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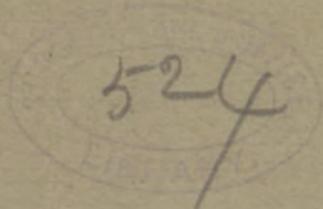
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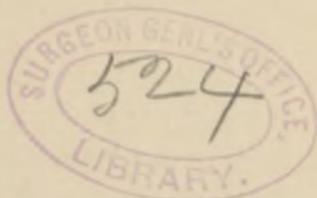
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THE DIAGNOSIS AND TREATMENT OF TUBAL PREGNANCY.*

WITH REPORT OF A CASE.

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EXTRA-UTERINE gestation occurs about once in twelve hundred cases of pregnancy. One writer states one to twelve thousand; another, one to three hundred and thirteen. It is a somewhat rare condition, and one of very serious import to the patient. If undiscovered until rupture has taken place, it is usually fatal, either from the hæmorrhage or from the septic conditions induced by it. If it is discovered previous to rupture, its removal is usually not very difficult and the attending dangers are slight.

In this paper I shall confine myself to the tubal variety of extra-uterine fœtation.

The opinion of modern writers seems to be that all forms of extra-uterine impregnation, excepting ovarian, take place

* Read before the Society of Alumni of Bellevue Hospital, October 3, 1894.

in the tubes; that later about forty per cent. of the ova are extruded from the tube, either into the abdomen or uterus, while sixty per cent. remain and develop as tubal pregnancies.

In the tubal variety early rupture is the rule, followed usually by the death of the patient. However, if the diagnosis of this condition can be determined previous to rupture, and an operation performed for the removal of the tube and its contents, the termination is usually successful. The whole interest, then, centers about the phenomena by which we are to make the diagnosis.

As a rule, the symptoms of tubal pregnancy are the same as those of normal pregnancy up to the time that pain and irregular hæmorrhage occur. Briefly recapitulated they are as follows: Morning sickness of the kinds usually described; mammary changes, consisting of an increase in the size of the gland, tingling or other irritable sensations; enlargement of the areola; stoppage of the monthly flow.

At this point appears the important symptom of pain. The pain is sudden, colicky, and felt in the iliac region of the side where the sac is situated. The pain is soon followed by a bloody flow, irregular in duration and recurrence.

If an examination is now made, the uterus will be found somewhat enlarged, but to a less degree than in normal pregnancy. The cervix is also softened and the os slightly opened. The uterus may be crowded forward or to one side by a tumor behind or beside it. This tumor is oval or round, freely movable (if no adhesions have formed), elastic, tense, and sensitive.

Before considering the diagnosis I will rehearse the history of my case:

Mrs. F., aged twenty-eight years; married in July, 1893.

History.—Was regular until January, 1894; should have been unwell about the 20th, but was not; had morning sickness

so bad that she would throw up her breakfast at times; her breasts enlarged and became tender.

There was no show in February. But in March she was taken with severe pain at about the time her monthly was due, followed by the discharge of considerable blood in which were "pieces of flesh" (clots and membranes). Bloody discharge continued for three weeks. Was regular in April and May. In June she did not menstruate. She had no morning sickness, but her breasts became larger and were tender.

On the 16th of July she was taken with pain, followed by a bloody flow. The pain was felt in the external genitals and perineum, never in the iliac fossa, and disappeared with the onset of the hæmorrhage. The flow continued three days, and then gradually subsided. In just a week (July 23d) the attack returned in exactly the same way. First, severe pain in the external genitals, followed by the hæmorrhagic discharge. She came to my office on the evening of the 23d and gave the above history. I suspected extra-uterine pregnancy, and made an examination with that in mind. The uterus was enlarged to the size and shape of a large pear, about three or three and a half inches long and correspondingly increased in girth. It had settled well down into the pelvis, but was freely movable in all directions without pain. No enlargement of the tubes could be felt, though special effort was made for this purpose. There was a thick discharge on the finger, looking and smelling like menstrual blood.

Diagnosis.—I told the woman that she was pregnant, and was inclined to think that I had one of those patients that lose blood once or twice at the beginning of their pregnancy.

I gave some two-grain ergotin pills to take every four hours, and ordered rest in bed. She reported on the 25th that the bleeding had ceased. From this time until the 17th of August I was on my vacation. On the 29th she called and said that the hæmorrhage had not returned until the 1st of August (nine days after the second attack). Then it began again as bad as ever, preceded by severe pain in the same region as before. The pain lasted longer than with the first two seizures. The hæmorrhage

continued three days and then stopped. She used the ergotin pills during this time. In a week the same proceedings were repeated, with the exception that the pain and loss of blood were continuous up to this time (August 29th).

I did not make an examination at this time as the case seemed to be one of abortion, but told the woman to go home and in the morning I would operate, intending to curette and pack the uterus. In the morning preparations were made for this operation.

Dr. Dearden administered ether. When the patient was thoroughly anæsthetized, as a preliminary precaution I made a careful examination. This was what was disclosed: The cervix was hard and the os firmly contracted; the uterus normal in size and freely movable. No mass was felt at the left of the uterus, but as soon as the fingers were carried to the right side a movable tumor was found. It was close to the uterus and connected with it, though the fingers could be carried up between the two. It was of the size of a hen's egg, elastic, not boggy, and with a smooth surface.

My diagnosis was extra-uterine pregnancy of the tubal variety, and it was confirmed by Dr. Dearden. The administration of ether was stopped and preparations were made for the more serious operation, which, after half an hour, was undertaken, with Dr. Wright to administer the anæsthetic and Dr. Dearden to assist me. Mention of the operation will be deferred until considering the treatment of tubal pregnancy.

As before stated, the interest centers about the question of diagnosis. If that is plain, the successful termination of the case lies within the reach of the physician and patient. All writers are unanimous in stating that the diagnosis is comparatively easy after rupture has occurred; and they are just as fully agreed that the diagnosis is difficult and uncertain previous to this undesired event. The chief purpose of this paper is to ask the questions, Can tubal pregnancy be diagnosticated previous to rupture? If it can, what are the pathognomonic signs? and to record the answers of

various writers. The time of rupture is important to determine. Playfair (8) states it as from the fourth to the twelfth week, rarely later. Pozzi (16) says early rupture is the rule, in most of the cases during the second month. The size of the ruptured cyst is usually that of a hen's egg.

My case had gone anywhere from seventy to ninety days and the sac had not ruptured. I do not think that rupture would have been long delayed, as the sac was very thin and tore slightly while I was removing it.

It is evident that we must make the diagnosis previous to the beginning of the third month, and it would be better if it could be accomplished before the middle of the second month.

I will introduce some quotations from men who have had to do with this condition.

Lusk (1): The diagnosis of extra-uterine foetation is based on the existence of the signs of pregnancy, exclusion of an ovum within the uterine cavity, and the presence of a tumor external to the uterus. . . . A tubal swelling and enlargement of the uterus, associated with suppression of the menses, often followed after a brief period with paroxysmal pains radiating from the side of the pelvis upon which the affected tube is situated, and with the expulsion of the uterine decidua at the end of the second or in the course of the third month, is to be regarded with suspicion. But a tubal sac may be caused by a number of pathological conditions. Uterine changes in the early months are inconstant. These sometimes correspond to those of ordinary uterine gestation, but often there is neither perceptible enlargement nor cervical softening to indicate pregnancy.

Ross (2): The vagina may be of a purplish color. Cervix perhaps soft and patulous. Uterus pressed forward or backward to one side or the other. An irregular swell-

ing that feels like no other swelling, neither a pus-tube nor ovary, that feels knotty and boggy, will be found in its neighborhood. Sometimes the mass is smooth, rounded, and freely movable. Some claim the tumor pulsates, but other pelvic enlargements also give the sense of pulsation to the examining finger.

Vertsinski (3), in a Russian journal quoted in the *Lancet*, calls attention to one characteristic symptom in the differential diagnosis between tubal gestation and oophoritis, which had been described by Thomas as far back as 1873, fell into oblivion, and in 1889 was resurrected by Professor Lebedeff. The symptom is the varying size of the tumor in inflammatory conditions of the tubes and ovaries. The tumor is sometimes as large as an orange, while on other occasions, and often in a few days only, can hardly be defined.

This periodical variation in size is closely connected with menstruation and ovulation.

Smith (6): The physical signs, and these with reference to the earlier months, would be the development of the uterus with the accompanying displacement, according to the size and situation of the fruit sac. Cervix is usually patulous and dilated; uterus empty; tumor beside or behind the uterus, of nearly fluid consistence, tense and tender. . . . A positive diagnosis can not be made within the first eight weeks without an exploratory incision.

Hughes (12) and Smolsky (13): The size of the womb should be compared with the size it should be at the supposed period of pregnancy. Careful search should be made in the neighborhood of the Fallopian tube, fundus of the womb, and ovaries, and if an enlargement is discovered, so much the better. The question is then, What is tumor due to? Can be answered by inquiring into the previous history of the case, and by carefully comparing the symptoms of

the disease which it might resemble with the symptoms of pregnancy. The size of the tumor should be compared with the size that the fœtal sac should be at the supposed time of gestation. Smolsky states that in tubal pregnancy the sac in the first month reaches the size of a pigeon's egg; in the beginning of the second, the size of a walnut; midway between the second and third, that of a hen's egg; in the third month, that of a fist; in the fourth month, that of two fists. All writers agree upon the mammary changes that take place, and that they are similar to those that take place during normal pregnancy.

Regarding the symptoms of pain and bloody flow, Lusk says that paroxysmal pains are frequent in other forms of tubal disease, and menstrual disturbances are common phenomena in uterine derangements.

Ross states that some have no pain. Others agree that pain is the rule, and is felt over the site of the affected tube.—Laurence (4), Lewers (5), Smith (6), Playfair (7 and 8), Cullingworth (10), Hunter (14), Banga (15), Pozzi (16). In my case the pain was severe, but grew easier as soon as hæmorrhage started. The situation of the pain differed from that of any case I have seen recorded, in that it was never felt over the tube, but always in the external genitals. I have taken the precaution to make this point certain.

Hæmorrhage follows in every case. Its duration is uncertain and its return irregular. As a similar flow occurs in diseases of the uterus and its appendages, it is not a special sign of tubal pregnancy.

My patient bled at intervals of a week for four weeks. The flow lasted for three days, until the last attack, when it became continuous. There is one point in the history of the cases reported that is brought out distinctly by Lewers and Hughes. It is the fact that these patients may have

aborted a short time previous to the tubal conception. In my case there was an abortion when the patient was two months and a half pregnant, and two months and a half before the abnormal impregnation.

Concerning the expulsion of the decidua or its removal by the curette, Smith lays this force upon it, that in proper hands the curette will clinch the diagnosis. Hughes says the presence of the decidua is a symptom of great importance. Lusk states that the expulsion of the decidua, although a valuable sign, is not a constant occurrence.

From these quotations we see that there are no pathognomonic symptoms for the diagnosis of tubal pregnancy.

The symptoms as they occur are, first, the morning sickness or other neurotic disturbances common to normal and abnormal pregnancies alike. Then there are the mammary changes that are alike in both cases, consisting of enlargement, sensitiveness, secretion of milk, widening of the areola. The monthly period is missed. The woman thinks herself pregnant. In from two to three or four weeks after the monthly period is passed she is suddenly seized with an attack simulating colic. The pain is usually felt in the pelvic region, in either of the iliac fossæ, or, as in my case, in the external genitals.

The pain gets easier with the onset of a bloody discharge. The hæmorrhage lasts from two to four days, recurring at weekly periods or oftener. Later it may become continuous. If an examination is made about the second month you will find the cervix soft and the os somewhat open. The uterus will be increased in size. You may find the tube enlarged or you may not. In the light of my single case, I should think it good practice to give ether and make a more thorough examination than can be done without it. The tube must have been enlarged at my first examination, though I did not find it so, and I was examining

especially for extra-uterine pregnancy. Later there will be no difficulty in making out an oval, elastic tumor with a

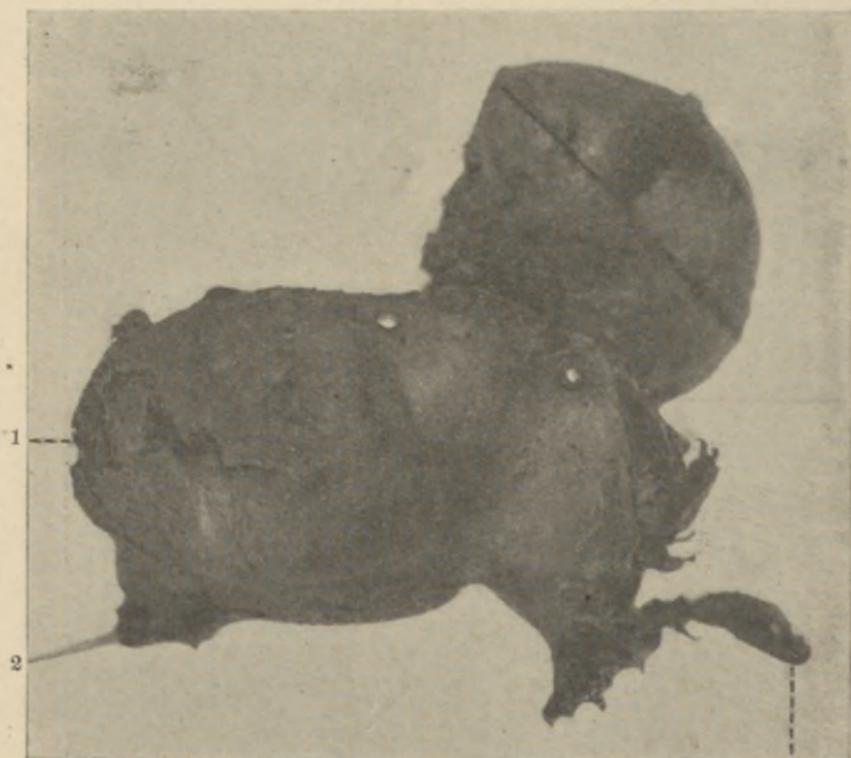


1. The ovary. 2. The fimbriated extremity of the tube. 3. The uterine extremity of the tube, into which a straw has been inserted.

smooth surface at the side and closely joined to the uterus. The tumor may be sensitive to pressure. Blood will be

found upon the examining finger that looks and smells like menstrual blood.

At this later examination the uterus may be smaller in size than it was at the first one. In my case this difference in size was especially noticeable. At the first examination, finding no tumor about the uterus, I had no hesitancy in



1. Rupture over the placental site. 2. Uterine end of the tube, with a straw inserted. 3. Fimbriated extremity of the tube.

telling the woman she was pregnant. In the second the diminished size of the uterus was manifest at once. It was of about the normal size, and the cervix was hard and the os firmly contracted. The changed condition in the uterus was due primarily to the situation of the develop-

ing ovum, and secondarily to the ergotin she had taken. At this point the question arises, Would it not be a means

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1. Ovary, showing the corpus luteum of pregnancy. 2. Amniotic cavity.

for diagnosis to give ergot for a few days in order to see if in a supposed case of abnormal pregnancy the uterus did

return to its normal size? If it did, you would be certain that the ovum was without the uterus. At this second examination the enlarged tube was easily felt, its oval outline determined, its close connection with the uterus demonstrated, and its freedom from adhesions evident. To be sure, the patient was under the influence of ether, but this emphasizes the statement that the examination is more satisfactory when the patient is in an unconscious state, and physical conditions not manifest when she is conscious may be very distinct then. The absolute demonstration of tubal pregnancy is possible only by an exploratory cœliotomy. This operation is practically without risk, at least it is to be preferred to a continuance in a state of uncertainty regarding the exact diagnosis, since the danger of rupture is so great in case there is a fecundated ovum in the tube.

Treatment.—Three methods of procedure have been advocated: The first, by the injection into the sac through a hypodermic needle of solutions of morphine, atropine, or strychnine. The dangers attending this seemingly simple operation are so great that it is performed no longer. There are seventeen cases recorded of operation by this method, with eleven deaths (references 17 and 18). The death rate is sufficient to condemn the operation.

Second, the treatment by electricity. This is a method chiefly used in this country; no foreign writers advise it, except the Russians (references 17 and 18). Some writers here are so enthusiastic over the use of electricity that they advise it exclusively. However, its use is not without danger. Three deaths and four serious accidents are recorded against it (18). The action of the current may cause rupture of the tube, an occurrence not to be desired. Moreover, if the result is pronounced satisfactory at the time, a mass is left behind that may not entirely disappear; it is a true foreign body that may become encysted

and partially absorbed, yet which ever remains as a menace to the life of the patient, because it may become the seat of tubercular or malignant growths or break down and produce septic infection.

The third method is the removal of the tube and its contents by a median cœliotomy.

Werth's suggestion (18), that ectopic pregnancy is always to be regarded as a malignant growth and treated as such, is to be followed in preference to the use of an injection or electricity.

Early operative treatment is almost always successful. The only danger peculiar to the operation when performed previous to rupture is from the hæmorrhage that follows an unintentional rupture of the sac. But this can easily be guarded against and arrested if it happens.

There are no special directions for the operation. The strict rules of modern aseptic operations are to be followed. Suture the abdominal layers separately, closing the wound tightly, without a drain.

If the intestines have been handled much, or there have been numerous adhesions to break up, I should think that Dr. Wiggin's (19) plan of flooding the abdominal cavity with a hot normal saline solution would be of great benefit.

As we are not dealing with ruptured tubes I will not refer to the difficulties met with in those cases.

The patient I had was operated upon after the above-described plan.

The history was uneventful and recovery perfect. The recovery was delayed slightly by the gaping of the wound and its healing by granulation and cicatrization.

The specimen was oval, with a smooth surface, and of the size of a hen's egg. On section it shows a central cavity—the amniotic cavity—surrounded by a layer composed of organized blood-clot or chorionic growth.

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There was no distinctly formed foetus. The specimen is an exact reproduction of one illustrated in the *International Medical Annual* for 1893, page 445, Fig. 58.

The ovary shows the corpus luteum of pregnancy.

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FRANK P. FOSTER, M.D.

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