

appearance. The central mass entirely filled the sac and bulged slightly on the cut surface.

The section of the sac was white in color and from one-eighth to one-sixteenth of an inch in thickness.

The indistinct line of demarcation between the sac and its contents contained a number of small areas of calcareous deposit. One of these areas extended from the sac one-sixth of an inch into the central mass.

A number of sections were cut and stained by the hematoxylin-eosin method.

Under the microscope the central mass was seen to be necrotic material staining only faintly with the eosin and not at all with the hematoxylin.

It consisted of a rather close and indistinct network of fibrillae. In many places there were round openings from which cells had probably fallen.

No distinct cells or nuclei were found.

A few bunches of crystals, possibly soap crystals, taking a blue stain, appeared here and there.

There was no round cell infiltration nor sign of organization except near the capsule.

The capsule consisted of white fibrous tissue with few nuclei and few blood vessels.

At places red blood corpuscles appeared in masses between the fibres.

There was no distinctly laminated appearance as occurs in an echinococcus cyst.

The line between the capsule and its contents was generally well marked. Along this line and on each side of it in the capsule and

in the central mass were a number of areas of round cell infiltration of a lymphocytic, not of a polymorphonuclear type.

Here and there new formed connective tissue had apparently pushed out a little way from the capsule into the central mass.

A number of small deposits of calcareous material also appeared on both sides of this line.

Neither hooklets, giant cells, nor tubercles were found in the tumor and a search made for tubercle bacilli yielded negative results.

The round spaces, already mentioned, in the central mass were so placed as to suggest hepatic lobules with their central vessels, but, on further examination, this idea was discarded as improbable. No other trace of liver tissue could be found and no trace of lymphatic tissue.

The capsule was not of the glistening appearance usual in an echinococcus cyst, neither was it folded or wrinkled as one would expect in a cyst which had been larger and had shrunk when its contents had lost their fluid leaving only the solids.

Considering the small number of positive findings and the large number of negative findings in this case, I am obliged to say that I can make no positive diagnosis and can only guess that we may have here an old encapsulated tuberculous area or possibly a degenerated, consolidated echinococcus cyst."

One sister of the patient died from tuberculosis, but the patient himself failed to give a positive reaction to the Pirquet test.

DIAGNOSIS OF ECTOPIC GESTATION—WHEN AND WHEN NOT TO OPERATE*

By E. GUSTAV ZINKE, M.D.,
Cincinnati, O.

There is but one reason for the production of this paper. It is presented for the sole purpose of eliciting a thorough discussion of its subject. The views therein expressed are supported by a record of sixty-three cases observed by the writer.

Although the pathology of ectopic gestation has been thoroughly and carefully studied—the diagnosis is, as a rule, difficult and sometimes impossible because of the multiplicity of the pathologic changes produced. The greatest difference exists between a *tubal abortion* and an extra-uterine pregnancy at or near term; or between a *tubal rupture* and a suppurating ectopic gestation-sac containing a broken-down lithopedion or macerated foetus. They have only one feature in common: They are all classed as extra-uterine foetation.

An imperfect knowledge of the various and numerous changes that may occur in the different varieties of ectopic gestation is, undoubtedly, responsible for the divers opinions as to which may be the wisest plan of treatment in each case. The questions to be decided are: Is it best to operate in every case without delay? Can the operation be deferred until the patient's condition has improved? Is it advisable to transfer the patient to a more favorable environment? Is it possible for the patient to recover without an operation?

There are many surgeons, perhaps they are the great majority, who advise surgical intervention, in every case of extra-uterine pregnancy as soon as possible after the diagnosis has been made.

There is a considerable minority, however, which maintains that great haste is rarely, very rarely, an absolute necessity in cases of ectopic gestation; that in most instances we have time to prepare the patient and ourselves

for the operation; that many times the patient may be safely removed to a hospital; and that some of these unfortunate victims may recover perfectly without an operation. The operator thoroughly familiar with the pathology of the various forms of extra-uterine pregnancy and the clinical phases produced by them, will rarely be misled in his judgment as to the time and mode of operative intervention.

It is, therefore, not alone the *diagnosis* of ectopic gestation which determines the mode of treatment; we must, to a certain extent at least, know the pathologic changes that have occurred in each case. We must be able to ascertain, as nearly as possible, the duration of pregnancy, the locality of the misplaced ovum, and the changes produced in the maternal structures involved.

A *tubal abortion* may take place and be followed by recovery without the least suspicion of the existence of an ectopic gestation. A physician may not even have been consulted in the case.

Almost invariably, tubal abortion occurs within the first two months of gestation. The *tubal pains* are, more or less, distinct and never very severe. But when blood and ovum come in contact with the peritoneum the pain is acute and the shock more or less marked. Symptoms of profound internal hemorrhage are absent. An examination usually reveals a small doughy tumor to one side of or behind the uterus. The pains recur at varying intervals, become gradually less pronounced, and finally cease altogether. The swelling in the pelvis, at the same time, becomes harder and smaller and eventually disappears altogether. The blighted ovum and blood discharged from the tube are slowly absorbed and no trace of them is left behind. There may or may not

*Read before the Southern Surgical and Gynecological Association at Nashville, Tenn., Dec. 13-14-15, 1910.

appears to be out of danger. He who knows and does his duty will lose no time in operating as soon as he can secure for the patient that degree of safety so necessary for avoiding complications and for the recovery of the patient. Under these circumstances a day, or even more time, may be spent in preparation of the patient and her home. Especially so if it is evident that the blood in the peritoneal cavity reveals a tendency to coagulation and encapsulation. In cases of this kind the problem as to what should be done is easily solved.

This is not so, however, in those cases of tubal rupture in which the hemorrhage is profuse, the shock profound, and the anemia extreme from the start. When the physician is confronted with a case of this kind—the patient vomiting, pulseless and colorless, the picture of violent shock and extreme exhaustion—within half an hour after the rupture has occurred—two contingencies arise: Is it wise to operate at once, without regard to asepsis of the patient and her environments, the surgeon, the dressings, and his instruments, hazarding as thorough sterilization as circumstances will permit before performing the operation? If he decides upon the latter course, an hour, two hours, and even more time, may have to be spent before the patient is ready for the operation. Some one may say: "By this time the patient may be dying or dead." True, this may be so. But would the patient's life have been saved by an immediate operation? I have yet to see the first case in my own practice, or in the practice of others, where the patient did not die during or soon after the operation when the unfortunate woman was the victim of profound shock and exhaustion from excessive internal hemorrhage. In spite of hypodermoclysis and other means to support the weakened heart and enfeebled respiration, these unhappy patients succumb and, in every case which I have seen, the operation has more the appearance of a post-mortem, than an ante-mortem procedure. Not a drop of blood issues from the abdominal wound when the incision is made.

And should, peradventure, the patient recover from the operation, what of the complications that are almost certain to arise in the absence of the precautions so important in abdominal surgery?

On the other hand the writer has seen cases which were, apparently, brought to the verge of the grave from hemorrhage and shock due to a ruptured tubal-gestation sac, in which, by the time the preparations for an aseptic abdominal section were completed, the patient had rallied from the shock, the pulse reappearing and respiration again becoming full and strong. The patient was thus placed in a far more favorable condition for the operation, with a much brighter prospect for a prompt, perfect and permanent recovery.

Have not all of us seen the so-called *retro-uterine hematocoele* of Nelaton? What a significant and impressive story of events it reveals in the chapter of ectopic gestation! Here we find the entire pelvic and lower abdominal cavity filled with coagulated and encapsulated blood, in the centre of which lies the blighted ovum, or the embryo, stripped of its membranes. The history of these cases invariably records a tale of days and even of weeks of suffering and confinement in bed, marked by repeated attacks of severe pain in the lower abdomen, often accompanied by vomiting and fainting spells, every renewed seizure of which means an additional tear in the ectopic ovisac to be followed by hemorrhage and shock. The tumor which is thus formed extends sometimes up to and above the level of the umbilicus. Occasionally the true nature of the case is not recognized until the abdomen is opened.

No one, who is familiar with the course and termination of a ruptured ectopic gestation cyst, would stand idly by and expose the patient, needlessly, to repeated recurrences of pain, hemorrhage and shock. But the retro-uterine hematocoele proves, beyond doubt, the persistent effort which nature makes to arrest hemorrhage and that it is not wise to open the abdominal cavity in any case immediately

be a history of suspended regular, or irregular, menstruation. But the formation in the pelvis, of a tumor associated with *tubal pains*, and a tumor which slowly disappears after the pains have ceased—may be safely regarded as a tubal abortion.

Unless the pains in a tubal abortion continue and the tumor grows steadily larger, as in the formation of a so-called *peri-tubal hematocele*, operative interference is hardly justifiable. Indeed, cases have been observed, time and again, in which even in peri-tubal hematocele complete absorption of blood and ovum took place.

The *peri-tubal hematocele*, first described by Sanger, represents an incomplete tubal abortion in which the tube has dropped into Douglas' pouch and its fimbriated extremity become strongly adherent to the floor of this cul-de-sac. But, in spite of the adhesions formed, the blood continues to exude slowly from between the bands of adhesions, collects and coagulates around the distended tube, forming a club-shaped tumor the size of a fist, immediately behind the uterus. If, after the formation of this tumor, the pains associated with it subside and entirely disappear, and the swelling daily grows harder and diminishes in size, an operation is not an absolute necessity. Nature may, and often does, effect a cure in these cases. If, however, the tumor continues to increase in size, the pain is constant and anemia develops, the necessity of an operation is indicated and should be performed as soon as the patient can have the full benefit of sepsis at home or at a hospital. In such cases there is always ample time to prepare the patient for the operation.

In case of *tubal rupture* various totally different conditions may be noted. Most of them admit of waiting. In a few cases—very few—delay of half a day, perhaps of less time, may be fatal in its consequences.

Rupture of the tube between the layers of the broad ligament is, as a rule, preceded by tubal pains which increase in severity and frequency till the tube gives way. Hemorrhage

results and both blood and ovum find lodgment between the folds of the ligament. Because of the limited space bleeding is never excessive, though it may continue at intervals for some time and form a hematoma of considerable size on one side and behind the uterus.

The clinical picture of this condition is not very striking. The patient may have experienced delayed menstruation, or missed a period or two, when she is seized with periodical pains, experiences possibly a slight loss of blood from the uterus, and a sense of weight and fullness in the pelvis. A digital examination reveals a doughy swelling to one side and behind the womb. Shock and acute anemia are hardly noticeable, or may be entirely absent. Here, as in simple tubal-abortion and peritoneal hematocele, if the hemorrhage ceases and the patient is kept in bed, the pelvic hematoma becomes gradually harder and smaller and, in time, may be completely absorbed. If the bleeding continues, the pain will increase, the hematoma will grow larger and anemia will soon manifest itself. This latter condition calls for early operative interference, but admits, usually, of ample time to prepare the patient for the operation.

Rupture of the tube upon its free surface, like rupture between the ligamental folds, is preceded by tubal pains. When the rupture takes place, severe pain with more or less, but very distinct, shock always accompanies the accident. Shock and pain are due to the effect of the blood upon the peritoneum and both vary according to the amount of hemorrhage and the extent of the tear. Of course the more extensive the rent, the greater the hemorrhage and, consequently, the more intense the pain, the more profound the shock, and the more marked the anemia.

If the loss of blood is moderate, as in the presence of a small rent in the tube, which is promptly plugged by the chorionic villi and the exudation of lymph from the weeping peritoneum, hemorrhage is arrested, the patient rallies quickly and, for the moment at least,

after the diagnosis of internal hemorrhage from an extra-uterine foetation has been made, unless the patient's physical condition and surroundings are such as to give her the best possible chance of recovery.

The writer has never seen a case in which the patient died of hemorrhage within an hour, or even ten hours, after the first rupture had occurred. He is not disposed to deny that cases of death from internal hemorrhage may occur so soon. But these cases must be extremely rare, so rare, indeed, that most of us have never seen one. In the great majority of cases the hemorrhage, which follows rupture of an ovisac, is moderate, and coagulation and encapsulation of the blood, as well as the formation of adhesions around the tear, are very prompt. Thus the hemorrhage is, temporarily at least, either entirely arrested or it continues very slowly. At any rate, not enough blood is lost to prevent the patient's rallying from the shock of the initial tear and hemorrhage.

The best evidence of nature's remarkable effort to repair is seen in those cases of ruptured tubal pregnancy in which the ovum continues to live and to develop for weeks and sometimes months. A new gestation sac is built up by degrees around the ovum by the formation of adhesions between the omentum, visceral and parietal peritoneum to such an extent that the pregnancy may continue even unto the end of term. We could not ask for a more striking and convincing illustration of what nature does for many of these cases and we should heed the lesson.

The character of a ruptured ectopic gestation-sac is, however, entirely different when coagulation and encapsulation of the blood is exceedingly slow or does not occur at all. Fortunately cases in which coagulation and encapsulation fail to take place are very rare. These are cases in which the symptoms which begin from the beginning. Unless coagulation and encapsulation of the blood succeed in due time, the hemorrhage will prove fatal in a accompany and follow rupture are very alarm-

comparatively short time. But from 12 to 24 hours, usually, pass before death results from the loss of blood alone so that, even in these cases, bad as they are, there is, ordinarily, ample time for the operator to prepare his patient and himself for an aseptic abdominal section. Patients who have bled, more or less continuously, from four to twelve hours or longer, who have vomited excessively, whose features have become pale and pinched from suffering and from the loss of blood, who are without pulse, and who are in a state of utter hopelessness and despair—will not be saved from death even by a prompt and strictly aseptic abdominal section. What hope is there in the "*jack-knife and shoe-string procedure*" for the unhappy victim?

What has been said of tubal gestation with rupture of the tube into the free peritoneal cavity is, more or less, true of rupture of an interstitial ectopic pregnancy. But the symptoms are decidedly more violent from the beginning. Only an early aseptic operation can save the patient. But, even in these cases, coagulation and encapsulation of the blood frequently causes in the patient's condition a temporary improvement, which will allow sufficient time to erect all the safeguards for a successful operation.

Cases of tubal pregnancy in which the tube remains intact to the last, are very infrequent. Because of the absence of rupture and adhesions, symptoms are wanting. The existence of tubal pregnancy is not recognized until the foetus dies either prematurely or at the end of term, and labor is "missed." However, should this form of ectopic pregnancy be diagnosed—no matter at what period of gestation—it is, invariably, a case for operation. No chance should be taken in permitting the case to go to the period of viability or to the end of pregnancy. These cases always admit of ample time for necessary operative precautions.

The same may be said of the *ovarian, tubo-ovarian, tubo-abdominal* and *secondary abdominal* varieties of extra-uterine foetation.

All are cases for operation, as soon as the diagnosis is established. But here again, though there is every reason for avoiding procrastination, there is no need for undue haste and a favorable time of the day and a convenient place for the operation may be selected.

It is not necessary to add that a safely encysted ectopic pregnancy should not be permitted to go on indefinitely, even though numerous cases are on record where a lithopedion, or lithocelphus, has been retained for years without causing serious inconvenience. In most instances suppuration sets in sooner or later, either through a direct infection or through a process of positive chemotaxis. The patient should not be exposed to the risks and annoyances attending a suppurating ectopic foetus and gestation sac.

Before closing it may be well to answer a few questions which are often asked: "How can you tell when hemorrhage from a ruptured ectopic gestation has ceased?" "How do you know when the blood, spilled into the peritoneal cavity, coagulates and encapsulation of the same is taking place?" The answers are simple: If the patient recovers from the shock and her condition improves, the hemorrhage has stopped. If, with the improvement in the patient's condition a doughy swelling can be felt to one side, behind or around the uterus, coagulation of the blood is going on and its encapsulation is the natural consequence. In the absence of renewed hemorrhage, the swelling in the pelvis slowly becomes harder and smaller because of the absorption of the watery element of the blood. If the blood does not coagulate and the bleeding continues, there is no swelling to be felt through the vagina; but, instead, the cul-de-sac is flattened and fluctuation is present. Palpation and percussion of the abdomen reveal all the symptoms of ascites. A flattened vaginal fornix, and the presence of fluctuation in connection with other physical signs of ascites, always mean that the blood in the peritoneal cavity is not undergoing coagulation,

that the patient is still bleeding or is likely to bleed again at any moment.

CONCLUSION.

(1) Tubal abortion is frequently not recognized and often terminates in recovery. If diagnosed a hurried operation is never necessary.

(2) Tubal rupture between the broad-ligament never places the patient's life in immediate jeopardy. There is plenty of time to prepare for an operation. Some cases recover without resort to the knife.

(3) Tubal rupture into the peritoneal cavity, including the interstitial variety of ectopic gestation, is always a grave accident. The symptoms are, usually, marked and characteristic. The sooner the patient is subjected to an operation, the more prompt the recovery. As a rule there is time sufficient to prepare for an aseptic operation.

(4) All cases of extra-uterine foetation which result in sub-peritoneal hematoma, or peritubal hematocele, or retro-uterine hematocele, should be brought to an early operation. Most of these cases may be safely conveyed to a hospital and carefully prepared for operation.

(5) Cases of advanced, or long retained, and well encysted, extra-uterine pregnancies are nearly always easy of diagnosis and should be operated upon as soon as the patient can be made ready for the event. These patients, too, may be with safety removed to a hospital.

(6) It must be admitted that it is possible for a patient to bleed to death from a ruptured gestation sac within an hour or two. Nor can it be denied that this occurrence is extremely rare. So rare, indeed, that most of us have never witnessed a case of this kind.

(7) If the history of every case of rapidly fatal hemorrhage, from a ruptured ectopic gestation-sac could be exactly recorded, it would be found that by far the great majority had been bleeding from twelve to twenty-four hours before an experienced operator was called.

(8) A patient who bleeds to death within an

hour or two could have been saved only by an operation performed within from fifteen to thirty minutes following the tear in the gestation-sac. And if the man with the "jack-knife and shoe-string" had been present when the accident occurred, would he not have hesitated a little before he proceeded with the operation? And whether he hesitated or not, his patient would surely be lost.

(9) Patients who have bled for many hours,

who are bloodless, colorless, pulseless, and completely exhausted, are not good subjects for an operation. They die either during the operation or soon thereafter. It is true the operator has done his duty. But where is his satisfaction?

(10) It is proper, therefore, to weigh well the evidence in every instance. All depends upon the time when we first see the patient, her condition, her surroundings and our own preparedness for an immediate operation.

OMENTOPEXY*

By MAURICE H. RICHARDSON, M.D.,
Moseley Professor of Surgery, Harvard University.

I have seen so many disappointments, even after the most hopeful signs, that I am but too much inclined to gloomy prognoses, under all surgical conditions which have thus far proved hopeless or discouraging. This tendency, I regret to say, has been but too often justified by the outcome of all new non-operative treatments of cancer. I cannot but feel, however, that there is coming, and, I hope, soon, a non-operative cure for cancer. In non-malignant lesions, too, I have been but too pessimistic. In tuberculosis—for example, of the kidney—the prognosis has always seemed so bad that I undertook such radical treatment as nephrectomy with about as little hope as nephrectomy for malignant disease.

My point, just now, is the inevitable, or, if not the inevitable, the almost resistless tendency of the world toward gloom in those lesions in which surgery has hitherto proved ineffectual if not useless. These lesions comprise malignant disease; tuberculosis in certain localities; ptoses, and most other complaints in neurasthenia—for which surgical operations are performed. Many emergency lesions should belong to this group, like acute infections of the pancreas with fat necrosis, and all

forms of advanced peritonitis. The same hopeful beginnings in the surgery of the cerebro-spinal system have been followed by the same too gloomy prognoses.

It is essential that we test surgery, whenever it is reasonably indicated by theory or by induction or by rule of thumb, to see whether, after all, we have not been too gloomy in jumping to the conclusion that, because in theory a certain procedure does not appeal to our reason or common sense, it will therefore prove ineffective in practice.

My title seems one upon which there is very little to be said, and that little of slight value; but to my mind it is suggestive of many surgical questions which have always interested me, and a presentation of which will, I trust, interest you.

The first thought I had when the operation of omentopexy was proposed and performed was one of incredulity—not to say ridicule—that any man of common sense should propose such an operation. It was not until some time after this that I was willing even to talk about it, much less apply the principle to one of my patients. But after many years experience one learns to realize how little he really knows, and how rash he is to condemn as

*Read before the Southern Surgical and Gynecological Association, Nashville, Tenn., eDec. 13-14-15. 1910.

unreasonable or hopeless or ridiculous any suggestion, especially on the ground that it is contrary to experience or even to reason.

It seems to be, with me at least, a regular thing first to oppose, then to tolerate, and finally to embrace a new and perhaps apparently absurd idea. The subject of my remarks—omentopeny—is a case in point. The theory is a good one. Sidetracking the portal circulation is, in plan, all right, but how often could we expect to find veins of communication developing to any really practical size through the adhesions which are made to unite surfaces drained, the one by the portal, the other by the epigastric veins? Absurd, is it not, to expect this in any reasonably brief time—in any time short enough to be of any practical value to a desperate patient? But let the scoffer remember his experience with pelvic tumors nourished by adhesions with the omentum, for example: let him recall, as I can, veins as large as a lead pencil, and arteries as large as the radial—all through adhesions—all developed by an enforced circulation—by the necessity for vascular nourishment caused by the curtailment of the pedicular vessels.

But, whatever my experience with pelvic, especially fibroid tumors, to reckon deliberately upon the development of an abnormal circulation for the relief of so hopeless a condition as the ascites of cirrhosis, seemed really absurd.

Be that as it may, the theory was plain enough, and I undertook the operation at the Massachusetts General Hospital.

The patient upon whom I operated first, in 1904, Mrs. W. (Office Records, Vol. 91, p. 15), is, up to 1910, well. Is it likely that the condition of general good health is wholly due to the relief of a symptom? Is it not possible, at least, that there has been a real restoration or an improvement in the hepatic condition?

But hepatic cirrhosis in its pathology does

not admit of cure. Is it not essentially an incurable disease, and is not the disappearance of the chief symptom regarded as a cure more apparent than real?

With regard to that, it would certainly seem unlikely that relief of ascites should follow, or relief rather of the portal obstruction—unless the interstitial pressure of the acini upon the portal radicals is aggravated by the blood stasis which it causes. Just as intestinal obstruction, when not quite complete, is sometimes made complete by increasing with cathartics the proximal intestinal peristalsis, while it is lessened sometimes by overcoming completely that peristalsis, so may it not be possible by relieving an aggravated blood obstruction to diminish also that obstruction? Such a suggestion, of course, implies that an interstitial process is capable of disappearance—a cirrhosis of the liver or of the kidneys a cure. But so far as we know such an event is impossible. Fortunately, perhaps, for our theories or our facts things happen not as we expect or predict, or, as by our theories and observations, they should. A long experience in clinical phenomena will assure a candid observer that there are many so-called *facts* that are not facts, many apparent impossibilities that are possibilities, many so-called hopeless conditions that prove hopeful. But in all cases like those under discussion there is always the possibility of human error and fallibility, the possibility that the real condition which causes an ascites is not as bad or as far-reaching as we suppose.

But this element of error in diagnosis upon which the prognosis as to ultimate recovery may be less grave, is of course begging the question of a possible cure in hepatic cirrhosis. I suppose there is really no more possibility of ultimate restoration of the portal circulation through removal of the cause of obstruction

*That this is probably so, this very case goes to prove, for since this paper was written and read, Mrs. W. has come to me again. There is now considerable ascites. The general condition is not as good as it was at the last report. The abdomen was full of fluid and I removed, by tapping, a bucketful.)