6) presence of a rapidly growing pelvic tumour displacing the uterus; (7) perhaps ballotment in the tumour; (8) purple line of the vagina; we have strong suspicion that the case is one of extra-uterine gestation and if following these there are the symptoms of rupture of the cyst, the patient should be treated as if she suffered from extra-uterine gestation.

The conditions most likely to be confounded with extra-uterine gestation are the following —
1 Haematoccele. Diagnosis from this may be impossible in some cases e.g. when the patient has not known she was pregnant or shown no symptoms of it, rupture of the cyst being the first indication, but even in these cases on careful bimanual examination we may find the uterus enlarged, pointing to extra-uterine gestation. In other cases we may be able from the previous symptoms—colicky pain, vaginal discharge or early symptoms of pregnancy—to suspect it is due to extra-uterine gestation. After effusion of blood in a simple Haematoccele this ensues, unless fresh haemorrhage occur, hardening or absorption of the mass or suppuration. In Extra-uterine gestation when the patient has suffered from the effect of the rupture, the effusion rarely becomes marked if the fetus may survive till on developing.

2 Pelvic inflammation. Here the clinical history is important, there are no symptoms in pelvic in-
inflammation like those described in extra-uterine gestation. The woman herself does not think she is pregnant. The pain may be somewhat, paroxysmal but this occurs at the menstrual periods. Again a pelvic inflammation deposit has not the same defined outline as an extra-uterine cyst.

III. Encysted abscess of broad ligament or pelvic peritonemum. Sublumbar pregnancy is distinguished from this by its smoothness, uniformly rounded or oval form and its mobility and that its long axis is parallel with round ligament; in addition we may be able to make out ballottement in the extra-uterine cyst while in the abscess we only feel fluctuation.

IV. Pregnancy in the rudimentary horn of a bi-uterine uterus. It is impossible to diagnose this. It pursues much the same course as a total pregnancy and generally ends in rupture although at a later period. The indications for treatment are the same in both cases.

V. Normal Pregnancy. (1) In extra-uterine gestation in the early stage we get the colicky pain and vaginal discharge in addition to the ordinary symptoms of pregnancy.

(2) the uterus in extra-uterine gestation is felt distinct from the tumour in many cases. It is often tender.

(3) In normal pregnancy the uterus occupies the middle line while in extra-uterine gestation the tumour is
at one side or more or less transverse (4) the different parts of the fetus are much more distinctly felt through the abdominal wall in extra-uterine gestation than in normal pregnancy. (5) On vaginal examination there is a swelling in the pouch of Douglas in extra-uterine gestation, none in normal pregnancy; if the child is lying transversely the swelling fluctuates, if the head or back present we may be able to feel them through the vaginal wall (6) the cervix is displaced forwards, laterally upwards in extra-uterine gestation, treated with difficulty, in normal pregnancy it is in the axis of the pelvis; also it is firmer & the os less patulous than in normal pregnancy (7) On introducing the sound into the uterus in extra-uterine gestation, its cavity is empty & its length is not in proportion to the duration of the pregnancy. (8) If extra-uterine gestation goes on to term we get a false labour with bloody discharge from the vagina.

VI. Pseudo-Gravida or Spurious Pregnancy. It resembles extra-uterine gestation in its probably terminating in a false labour, but signs of ordinary pregnancy are absent or erratic in their mode of onset. The abdomen is tympanitic throughout. Under chloroform the swelling disappears, if the Bimanual examination is now made the uterus is felt to be normal in size & the cervix
VII. Retroflexion of the Gravid Uterus. In this the first symptom usually noticed is retention of urine about the 14th month while in extra-uterine gestation we get the colicky pains, vaginal discharge & retention is rare. (2) On examining the abdomen in Retroflexion of the Gravid Uterus we find the bladder distended forming a cystic pyriform tumour with distinct fluctuation & when emptied with the catheter no other abdominal tumour is felt; while in extra-uterine gestation this distension of bladder is rarely met with but there is an abdominal tumour more or less firm situated to one side of the middle line separate from it we may feel the uterus. (3) On vaginal examination in Retroflexion of the Gravid Uterus we feel a firm elastic swelling in the pouch of Douglas which is continuous & moveable with the cervix & we can't make out the fundus above the pelvic brim. In extra-uterine gestation the tumour felt is often fluctuating & distinct from the uterus. (4) In Retroflexion of the Gravid Uterus there are alternate contractions & relaxations felt (this is more distinct on rectal examination) on vaginal auscultation the uterine tract is distinct, while in extra-uterine gestation there are no contractions felt & probably a foetus will not be heard.
In Retrospection of the Gravid Uterus on pressing the uterus upwards & to one side we may be able to undo the flexion of the uterus if then felt through the abdominal wall, the tumour disappearing from the Pouch of Douglas.

Diagnosis of Retrospection of the Gravid Uterus from extra-uterine gestation is sometimes very difficult. Dr. Barlow relates a case (Edin. Ob. Soc. 1882) where he was unable to say positively which of the two it was. The patient had two months amenorrhea then irregular hemorhage from the uterus; there was no history of rupture of the sac; the fetal movements had never been felt. Auscultation gave negative results. Pressure symptoms appeared at the 4th month as in Retrospection of the Gravid uterus & after drawing off 3 pints urine a tumour was felt impacted in the pelvis. After death it was found the uterus was taken up, as it were, into the wall of the sac so that the latter simulated an enlarged uterus. After death of the fetus, the placenta had continued to grow. The Ectopic Hemorrhage.

VIII Fibroid Tumours. When small they are distinguished from extra-uterine gestation by being导演inished. Usually the difficulties arise after the death of the child, it may be many years after. History is very important. In extra-uterine gestation
we find the patient still clinging to the idea she carries a child in her abdomen. She describes more or less accurately the symptoms of extra-uterine gestation followed by a spurious labour at term with discharge of blood from the vagina, cessation of fetal movements, secretion of milk, afterwards diminution in the size of the abdomen which continued steadily until the tumour reached the size it is when the patient came under observation. In fibroid tumours none of these symptoms have been present. Its rate of growth does not correspond with that of a pregnancy normal or extra-uterine. The history is rather that of menorrhagia than amenorrhoea. There is no false labour at the end of 9 months of the tumour instead of diminishing, then, steadily increases.

Dr. Meadows reports a remarkable case (Lond. Med. Jans. 1844) showing the difficulty in diagnosis. The patient thought that 16 years ago she became pregnant; she had all the usual symptoms precisely the same as she had had in former pregnancies, the only difference she remembers was that the movements of the child were extremely free painless. In due time labour pains came on, continued at intervals for 2-3 months and ceased. She relapsed into her former normal
condition. After the supposed labour, however, the abdominal swelling did not diminish but rather increased during the next three months. She came under his care on account of pain in the tumour. Time was its size as the result of a blow on it from a fall. The tumour was about the size of pregnancy at term. Irregular in shape, extremely tender to touch all over, apparently solid and dull on percussion over it but resonant in the flanks. On vaginal examination the uterus was high up and immediately behind the symphysis pubis, the cervix small and the os represented by a small circular rim sound passed into the uterus 2½ inches. Tumour could not be felt with difficulty to fail per vaginam. An exploratory incision was made in the middle line of the abdomen and a white friable mass having all the characters of malignant disease was exposed. He did not proceed further. Patient died 5 or 6 hours later. On 17th it was found to be a fibro-cystic tumour of the uterus adherent to all the surrounding structures, the friable mass being omentum which overlapped the tumour was about 1 inch thick. The uterine cavity measured in reality 5½ inches; during life the sound was obstructed by an encroachment of the tumour at the upper part of cervix.
IX. Ovarian Tumours. Diagnosis here is somewhat similar to that described under fibroids. The history of the case is important. As the tumour enlarges we get negative signs of pregnancy—the uterus is not enlarged, menstruation is not arrested, the characteristic line of the vagina is wanting—fluctuation in it is usually distinct. On vaginal examination there is frequently a swelling in the Pouch of Douglas which may be fluctuating or elastic or somewhat firm but there is no ballottement. The uterus is not enlarged. Ovarian tumours are occasionally irregular in shape and present hard projections which may be mistaken for foetal limbs. In many cases an exploratory incision is necessary to make diagnosis clear. Taft relates a case (Med. Bl. Lanc. 1894) in which he mistook a multilocular ovarian tumour for extra-uterine gestation. The patient's statement was that the tumour had existed about 3 years, before that, menstruation had stopped for 5 months. The abdomen had slowly enlarged, and also the breast. Pains like those of labour came on lastest 4 hours. The weak points in the history were no accompanying vaginal discharge & after the pains ceased the size remained unaltered. Sometimes after enormous labour in extra-uterine gestation the abdomen does not diminish in size
I may even steadily continue to increase from an increase of the fluid in the cyst & thus emulate ovarian dropsy. Hutchinson (Lancet 1873) describes a case of this - the tumour fluctuated freely but felt firmer at some parts than others. No foetus could be made out. To make diagnosis clear he tapped. Later the patient died & on P.M. fluid from the cyst was found in the peritoneum. In his remarks on this case he says he does not recommend tapping but in a similar case if he could not feel the foetus for fluid he would get the patient on her hands & knees. Examining the abdomen, he would probably feel the foetus which would fall forwards. In doubtful cases the trocar has been used to draw off some of the liquor amnii to confirm the diagnosis. Farjeon says it cannot be too strongly condemned as few women have long survived its use. Peritonitis, collapse or septicaemia setting it ; it is only to be used if we are prepared to perform gastetomy at once if the fluid withdrawn is found to be liquor amnii. Farjeon says it is difficult to imagine a finer than like aspirating needle rendered perfectly aseptic by carbolic acid could have any injurious effect.
Cancer of Anteomenum or Pelvis. Cancerous deposit may assume various shapes and present irregularities of surface which resemble very closely portions of a mature fetus. Horbury (Diagnosis of Women) says: "I have found the cephalic structures of the contour of the ribs or of the extremities most accurately imitated in this way on abdominal palpation or vaginal touch, far more than by any other abnormal affection."

A careful enquiry should be made into the family history of the history progress of the tumour. The increase would probably be steady if a rapid accession to the fourth took place, a temperature chart would settle the difficulty, for the only condition which could induce rapid increase of the cyst of an extra-uterine gestation is suppuration. This would tell its story on the chart in lines that could not be mistaken (Yeat).

"In Instant Poisoning. The abdominal pain from uterine gestation which accompany rupture of the sac have led to suspicion of Instant Poisoning. Dr. Wilson reports such a case in the Edin. Ms. Trans. 1879. In diagnosing extra-uterine gestation from Instant Poisoning we should notice when she took food. If any other person was affected who ate with her. Drams were vomiting are almost always present in Instant Poisoning, they
are not so constant in extra-uterine gestation. The important points are the unusual pallor and the hemostasis from the vagina which are almost always present in rupture of the case, while they are not marked or absent in Instant Poisoning. The history of the case is also important as she will probably have suffered from the early symptoms of extra-uterine gestation.

Thomas in speaking of the difficulty of diagnosing extra-uterine gestation says: "Very often we hear of physicians being blamed on account of failure in diagnosis in these cases which suddenly die from rupture. Every medical man who countenances such a change demonstrates his want of experience or his want of professional loyalty by so doing. Very often there is nothing in these terrible cases to excite suspicion; very generally nothing to decide us positively even when suspicion is excited." Thorburn says: "Granted an absolutely certain pregnancy with very strong suspicion of its being extra-uterine, the probabilities are unanswerable very greatly in favour of its turning out to be extra-uterine.

Diagnosis of the Varieties of Extra-Uterine Gestation. It is almost impossible to do so. The Intestinal form is very rare, the tumour consists of an irregular.
enlargement of the uterine body, it moves with the uterus while at the same time that organ is empty. In the tubal variety there is a tumour at the side of the uterus, somewhat separated from it but decidedly moving with it. In most instances it gives rise to some paroxysmal pain + metrorrhagia. Ballottlement is more readily detected in it than in the other forms. In the abdominal, if the gestation follows a comparatively normal course to term it is probably this variety of extra-uterine gestation. Ovarian pregnancy.

Freund says (Edin. &l. Soc. 1882-83) commences without pain or only moderately painful sensations, with a rapidly growing tumour like an ovarian alongside of the uterus which enlarges but remains flat.

**Prognosis.**

It is always grave. It is least favourable in the purely tubal variety which in the majority of cases is fatal by rupture; more favourable in the interstitial form as the cyst may sometimes open into the uterus; most favourable in the abdominal variety as there is room for the foetus to grow. Freund says prognosis is very serious when the placenta is attached to the bowel as decomposition is readily set up if the foetus dies & demands the speedy opening, evacuation & disinfection of the sac. Prognosis also depends on the stage of
gestation, being much worse in the first than in the latter half of pregnancy. If the patient passes mid-term without rupture she will probably go to term. After false labour, death of the child. Normal condition of the system is restored the patient may live for many years but she is always in danger as long as she carries the encepsed child. Prognosis is more favourable when adhesions have occurred between the sac wall and the parietal peritoneum; less favourable when no such adhesion exists. When the cyst ruptures, its discharge is more favourable when through the abdominal wall than through the vagina or bladder. Least favourable when through the rectum. A patient with an encepsed child may become pregnant one or more times. The safety deleted, but she is always in danger; it may be during pregnancy, from pressure of the enlarged uterus or the sac, but during the labour it is especially dangerous as the sac is exposed to some pressure, inflammation may set up causing death of the patient.

Prognosis of combined intra- and extra-uterine pregnancy is not much more grave; the intra-uterine child may be expelled by its own actions while the patient may survive many years as in a pure case of extra-uterine gestation.
Treatment.
May be divided into 4 stages (1) before rupture (2) during the time of rupture (3) during the remainder of the usual term of gestation (4) after that period or after death of the foetus.

I. Before Rupture. We have two lines of treatment here. (1) If we are perfectly certain of our diagnosis, the removal of the cyst by abdominal section would be best. If the case is left to nature, rupture is almost certain to occur before the 4th month and generally leads to the death of the mother.

If the cyst was situated at the ovarian end of the tube or in the ovary, it could be easily ligatured. When in the centre of the tube it would be more difficult, but by transfixing the broad ligament below the cyst with a double ligature and carrying one ligature up round the tissues to the inner side of the cyst and the other ligature round the tissues to the outer side, a V-shaped portion of the broad ligament is removed including the cyst. If it was impossible to remove the sac alone, the body of the uterus and appendages could be taken away with it, and there would leave a better chance of the patient's recovery than she would have after rupture of the cyst.
Thomas was successful in operating through the vagina – he says it the tumour be low in the pelvis, fluctuation in it beyond doubt reaching the sac certain, the safest & best method of dealing with the case would be to introduce a large Sims Speculum & cut through the sac with a Tagnellis cauterising at a red heat. The foetus is then removed, but not the placenta & a linen bag filled with cotton is used as a compress fixed externally upon the abdomen over the site of the tumour, with adhesive plaster. The sac should be carefully filled with antiseptic cotton renewed once every 36 hours. By these means haemorrhage can be completely controlled.

(2) The second method of treatment is to endeavour to arrest the life of the foetus so as to check its further growth in the hope it may become absorbed or remain inert & pass into its sac & thus avoid rupture. Various methods have been tried for this:

(a) Tapping the cyst with a fine taper through the rectum or vagina, so as to draw off the liquor amnii, as a result of this the cyst collapses & the embryo dies & atrophy of the cyst ensues. A successful case is reported by Greenhalgh in the Lancet 1867. In other cases sudden collapse &
rupture of the sac and death from haemorrhage have followed. Thomson punctured two cases and they died, one of septicaemia, the other of haemorrhage into the sac rupture. Many object to this mode of treatment, he says the death of the foetus is not insured by the discharge of the liquor amnii and that the practice is not without danger to the mother as it may lead to decomposition of the cyst contents, septicaemia and death: he would in preference use electricity or section of the vagina by the thermo cautery.

Playfair, Barne, Shawburn and others are of opinion that tapping with a fine trocar rendered perfectly aseptic is the simplest and most effectual plan for arresting foetal life. They think it probable that puncture of the cyst which forms a part of the other methods of operating, is by itself adequate to account for the successful result. Tapping seems advisable from the very structure of the envelope of an extra-uterine gestation in the contractile tissue in the tube which gives the power of contraction to the sac, so that when the cyst is punctured the liquor amnii escaped it would thus leave the sac to contract on the foetus, it would lead to its death consequent absorption.

(1) Injecting through vaginal or abdominal incision by
means of a long slender needle, a solution of morphia
\((\frac{1}{4}-\frac{1}{3}?)\) into the eye or bath into the body of the fetus.

This is considered by many as the best means of on
disposal. (c) Destroying the fetus by electricity.

Needles may be inserted into the eye or a continuous
or interrupted current passed. I have related several
successful cases following the use of the Faradize
current - one electrode passed through the section to
the tumor of the other on a point in the abdominal
wall, 2-3 miles above Poupart's ligament. The current
should be passed daily for 5 or 10 minutes continued
for a week or two until the shrinking of the
tumor gives evidence of the death of the fetus.

Allen of Philadelphia was successful in two cases. He
used an ordinary electro-magnetic machine, one pole
applied to the tumor in the vagina through a
glass speculum, the other to the surface of the ab-
domen on the fetus' scalp. Successful cases are
also reported by Arching and Petch in the Brit. Med.

Arching used the interrupted current 4 times. Petch
inserted two needles, maintained up to \(\frac{1}{4}\) inch from the
point, they were connected with a Reclame's battery
and the current of 30 cells allowed to pass for one hour.

(d) Other means of destroying the fetus have been
proposed, such as compression of the tumour, or ad-
munistration of toxic remedies to the mother as lodine,
Naphthia, Mercury, but without success.

One objection however exists to all these methods
viz that after the fetus has been destroyed death of
the placenta may not follow & its vegetations may
go on forming beyond even the normal extent, thus
greatly complicating any future proceedings. This
growth of placenta was seen in Barbaums case (Edin.
bs. Fam. 1882); in Thornton's case (lond. bs. Fam.
1882) where the fetus died at the 4th month & the
placenta continued to grow & formed a solid masa
smiling a fibroid.

Again supposing we are successful in our treat-
ment at the time, there is always the danger of
suppuration occurring at a later period in the sac
which may set up peritonitis or septicemia & cause
death of the patient. If the case can be diagnosed
with certainty, the greatest safety would be with the
removal of the fetus & its sac if possible by ab-
dominal incision, the earlier the better.

II Time of Rupture : When this has occurred, the
treatment hitherto has been the same as that for
Hæmatocele - keeping the patient at rest, stimul-
ating freely, applying ice to the abdomen for the
bleeding & giving morphia to relieve the pain, but the majority now suggest that it is perfectly justifiable to perform laparotomy, sponge away the effused blood & place a ligature round the lacerated tube on its uterine side; remove it with its contents & further hemorrhage is thus avoided. Until the operation is decided on, pressure on the abdominal aorta may assist in checking further hemorrhage.

Barnes says this operation does not materially add to the shock already dealt by the rupture & gives the best chance of recovery in severe cases, "it should be done early." Frieden on the other hand says (Edin. Obs. from 1852-53) death from rupture is not so common as supposed & if we operate at this time we often fail to discover or control the source of the hemorrhage; for these reasons laparotomy is contra-indicated if we should simply treat the threatening symptoms of anemia & peritonitis.

Lately several cases have been successfully operated on at the period of rupture, which seems to show that abdominal section is the proper treatment when this has occurred. Hart has operated on 21 cases, only one died (Bri. Med. Journ 1884-85 &c); Johnstone one case (Med. Rec. 1886); Hunt one case (Bri. Med. Journ. 1886). In the last mentioned case a large
quantity of tarry looking blood called up when the abdomen was opened; it had evidently been effused for sometime. A foetus of 2 weeks was found among the coils of intestine; the left tube enlarged and the rupture about as large as the tip of the index finger. Rate of the temperature of 100°-120° F was used with success to douche out the pelvis to arrest any oozying from the peritoneum.

If the patient have survived rupture & the period of shock has passed, the effused blood becomes slowly absorbed. She is to be kept at rest, pain relieved by morphia hypodermically or in suppositories, hot fomentations, poultices (with mustard if there is vomiting) stimulants are usually necessary. If the blood in the Pelvis of Douglas is fluid it may be drawn off with an aspirator. If instead of absorption we should get suppuration of the effused blood, the abscess may be opened through the vaginal roof by Pauwelius' cannula & a drainage tube inserted & the cavity washed out daily with carbolic acid solution (1:100). Quinine & Iron should be given internally.

Even in this case however it might be a wiser course to open the abdomen removing the offending structures.
III. During the remainder of the usual course of gestation, there is not the same risk of rupture of the cyst now as in total gestation & it is generally admitted that it is advisable to adopt any active measures until full term of development is reached. Two views are advanced here -- the one is to perform laparotomy before the foetus perishes & if possible save a living child from a living mother, the other is to delay operating until death of the foetus & urgent symptoms have arisen.

Saith Barnes, Thomas, Hicks together advocate primary laparotomy. The arguments in its favour are -- it affords a chance of saving the child, if the risks are not greater to the mother than may be anticipated by delay. If we delay, the cyst may rupture during the false labour & cause death of the mother, or death may result from peritonitis or exhaustion consequent on the efforts at elimination.

Pany and Hutchinson are in favour of secondary laparotomy, which consists in operating after the death of the foetus & when urgent symptoms have arisen. If we delay, the inflammation about the cyst will have led to the formation of adhesions between the peritoneal walls & its contents off from the peritoneal cavity and
the more thoroughly this is accomplished the greater are the chances of recovery. By delay there is also less risk of Haemorrhage, as the placental circulation will have ceased ; the placenta atrophied from the fetus having been dead sometime, also the exsanguination of the cleft will have diminished. Parry says the primary operation cannot be too emphatically condemned, notwithstanding the possibility of saving the child; even of saving both mother and child. The secondary mortality is only 17.35 per cent in primary than in primary secondary gastrotomy. Hutchinson's opinion is (Lancet 1873) that after waiting till the death of the fetus two urgent symptoms have arisen: "extra-uterine cysts ought not to be meddled with in any way either by puncture or incision until suppuration has occurred, or an obvious fistula has been formed."

Prof. Mark is also in favour of delay. (Bull. Med. Soc. 1881)

Jesup (Lancet 1876) successfully performed primary laparotomy, saved both mother and child, this was the first case in this country. His reasons for operating were: "the dangerous state the mother was in so that she probably had not many hours to live. The only chance lay in the removal of the child due to the child itself, there was no apparent reason why its life might not be preserved." He continues to say...
the operation itself presented few difficulties or complications, the peritoneum was fairly healthy. It contained nothing more than a few albuminous streaks and a small quantity of clear liquor. There were no membranes, no adhesions, no enclosing capsule for the child, no bleeding tendency of the abdominal organs were but little disturbed. He did not interfere with the placenta. Provision was made for its escape from the abdomen after separation, by carrying the cord through the lower part of the wound, leaving it there. The discharge from the wound was profuse, offensive. She was seized several times daily with agonising pain in the abdomen which was at once relieved by the outpouring from the wound of a quantity of putrid, coffee-coloured fluid, the consistency of treacle. The discharge ceased and the wound healed up within 2½ months. Probably if a drainage tube had been introduced alongside the cord it the cavity washed out daily with an antiseptic solution, she might have been saved the attacks of pain which accompanied the expulsion of the accumulated fluid.

Laparotomy. In performing the former operation we should wait till term, when false labour usually sets in, having proved by auscultation the foetus is alive, proceed to operate. The bowls
and bladder should be emptied & the position of the bladder noted for fear it is adherent to the abdominal wall. If possible we should also try to make out the position of the placenta, as it has been found attached to the anterior abdominal wall in the line of the incision & led to the operation being abandoned on account of the severe hemorrhage that followed incision of it. The operation should be done with strict antiseptic precautions, the hands of the operator & the abdomen of the patient should be washed with turpentine soap water & then carbolic acid or corrosive sublimate solution. Sponges & artery forceps be as to be counted & a note kept of them so that none may be left in the abdominal cavity. As a precaution before making the incision, the uterine cavity should be carefully examined with the sound or finger to make perfectly sure it is empty & the child is extra-uterine. The incision is made in the middle line & long enough to insure facility in extracting the child, it may be lengthened if occasion requires. If the Cape is connected by adhesions to the abdominal wall, a small opening should first be made in it, the finger introduced of the extent of attachment of the Cape to the abdominal wall made out; then the incision is enlarged
care being taken not to extend it beyond the connections of the cyst and abdominal walls. If there are no adhesions the walls of the cyst should be stitched to the margins of the incision so as to shut it off as completely as possible from the peritoneal cavity. Thus the entrance of septic matter either at the time of operation or subsequently into the peritoneal cavity is avoided. An incision is now made in the sac but before closing so the fluid content might be drained off by an aspirator and thus further diminish the risk. The foetus is best extracted from the sac by practising it by the legs or breech, then making traction. Sometimes in secondary laparotomy if the foetus has been retained for any length of time, adhesions may have formed between it and the sac; Freund relates a case (Edin. K. Sam. 1862-63) where the foetus lay transversely fixed adherent with the whole right side of its body from head to feet, to the upper wall of the gravidation sac. When this has occurred we find on making traction we cannot remove the foetus, then adhesions should then be searched for, a double ligature put on of them divided with scissors between the two ligatures. The cord is now ligatured and divided & the cavity of the cyst spnged out. No attempt is to be made to remove the placenta in either primary or secondary.
Laparotomy. Its attachments are generally so deeply seated and diffused that any attempt to separate it is likely to be attended with profuse uncontrollable hemorrhage or serious injury to the structures to which it is attached. In a case of Freund's, 16 days after laparotomy had been performed, he attempted to detect a piece of placenta but bleeding at once occurred; 8 days later it came away itself. The sac should now be touched out with warm carbolic acid solution if afterwards it may be sprinkled with equal parts of iodineform of Freundt or equal parts of tannin and salicylic acid (Freund). The cord is brought out through the lower part of the wound. A large circular drainage tube introduced, the upper part of the wound being stitched up with deep (silk) superficial (homolite) stitches, it is then sprinkled with iodineform of Freundt and dressed with iodineform gauge. The subsequent treatment is to be directed to favour the escape of the discharge & to prevent risk of septicemia. The cyst should be touched out daily with warm carbolic lotion, the lotion & discharge being removed from the cavity by pumping with a syringe, but this is much better accomplished by removing the action of the double tube & converting it into a syphon so that all the fluid runs out. As long as the placenta
remains the danger to the patient is great, it may come away in a few days or it may not be for weeks. When the haemorrhage has taken place the sac contracts and gradually becomes completely closed. Hart (Edin. Med. Jour. 1887) says in operating for advanced gestation, the placenta only should be removed, the cord tied & returned and the wound closed unless a septic condition requires drainage. A case is recorded by Braithwaite (Lond. Med. Jour. 1886) where the placenta never came away except a massel 20 grains in weight which protruded at the upper angle of the wound on the 6th day. It must have been slowly absorbed. When the placenta is so situated that it has to be cut through in the operation via the anterior abdominal wall, the bleeding may be best controlled by cold sponges introduced through the wound held against the cut margins of the placenta with external counter-pressure, if that fail we may have to apply pentobarbital sodium to the actual cavity. Hermann (Lond. Med. Jour. 1886) had a case of this kind and he proceeded to separate the placenta by tearing it from the abdominal wall & bladder: a ligature was passed through the left broad ligament of the placenta then cut away.
IV. After death of the foetus. When the foetus is dead we should wait. If urgent symptoms arise as those of septicemia, peritonitis, exhaustion, then perform secondary gastrotomy. The operation is done in the same way as the primary one, only we are more likely to meet with adhesions between the walls of the abdominal wall and in some cases between the foetus and the wall. The greater the adhesions the safer the operation as the peritoneal cavity is then shut off from the cyst containing matter and cannot get in. Diagnosis of adhesions before operation is difficult but if we find the abdominal walls do not move freely over the cyst and if the umbilicus be depressed immovable, the probabilities are that considerable adhesion exists. Hicks says (Lond. Med. Journ. 1868) that we can make tolerably sure of securing an adhesant surface by strict attention to the spot of greatest tenderness on foreskin.

Macdonald reports a case (Edin. Med. Journ. 1883) where he found part of the sac formed by 5 to 6 inches of small intestine, the wall of which was thickened, softened and almost gangrenous. This piece of the intestine was cut out of the healthy ends of the bowel brought together by a continuous catgut suture, similarly the gap in the mesentery was brought together. A suture through bowel and diaphragm escaped into the sac was also found at the edges.
were pared, stitched; patient recovered.

Then no urgent symptoms arise then leave the case to nature until she indicates the channel by which elimination is to be effected. If the case opens through the abdominal wall, the opening should be enlarged of the parts or the parts if that remain, extracted.

If it opens into the vagina the orifice should be enlarged of the parts removed. If it opens into the bladder, lithotomy should be performed, opening into the bladder through the vagina or suprapubically, the latter if the bladder is adherent to the abdominal wall.

In some cases it may be possible to remove the bones through the dilated urethra without resorting to lithotomy, in this case the large bones, especially flat ones, would require to be divided in the bladder before they could be extracted. If it opens by the rectum any bones or pieces of the child within reach should be removed with the fingers or forceps. The patient should be anæsthetized and the hand passed into the bowel to feel for the opening into the canal, through this the parts may be removed if it (the opening) is large enough. Be thus diminish pain of the dangers of septicemia. If the orifice is too small for this especially if urgent symptoms arise, laparotomy should be performed of the child removed.
If the child is retained in the abdomen for a long time of the patient become pregnant again the labour may terminate normally, often does, or it may be necessary to elevate the tumour, use forceps, turn the child, or perform craniotomy or Caesarean section. Opening the cyst by Caustic espatula first has been recommended in the hope it would set up adhesive inflammation around the aperture thus formed. Several successful cases are recorded. It has generally been applied to the middle line and after two or more applications the cyst is to be opened with a knife or the child extracted. It should be limited to those cases in which adhesions are absent, this being suspected by the extreme mobility of the cyst. It is now superseded by laparotomy as the process is tedious and should cause prolonged suffering besides the danger of septicaemia from the sloughing surface.

Delivery by the vagina. This has been done in several cases by incision through the roof of the vagina into the Pouch of Douglas. Pang collected 15 cases, of these 9 died and 6 lived, a mortality of 60%, only two children were saved. If this operation is done it should be confined to cases where the head or breech presents in the pelvis where adhesions are supposed to be absent. The vagina should be incised over the most prominent
part of the child extracted as in ordinary deliveries. 

Sepsis are usually necessary. The placenta should be left in situ & the wound kept open to allow it to come away after it separates. The chances of recovery are not so great as after laparotomy. Lebey says in the Med. Times Gazette 1873 that "it should always give place to abdominal section as being more scientific & less risky."

One of the first to perform this operation was Dr. Tregg of Bostons Island (1816) who induced the vagina at term turned both mother & child. Mathieson (Lond. med. Journ. 1884) reports a case — on vaginal examination the roof of the vagina was filled with a semi-elastic almost doughy mass, solid on deeper pressure. By external pressure it could be brought within easy reach of the finger. An incision was made in the most dependent part of the roof of the vagina. The first came on blood clots, then the membranes of the foetus which were with the face fell to present. Sepsis were applied. The delviued a living child with moderate traction. The hand was then introduced & the placenta fell at the posterior & left side of the cavity. There was no hemorrhage but he proceeded to separate the placenta with his finger assisted by external pressure through the abdominal wall. The bleeding was arrested by a sponge saturated in terephthalde of iron; and a
piece of the placenta was detached the force was pressed into the bleeding surface and another piece was de-
tached too on. The patient recovered. He gives no reason for detaching the placenta, the rule is to leave it. Pony
says this is more necessary after vaginal section than laparotomy, as its removal may cause laceration of
the rest well.

Combined intra- and extra-uterine pregnancy at term.

As a rule labour progresses normally in these cases until the intra-uterine child is born. In some cases it may
be necessary under chloroform to push aside the extra-uterine tumour if it present at the birth of turn the uterine
child to deliver; or perforation or Caesarean section may be required. After the uterine child is born, primary
laparotomy has been recommended for extraction of the
extra-uterine fetus. Pony says this should be em-
phatically condemned as the risks of this operation
during the parturient condition have been shown to be
so great, that counting the child's life as equal to the
mother, more human lives will be spared by ex-
pectancy than by active interference.

In interstitial pregnancy the uterine cavity should be
dilated so that palpation from within could be
practised with the possibility of incision considered.

Hodge of Philadelphia in 1869 diagnosed interstitial
Pregnancy, cut through the layer of tissue which separated the uterus from the sac, delivered the woman safely.

**General Treatment of Extra-uterine Gestation.**

Little requires to be said about this. Pain should be relieved by opiates hypodermically, by the stomach or suppository. The strength should be kept up by light nourishing diet & if necessary stimulants. If suppuration in the cyst occurs she should have plenty of easily digested nourishing food as strong beef tea, Brands essence of beef, milk, eggs & brandy &c. Ty drugs

Quinine & iron are the best. Careful regulation of the bowels 1st thing milk the chief article of diet is insisted on by Freemul (Edin. B.S. 1882-83) as important in the management of cases before operation. He says "whether the gestation be in a previously formed abdominal sac or free in the abdomen (with or without the placenta being attached to the bowels) a loaded bowel always acts unfavourably on the gestation sac. Adhesions easily form through which the child may possibly become infected. This is more important in abdominal gestation if there is reason to suppose the placenta is implanted on the bowel."