rays. This will be readily understood when we remember that the amount of light diminishes as the square of the distance, and that the brightness resulting from the gamma rays alone, in this case, was due to the fact that the fluorescent screen S was moved from the position which it held, when struck by the beta and gamma rays, of 48 cm. distance from the centre of the lead plate P to within 25 cm. distance from the center of plate P.

The following experiment that I have made with radium will also be of interest, I think: It is well known that when strong radium is held near the closed eyes of an individual who has been for some time in a dark room it causes a well marked sensation of light. I placed a specimen of 50 mgm. of pure radium near one of my eyes, and this sensation of light was produced. I then interposed a plate of aluminum that was thick enough to absorb all the beta rays, but allowed the gamma rays to pass. Under these circumstances the sensation of light produced in my eye was the same as before the interposition of the plate of aluminum. This experiment shows that the sensation of light in the closed eye can be caused by the gamma rays alone.

The beta rays seem likely to prove a convenient and useful remedy in certain diseases of the eye, particularly those which have not yielded to other methods of treatment. Among these I may mention trachoma, a very obstinate and difficult disease to treat, and one that requires many months or even one or two years, — opacity of the cornea, and inflammatory conditions of the neighboring parts. Four or five years ago I used the x-rays in some diseases of the eye with good effect, and recently I have applied the rays from radium.

In trachoma I have found that good results have followed promptly from exposures of two or three minutes to 50 mgm. of pure radium bromide, given at first once a week and later twice a week. The radium was held about $\frac{1}{2}$ cm. from the everted lid, or was placed even nearer to the closed lid opposite the diseased area.

A very good example of the usefulness of the radium rays in opacity of the cornea and inflammation of the neighboring parts is afforded in a case brought to me by my brother, Dr. Charles H. Williams. The patient was a woman of middle age, who was suffering from a rather severe uveitis and an opacity of the cornea, which involved the lower and outer quadrant, and was so great that through portions of it the iris could not be distinguished. This opacity also included to some extent the central portion of the cornea. At this time the vision was less than 0.1. As the patient had only one eye, I felt that I was taking a good deal of responsibility in deciding either to use the radium or to decline to use it, but I determined on the former course, as Dr. Williams told me that everything that had offered hope of relief had been tried without success; therefore the use of radium

seemed the only chance of saving the patient from blindness. My experience in employing radium was at this time sufficient to make me confident that I could use it with such care as to do no harm.

The exposures were made at intervals of three to seven days, the lids being held apart and the radium placed first about $\frac{1}{2}$ cm. from the cornea, later about 1 cm., and still later 2 to 3 cm. Slight improvement was noticeable within two weeks, and at the end of ten weeks the improvement was marked; the inflammation had decreased throughout, the opacity of the whole cornea had diminished greatly, and the vision was 0.4. The patient at this writing has a vision of more than 0.5, and can read ordinary print. I hope that Dr. Williams will report fully on this case.

It is hardly necessary to mention the great convenience of using radium as compared with the x-rays. The output of the rays from radium is uniform, and the rays may be easily applied. The greatest care should be employed when diseases of the lids or eyes are treated with this powerful agent.

The use of radium in the fluorometer, an instrument for estimating the output of x-rays of a given vacuum tube, I have already described in the third edition of "The Roentgen Rays in Medicine and Surgery," pages 640-642.

Radium is also of use as a test for determining whether or not the eyes of the practitioner are in a suitable condition for making fluoroscopic examinations. This test can be carried out by means of the spinthariscopes, which contains a small amount of radium. If the scintillations appear bright to the practitioner, his eyes are ready for use; if dull, he must wait for a while longer in the dark room before attempting to make a fluoroscopic examination.

VAGINAL SECTION IN THE TREATMENT OF EXTRA-UTERINE PREGNANCY.*

BY FRANK A. HIGGINS, M.D., BOSTON.

IN reporting these few cases of extra-uterine pregnancy treated by vaginal section, it is not my intention to appear in any way as an advocate of the vaginal operation for this condition. But the experience in these cases has been somewhat unusual, to me at least, has shown certain difficulties and contingencies in the way of treatment which had not been met with before, and also reveals certain errors of diagnosis which are not uncommon, and which serve mainly to emphasize the frequently repeated statement that a correct diagnosis of extra-uterine pregnancy is often impossible. It has been the usual experience, however, that other conditions in the pelvis are more often taken for extra-uterine pregnancy than that extra-uterine pregnancy is overlooked.

There are still a few men who advocate and perform the vaginal operation for nearly every abnormal condition in the pelvis. Yet I believe

* Read at the meeting of the Obstetrical Society of Boston, January 10, 1904.

it is now pretty generally recognized that in the main the advantages of vaginal section are confined to those cases in which there is an acute collection of pus in the pelvis, the removal or drainage of which is necessary, which is of comparatively easy access from below, and where an operation by the abdominal route would result in an incomplete operation with drainage, and also in considerable danger of infection of the general peritoneal cavity. In such cases the collection of pus is usually quickly and readily reached and evacuated by means of a posterior vaginal incision.

By the vaginal operation for pus accumulations, there is only slight hemorrhage and rarely any serious amount of shock. With care there is little danger of infecting the general peritoneal cavity, and the drainage is thorough if the incision is ample. The convalescence also is usually rapid, but of course largely dependent upon the general condition of the patient previous to operation. These are, in brief, the chief conditions which favor the vaginal operation for pus collections in the pelvis, but on the other hand the operation is often an incomplete one and it may be necessary to open the abdomen later for relief of pain or other symptoms.

Vaginal operation or exploration in extra-uterine pregnancy has been advocated chiefly for diagnosis in doubtful cases by means of a small puncture, and also for those cases in which the hemorrhage has not been free or severe and has been confined to the pelvic cavity or other limits. It is to be presumed that few men, if any, would advocate a vaginal operation for a condition involving free hemorrhage into the peritoneal cavity, because of the manifest difficulties in reaching and controlling the source of the hemorrhage, and also because of the practical impossibility of draining into the vagina free blood which has escaped high into the abdomen.

With respect to diagnosis, so much has already been written that there is nothing new of value which can be said at present. Frequently abnormal conditions of the tubes and ovaries cause symptoms strongly pointing to extra-uterine pregnancy before rupture. Conditions in the pelvis giving rise to a mass with an acute pelvic tenderness, and also in many cases showing some evidence of slight, general peritonitis, which are accompanied by irregularities in the menstrual flow, are the ones which are most likely to occasion difficulties in diagnosis in differentiating for extra-uterine pregnancy.

Within the last few months, the writer has had three cases of extra-uterine pregnancy operated upon in the acute stage in the presence of profound shock, but in the absence of the other typical symptoms of ruptured extra-uterine pregnancy.

These cases, briefly reported, are as follows:

The first patient was seen May 14, 1903. A. A., thirty-one years; married seven years; three normal labors; the last menstrual period occurred March 31, about six weeks before. Six days ago she began to flow and continued flowing a little but only when pass-

ing water. Two days later began to have pains resembling labor pains, and these have continued ever since intermittently. Four days ago her pain becoming so severe, she sent for a physician who etherized her and took "the child away," that is, I suppose, emptied the uterus probably by curettage. Since then, her abdomen has become distended, she has had several slight chills and has vomited constantly for three days. Bowels have moved once, and then from an enema.

The hospital records say that the patient looks very sick, emaciated and extremely pallid; marked anemia of mucous membranes; eyes normal; tongue dry, white coat; pulse rapid, regular, of poor volume and tension; heart and lungs negative; abdomen markedly distended, tympanitic and moderately tender to pressure over all portions.

The writer saw the patient shortly after her entrance to the hospital. There was no question as to her extreme condition. There was constant and most severe vomiting. Abdominal examination gave no more evidence than is stated above. On vaginal examination, there was general pelvic tenderness with induration and boggiess of the vaginal vault, especially posterior. In view of the history of curettage four days previous, it seemed probable that we had to do with a case of acute pelvic infection with an abscess following the operation, and with some extension into the general peritoneal cavity. A vaginal section with drainage which could be rapidly performed appeared to offer the best hope of relief, but even this was believed to be very slight in the patient's extreme condition.

A transverse incision was made posteriorly close to uterus, opening directly into the peritoneal cavity, and a large amount of dark fluid blood immediately escaped. It was found possible without much difficulty to forcibly retroflex the uterus into the vagina through the incision, and a mass consisting of tube distended with blood clot attached to the ovary was brought into view and shelled out from the right side. The tube and ovary were ligated en masse and removed. The hemorrhage apparently being controlled, the uterus was replaced and the pelvis irrigated and iodoform gauze drainage inserted. The operation was short, being completed in about ten minutes and practically under primary anesthesia. The patient was in a critical state for some time after the operation, but slowly gained in general condition, and the abdominal distention gradually subsided.

The patient improved steadily for about two weeks when suddenly she developed a high temperature with abdominal pain and tenderness, and a mass tender to palpation could be felt about midway in the abdomen between the pubes and the umbilicus. The abdomen was opened at once with a median incision into a cavity containing a considerable amount of old bloody fluid, with clots and foul smelling debris. Connecting with this cavity was a fistulous opening into the small intestine. This cavity was thoroughly sponged and washed out with hot salt solution and drained with iodoform gauze wicks. The patient made a good recovery from this second operation, and was discharged in about two months after her entrance, the fecal fistula eventually healing without operative closure.

Before the vaginal operation, the question of the possibility of extra-uterine pregnancy was considered, but it was given up in view of the history of probable abortion and curettage. It was plain after the operation, however, that the case was undoubtedly a typical one of ruptured

extra-uterine pregnancy, and it was believed that if the patient had been seen at the onset of her symptoms, and a good history could have been obtained, there is little doubt but what we should have performed an abdominal section primarily. But taking into account the fact that the patient had been etherized and curetted for a supposed abortion four days before, it seemed natural to ascribe her symptoms to a pelvic infection originating in the uterus. I was also convinced at the time that she would not be able to withstand an abdominal operation, so extreme was her condition, but in looking back at the case and comparing her condition with other patients operated upon for extra-uterine pregnancy, I am not as strong in my opinion on this point, as I was at that time. Many very desperate cases recover after abdominal section if the hemorrhage is quickly stopped, and the free blood evacuated from the peritoneal cavity.

It was a simple matter in this case to retroflex the uterus into the vagina, to ligate off the bleeding tube and remove it, and then replace the uterus and insert gauze drains around the stump. But the so-called toilet of the peritoneum cannot be effectively accomplished from below, and free blood may remain in the abdominal cavity as a source of trouble later, as occurred in this case. The collection of blood high in the abdominal cavity became infected possibly from the vaginal drainage, or probably from the bowels as they were found to be connected by a fecal fistula which had evidently ulcerated through.

As the patient ultimately recovered, I do not think it can be said that the vaginal operation was in any way detrimental to her, and it may be considered a successful case as she might not have recovered had the abdomen been opened when she was first seen, so critical was her condition.

This was the only case in which I was able to bring the uterus down into the vagina in the operation, in the others it apparently being firmly fixed forward. It is interesting to know, however, that this procedure in no way interfered with the return and maintenance of the uterus in normal position, as on a recent examination of the patient, about eight months after operation, the uterus was found in good position anterior, and the patient well and free from symptoms.

The second case, F. B., entered the hospital Sept. 28, 1903. Twenty-four years; married two years; one induced abortion. Two days before entrance, she was taken suddenly with very severe pains in the lower portion of the abdomen, accompanied by nausea and vomiting. Patient believed she had an accidental miscarriage a few weeks earlier when about six weeks pregnant. There had been constant flowing necessitating two or three napkins a day for about four weeks, or since the time of her supposed miscarriage. Nausea and vomiting for three weeks with more or less fever and chills.

The patient appeared to be very sick, there was intense pallor of face and her features were pinched. The pulse very rapid, irregular and scarcely perceptible at the wrist. Lungs and heart negative. Abdomen

not much distended, somewhat rigid and very tender, especially on the right where a mass could be felt above the groin, through the abdominal wall, about the size of a navel orange. A boggy, indurated mass on the right could also be felt on vaginal examination. Leucocytosis 23,600. The probable diagnosis was made of an acute pyosalpinx, and a vaginal operation decided upon.

Under light anesthesia in the Pean position, the uterus was curetted with very little material being obtained. The usual incision was made behind the cervix, enlarged with the scissors, and dissection carried on with fingers. The large mass described above was entered and considerable blood evacuated. The ruptured sack was then clamped at both ends and clamps left in position, as the mass could not be quickly shelled out and there appeared to be some recent hemorrhage. The cavity was left tightly packed with iodoform gauze. Salt solution under breasts was given during the operation, as well as other stimulants, and the patient put to bed immediately and treated for severe shock. The pulse which at the end of the operation was 160, dropped under this treatment to 140 and improved in quality. Patient passed a fairly comfortable night, the pulse coming to 120 finally, and the temperature slightly above normal. Her color was much better early the next day, but towards night, however, the abdomen became distended and she complained of considerable pain and vomiting began, and there was marked pallor.

Accordingly as it seemed evident that hemorrhage had begun again, the abdomen was opened by a short median incision, and the peritoneal cavity found filled with blood. There was fresh hemorrhage from the right tube which was tied off and removed. The intestines were found to be somewhat injected with evidence of beginning peritonitis. The abdominal cavity was thoroughly flushed out with hot saline solution, and about 50 cm. of a saturated solution of Epsom salts were injected directly into the intestine. Wick drainage and mass sutures.

Patient made a very good recovery from ether, and for twenty-four hours did well, when she ceased to gain and began to go to pieces and died forty-eight hours after the second operation.

This second case illustrates the impossibility in most cases of controlling hemorrhage from below even when its origin is in the pelvis, as well as the dangers and disadvantages of the vaginal operation. In certain cases it may be possible to accomplish it, but one has no assurance of being able to do so, and the danger of secondary hemorrhage is undoubtedly much greater than when the hemorrhage is controlled from above. It is also evident from this case that even in the presence of a definite mass in one side, we cannot by any means be sure that hemorrhage is not still going on, and that we have a hematoma which is walled off from the general peritoneal cavity. It seems probable now that this patient would have stood a very good chance of recovery had the abdomen been opened at the first operation, and the hemorrhage controlled from above.

CASE III. H. V. H., entered hospital Nov. 17, 1903. Thirty-six years; married eighteen years; six pregnancies; last, ten years previous. Nearly constant flowing for one month, accompanied by slight general abdominal pain. Two days ago was taken with very

severe general abdominal pain and patient thinks she fainted. Pain is still very severe and is apparently becoming localized in the left lower quadrant. Considerable vomiting.

Appeared very sick; pulse rapid, regular, of fair volume and tension; dyspnea and pallor; heart and lungs negative. Abdomen not distended but lax, although there was considerable tenderness on pressure over entire surface, but especially over lower portions. In left inguinal region a distinct mass could be outlined, somewhat tender to palpate. She was given salt solution, strychnine, and a shock enema to improve her condition. Leucocytosis 26,200. Vaginal examination showed cervix pushed forward by a large bulging mass behind the uterus extending outward towards the left side. The patient rallied somewhat after a few hours from her profound shock, and vaginal section under light anesthesia was performed. A cavity was opened, walled off from the abdomen, and containing a large amount of old clotted blood. There was no fresh bleeding, the cavity was irrigated with salt solution and left packed with iodoform gauze. The patient rallied quickly and eventually made a good recovery.

This last case illustrates very well, I believe, a type of case in which if we could be absolutely sure of the condition in the pelvis before operation, the vaginal operation would be satisfactory and be safer and simpler than an abdominal operation. That this cannot always be determined beforehand is shown by the second case. The patient was undoubtedly suffering from severe shock as the result of hemorrhage, probably into the broad ligament. Such a cavity after being evacuated of its contents can be packed and the hemorrhage controlled in that way very well from below.

It is rather difficult to see just why there should be so much shock as there was in this case without free hemorrhage into the peritoneal cavity, or without large loss of blood, but we know that we do sometimes get practically the same amount of shock in either condition. I have had several cases of pelvic hematocele, one of which was in rather an acute condition, which have been opened by vaginal section. But as in none of these cases was it possible to determine positively that the condition arose from an ectopic pregnancy, they have not been included in this paper. The experience gained in these three cases is of course not large, but it is quite enough even with two recoveries in three desperate cases, to convince me that the abdominal route is by far the safer and more satisfactory method when once the diagnosis is made, even though it seems scarcely possible for the patient to undergo the shock of a laparotomy. The time required is a little more by the abdomen but the results in the control of hemorrhage are much more certain.

I am not sure, however, that if one, in a mistake of diagnosis, opens by vaginal section into a ruptured extra-uterine pregnancy, he should always immediately follow it up by an abdominal operation. I should say not if he feels certain that he has been able to control the hemorrhage, or unless the patient is in unusually good condition, or later she shows evidence of continued hemorrhage.

We must, I believe, continually keep in mind the possibility of extra-uterine pregnancy in a woman exposed to pregnancy, and in the presence of severe abdominal pain and tenderness, a rapid pulse, vomiting, or other peritoneal symptoms, a rupture of a pregnant tube can never be absolutely excluded.

Clinical Department.

CLINICAL REPORT FROM THE WARD FOR SKIN DISEASES AT THE MASSACHUSETTS GENERAL HOSPITAL.

A CASE OF CUTANEOUS TUBERCULOSIS OF REMARKABLE EXTENT. DERMATITIS HERPETIFORMIS OF TWO YEARS' DURATION. ULCERATED NEVUS VASCULARIS.

BY JOHN T. BOWEN, M.D., BOSTON.

Physician for Diseases of the Skin, Massachusetts General Hospital; Assistant Professor of Dermatology, Harvard University.

SINCE the opening of the ward for skin diseases, in October, 1903, many interesting cases have been received and treated. The following are among those observed during October, November and December:

A CASE OF CUTANEOUS TUBERCULOSIS OF REMARKABLE EXTENT.

The patient is a man of thirty-two, born in Massachusetts, who has nothing of importance in his family history, with the exception that his mother died with pleurisy. He has one brother and three sisters living and well. When eight years old, he had lung fever, and was ill three months, but recovered perfectly. When ten years old, a small nodule appeared on the nose, on the right side, which steadily spread. This was followed by swelling of the nose, and by similar small nodules on the lower lip. At this time the diagnosis of lupus was made, and he came to the Massachusetts General Hospital, where the lesions on the lower lip were curetted. From this time onward the lesions constantly extended, spreading outward over his face. When fifteen years of age, the middle finger of his right hand swelled, became sore, stiff, and then contracted. The next lesion to appear was on the right buttock, a little later than the finger. Next, the front of the upper arm was attacked, and this was followed by a lesion at the flexure of the elbow, which healed spontaneously.

When admitted to the ward, on Oct. 10, his face from the eyebrows to the middle of the under part of the chin, was a mass of scar tissue of a pale red, clear in the center, but with scattered cutaneous nodules. The lower part of the nose was entirely gone, exposing the nasal septum, and the lips tightly drawn and contracted, with some crusted lesions at the edges. There was marked ectropion, especially of the right eye. There were extensive infiltrations of tuberculous tissue over the sternum, right upper arm, right wrist, left upper arm, and the outer and inner sides of both thighs and buttocks. Intermixed with these more or less active lesions was a large amount of cicatricial tissue. The hands were greatly distorted, ankylosed, and presented a striking resemblance to the main-engrifle of leprosy.

This man had visited various parts of Europe in search of a cure, and had been an inmate of several of the better known dermatological institutions. His