

Original Cases.

A CASE OF EXTRA-UTERINE PREGNANCY OF SEVEN YEARS DURATION, IN WHICH THE BONES OF AN ADULT FÆTUS WERE FOUND DURING AN ATTEMPT AT OVARIOTOMY.¹

BY JOHN HOMANS, M.D.,

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ON the 4th of March, 1886, I went to Dorchester to see a woman in consultation with Dr. E. G. West. I found a married woman, thirty-five years old, in bed, pale, breathing about thirty times a minute, measuring thirty-four and a half inches in circumference at the umbilicus, and dull everywhere over the abdomen to a point about an inch above the umbilicus. She stated that she had been seized with sudden abdominal pain on February 10th, and had sent for Dr. Edward G. West. Up to that time she had worked in a book-binding. I will give Dr. West's history of the case, and his treatment.

March 10, 1886.

DR. JOHN HOMANS:—

Dear Sir:—At your request I write out the following history, as far as I have been able to obtain it, of Mrs. J. S.

A woman of Irish descent, medium height, dark complexion, weighing about one hundred and thirty-pounds, and about thirty-five years old. She had always enjoyed the best of health till August, 1879. I learned from her that during the latter part of August when about six weeks pregnant, she was taken sick with uterine hæmorrhage and probably pelvic peritonitis. About a couple of months afterwards she was again taken sick with the same symptoms. During the following winter the attending physician told her that the fœtus was outside of the uterus in the abdomen (extra-uterine pregnancy).

About the eleventh or twelfth month of pregnancy, while flowing, she called on Dr. J. R. Chadwick, who told her he suspected abdominal pregnancy. Soon after this time, that is in June or July, 1880, her flowing ceased and she gained strength and went to work to support herself and husband, and enjoyed fairly good health in spite of the enlargement of the abdomen. She was always regular as to her catamenia and had never conceived again. On February 10th, 1886, I was called in. I found her suffering from a great deal of pain referred to the abdomen with the temperature at 100° and pulse about one hundred. She was flowing at the time, and stated that she had had a dejection within twenty-four hours, and gave me the above history. Examination revealed the abdomen quite lax and a hard mass in the left hypochondriac and iliac regions, oblong in shape, running longitudinally with the body, about as large as your two fists placed together, and in the location of the descending colon. She stated positively that her bowels had moved every day, and that she had taken physic to open them.

Owing to her flowing I made no vaginal examination. After injecting one-eighth grain of morphia twice, I controlled the pain and left with her a few one-eighth grain pills of morphia, and ordered steaming hot flannels to be placed on the abdomen. In the evening I found her quite comfortable.

February 11th. The next morning I found her con-

dition about the same. The pain was still referred to the abdomen, particularly to the left side whenever the morphia was remitted.

February 12th. I found she had vomited considerably during the night, and the abdomen was more swollen, and was tympanitic over about the whole surface except over the left hypochondrium. I ordered milk and lime-water in equal quantities, and powders of subnitrate of bismuth. She had ceased flowing and I ordered an enema of soap suds, which was given with little or no results.

February 13th. The pulse and temperature remaining the same and the vomiting being controlled to some extent, I ordered an ounce of castor oil beaten up in lemon, and a couple of hours afterward another enema, but the oil was thrown off and the enema produced no effect. On my afternoon call I examined per vaginam and found the uterus quite immovable and a hardened doughy mass behind it, besides evidences of hardened fæces. I gave an enema myself and removed a small amount of yellowish slate-colored fæces. To relieve the distension I directed that turpentine should be sprinkled upon the hot flannels applied to the abdomen.

February 14th. The condition was the same except that the turpentine had caused some irritation to the abdomen and she had discarded it. I again gave her an enema and broke up the hardened fæces digitally through the vagina and rectum, using two to three quarts of water and obtaining a very large movement. I ordered two tablespoonsful of salts to be given the first thing on the next day.

February 15th. I found her in exactly the same condition, but the salts had not operated nor disturbed her. Again I gave her an enema, and finding hardened masses in the rectum I again broke them up digitally, and again obtained a very large movement. I ordered an enema of $\frac{3}{4}$ iv sweet oil, but on calling in the afternoon I found that this had had no effect and again I repeated the operation of the morning, with the same results, and much to the relief of my patient.

February 16th. Her condition was improved, she felt more comfortable and relieved. The temperature was about 99° but the pulse about 100, but she had had no voluntary dejections and none of the bismuth had shown itself, all the dejections being a yellowish slate color. She had now been under my care about a week, and evidently although I had removed at the very least, two quarts of solid fæcal matter, there was no clear passage. Heretofore, I had moved slowly for fear of lighting up her old pelvic cellulitis, but now I decided to use water as long as I could obtain any results. All this time the tumor in the left side was plainly felt and was evidently fæcal. I therefore raised the foot of the bed high up and the hips high up upon pillows so as to place a vessel under her. Then using the fountain syringe and a weak solution of salt in warm water, I passed the tubing as high up as I could, first dilating the passage with the water, and continued the use of the water until I had used three gallons, washing away a thick muddy pea-soup mixture and keeping it up until the water came away clear, and the tumor in the side had disappeared. But there was no evidences of bismuth, even though I removed at this sitting over six quarts of solid matter at the very least calculation, or a full peck in all. I therefore ordered a dose of salts of three tablespoonsful for the next morning.

¹Read, by invitation, before the Obstetrical Society of Boston, March 13, 1886.

February 17th. I found she had had a voluntary dejection, and before night four more very large and quite thick, and at last the bismuth appeared, but still there were hard black masses and I ordered another dose of salts the next morning. She said she was more comfortable, and the temperature and pulse was very near normal, but the abdomen was distended as largely as ever, and the lower part from three inches above the navel was flat and evidently filled with fluid which neither the salts nor the injections made any impression upon. She had lost but little flesh and said she felt quite strong.

February 18th. I found she had had ten movements of the bowels, large and watery and with large quantities of fecal matter mixed with mucus, but with no diminution in the size of the abdomen. Her temperature and pulse were nearly normal, and she laughed and talked very pleasantly about herself. The tenderness in the left hypochondrium where the tumor originally had been, was subsiding. She appeared to be improving in every way but the size of the abdomen, which appeared to be larger than when she first took to her bed. There was no swelling of the legs and the heart's action was normal, nor were there any other symptoms of local or general dropsy. I ordered a pill containing

R Strychnia	gr. 1-20.
Extr. Belladonna, podophyllin aa	gr. 1-5.
Pulv. femi. sulf., aloes soc.	gr. j.
Syr. simp.	gr. s.

to be given one every eight hours, which caused from two to four large watery movements per day, containing large quantities of fecal matter.

On the 19th and 20th, she appeared to be improving, or at least holding her own, but the enlargement of the abdomen remained the same, if not a little greater.

On the 21st, I found the temperature normal, the pulse about 100, but the respiration which I had noticed was quickened during several days past, I found increased to forty per minute. On percussion of the back I found a tympanitic percussion note high up behind the ribs where the liver should have been, and evidently pressing the latter upon the space of the lungs. The lower part of the lungs was flat shading off into dulness, but the respiratory murmur could be heard through it with a few coarse râles. There were no crepitant râles nor bronchophony. Hence I concluded the condition was due to pressure of the liver upwards and hypostatic congestion of the lungs, and not pneumonia; although she had a frequent cough at this time and at times spat mucus streaked with blood, there was no typical rusty-colored sputa of pneumonia. Since that time I find that she had been suffering from a so-called cold for some time before she was taken sick, and that her father died from consumption, but many years after she was born. There have been no other cases in the family. At this time, considering her history and the tumor to be felt in the vagina behind the uterus and the dulness and fluctuation wave in the abdomen, the area of dulness not being increased or diminished by her lying either on one side or the other, I concluded I must be dealing with some cystic tumor, probably of the ovary. There was no distinct fluctuation from the abdomen to the tumor or the uterus in the vagina.

February 25th. I called in Dr. J. R. Chadwick in consultation, and asked to see his notes of the case

taken seven years before; these he very kindly showed me and they were in effect that he had suspected abdominal pregnancy. At this time her respirations had risen to 55 or 60, and her temperature to 100. After a thorough examination we decided to aspirate through the abdominal walls at a point about three inches below the umbilicus. The fluid first drawn had all the appearances of pure pus. Thinking that if it was such the proper place to make a counter-opening was through the vagina, if it was a large pelvic abscess, we left the aspirating needle in the abdomen and plunged a large trocar in the mass felt in vagina, but from that, much to our surprise, about 4½ of thick oily fluid looking like melted butter flowed out which hardened upon cooling, and evidently could only come from a dermoid cyst. Hereupon Dr. Chadwick tried to reach the cyst above, but could not. Then we returned to the abdomen and drew by aspirating, three pints of the pus-looking fluid, considerably relieving the respiration of our patient; after emptying one sac we struck another, but did not empty it. Dr. Chadwick sent a specimen of both fluids to Dr. Gannett, who made the enclosed report, confirming our diagnosis of multilocular cystic dermoid tumor.

110 BOYLSTON STREET, March 3, 1886.

Dear Dr. Chadwick, — The clear fatty fluid undoubtedly comes from a dermoid cyst. The other fluid, which is of the consistency and of about the color of thick pea soup, is a fatty emulsion, containing numerous hæmatoidin crystals. This latter may come either from an ordinary ovarian cyst or from a dermoid of ovary. There is little doubt, in my opinion, but that the case is one of tumor of ovary, probably multilocular, some portions of which, at least, are dermoid.

The presence of hæmatoidin means simply an earlier hæmorrhage. Sincerely,

W. W. GANNETT.

After the operation, her respiration was improved but the temperature remained about 101° and the pulse 100, but from this time on a hectic flush appeared up the cheeks and gradually the temperature rose to 103 1-2° and the pulse to 120, the respiration remaining about 40; for the last ten days she could only lie upon her back. In spite of brandy and other stimulants, strong soups, egg nogs, etc., she was perceptibly failing day by day.

On March 4th, I called Dr. John Homans in consultation, who kindly consented to gratuitously give my patient a chance for another lease of life by performing ovariectomy on her in spite of the unfavorable conditions. This he thought best to do soon, first on account of her rapidly failing health, and second, because her catamenia would be due in a week. The operation took place March 8th, and I leave Dr. Homans to relate the rest.

E. G. WEST, M.D.

It was evident that the patient was suffering from peritonitis and from some embarrassment in the right lung, and it was also evident that there was a cystic tumor in the abdomen. I inquired of Dr. West, and of the patient and of her sisters, whether they thought she was failing or gaining. They agreed that she was losing ground. I learned from Dr. West the story of the pregnancy, seven years before, and of his success in unloading the colon, and the relief which

followed the removal of the fluid by aspiration. The case looked to me like one of ovarian cyst, with more or less peritonitis and œdema of the lung, and I supposed that, if there had been extra-uterine pregnancy, the products of conception would now be tightly encysted in a hard mass, or even cretaceous, after so many years. The question for me to decide was, whether to operate at once, or wait for her to get stronger, and have a better pulse and temperature. My experience had been that in debility and peritonitis, particularly after aspiration, time is lost, and not gained, by waiting, and patients generally go from bad to worse, until an operation is hopeless; besides, the case was evidently one of ovarian cystic disease, both in its appearance and symptoms, and from Dr. Gannett's report of the fluid. Accordingly, Dr. Pratt, at my request, kindly sent the ambulance of the Massachusetts General Hospital, and brought the patient to St. Margaret's Home. The ride was well borne, and the patient seemed to improve somewhat in the quiet and care of the Home. Dr. E. G. Cutler kindly examined the chest, and reported that the right lung was œdematous at its lower part, and that the first sound of the heart was weak. I found a trace of albumen in the urine.

I had just had two cases similar to the present one in regard to ovarian disease and peritonitis; and in one I had operated and cured the patient, and in the other I had waited and lost her, so I decided to operate on March 8th. My incision was enlarged until it measured five inches. I found an ovarian cyst, containing about five pounds of fluid, thoroughly adherent and incorporated by old and recent peritonitis to the parietes, to the intestines, and to another cyst beneath. I tried to peel off the wall of the ovarian cyst from its attachments, but my attempts were followed by hæmorrhage and laceration of the cyst-wall, which was yellow and rotten; it tore in strips, and its outline was lost. I then tried to trace the cyst-wall down to the uterus and to secure the pedicle, but I found the pelvic brim covered with peritoneum, or some other membrane, running from each ilium over another cyst in the pubic region. This cyst was brought to light by emptying the first one I had opened and sponging it out, and the tumor I now saw was either contained in the first cyst, or was distinct from it. Its wall was continuous with the bladder in front and the intestines behind. I said to the spectators that the tumor we now saw was not like an ovarian cyst, nor did it seem to be the bladder with thickened and distended walls, nor was it the uterus, although it resembled it somewhat. In color, the outer surface of the tumor was dark red, and to the touch, its walls seemed about half an inch thick, and it was filled with fluid.

This cyst was about the size of a man's head, and its covering membrane was continuous with the peritoneum of the intestines and bladder. It occupied the left side very slightly more than the right, though it was nearly central. On feeling, I could not touch a Fallopian tube, ovary, or uterus, nor could I pass my hand around the cyst into the pelvis any more than I could pass it into the thorax, without making a hole in the diaphragm. A large-sized aspirating needle was thrust into the tumor, but brought nothing out; then a large canula was put in, and about four or five pounds of greenish-yellow, thick, *very offensive* matter, looking exactly like pus, ran out. This was examined by Dr. Gannett, with the accompanying result.

HARVARD MEDICAL SCHOOL, March 9, 1886.

Dear Dr. Homans,—The fluid received this morning, removed at operation from Mrs. S., is of a red² tint, and of the consistency of thin cream. Microscopically, it shows an abundance of fine, fat drops; numerous degenerated red blood-corpuscles; granular corpuscles (fatty degenerated); finely-granular matter; hæmatoidin crystals; an occasional nucleus. I can find no histological evidence of pus, but consider the specimen a fluid in which a fatty-granular detritus is suspended, and into which, at earlier periods, hæmorrhages have taken place. Sincerely,

W. W. GANNETT.

After emptying this sac, which was one of abdominal pregnancy, I passed in my hand, and at the bottom, found all the bones of an adult foetus completely macerated and separated. These bones were removed, washed, and dried, and are in this bottle, which I will pass around. They are a complete set of the bones of a foetus at the eighth or ninth month of pregnancy, and were completely macerated when I took them out. Some of the smaller bones may have been lost in sponging out the sac, or in some other way, but they seem complete. The abdominal cavity was cleansed, a glass drainage-tube was put in above the foetal sac, and the wall of the sac and the skin of the abdominal incision were sewed together. The great shock of the operation and the loss of blood in this patient, worn down by weeks or months of peritonitis and decomposition, had made the pulse very feeble. After removal to the bed, transfusion of warm salt and water into the median cephalic vein of the right arm was done, ten ounces being passed in. The patient was by no means bloodless, but I wished to see if transfusion would strengthen her. Later, in about three-quarters of an hour, Drs. F. B. Harrington and John Homans, Second, transfused thirty ounces into the left arm; but although the first transfusion brought back or induced, or, at least, was followed by a perceptible pulse of 140 to the minute, there was no real improvement, and the patient died about four hours after the operation began. No thorough autopsy was obtained. In preparing the wound for the undertaker, I found that I could not trace the walls of the rotten ovarian sac, and that the sac of pregnancy was underneath at the time of the operation. This sac rested on top of the uterus, which was adherent to it, and it seemed to have started rather on the left side of the pelvis. It was tough, and its walls were about one-third of an inch thick. The uterus was elongated and enlarged. It was tightly fixed, as were apparently all the pelvic viscera. No ovaries, tubes, nor any outlines, except those of the uterus, could be made out through the undissected tissues.

While it would be satisfactory, and would make this case more complete to have found out whether the ovaries or the tubes, or the broad ligaments, were to be found, yet practically, this knowledge would not have affected the treatment or the result. There existed a multilocular ovarian cyst and the cyst of extra-uterine pregnancy.

I can but theorize on the original relations between the ovarian cyst and the extra-uterine pregnancy. Either the pregnancy was ovarian in a dermoid ovary, or tubular, or abdominal, near a dermoid ovary. If the pregnancy was ovarian, it is easy to conceive that, as

² The fluid got mixed with some of the blood of the operation.

J. H.

the fœtus gradually shrank, the cysts might grow until nothing but macerated bones remaining, the tumor would become, to all appearances, an ordinary ovarian one; or an ovarian cyst might begin to grow near, and become incorporated with the sac containing the fœtus. I did not feel the tumor between the uterus and rectum mentioned by Dr. West, as I never reached the lower part of the pelvis and I think it must have been thoroughly emptied by the tapping on February 25th. The duration of extra-uterine pregnancy or abdominal gestation generally comes to an end by rupture of the sac about the third month, but cases are on record where the fœtus has been carried as long as fifty-six years. I am not aware that abdominal pregnancy has been mentioned as a complication of ovariectomy, although the differential diagnosis between this tumor and an ovarian cyst has always been taught. I have several times, before and after death, seen tubular pregnancy, but this is the first case that has come under my personal observation of abdominal pregnancy in which the bones of a fœtus were found so many years after impregnation had taken place.

REPORT ON HISTOLOGY AND EMBRYOLOGY.

BY CHARLES SEDGWICK MINOT, M.D.

THE extreme rapidity with which discovery after discovery follows previous discoveries in histology and embryology, renders it altogether impracticable to even attempt, within the limits of a short report, a general review. We necessarily, under the circumstances, confine ourselves to a few notices of some of the more important advances.

DEVELOPMENT OF THE SPERMATOZA.

We are now able to form, for the first time, a tolerably clear and complete conception of the development of the mammalian spermatozoa. Several important papers on the subject have been published during the last year, and they have so supplemented one another, that without following any one author, we can construct a tolerably full history of spermatogenesis. Of the papers¹ cited, the most important are those of Brown, 1; Weidersperg, 2; and Biondi, 4.

The development of the seminiferous tubules in the embryo has not yet been satisfactorily ascertained; nor has the progressive differentiation of the cells of the tubules during fetal life been properly worked out. Fortunately, in the adult, the various stages are found side by side. The first stage is the mother-cell, which appears next the outer surface of the tubule, and lies between columns of cells, in various stages of metamorphosis. The mother-cells are rounded with a relatively large nucleus, in which the chromatin is distributed in a rather coarse network, as in resting nuclei. The next stage is the first step on the part of the mother-cell in the production of the columnus of cells,

which stretch in radical lines from the mother-cells towards the centre of the tubule. Apparently, the mother-cells divide in such a way that the cells resulting from the division are unlike, one of them preserving the character of the mother, and the other differing from it in having a relatively larger nucleus and a finer chromatin network; the cell like the original one, and which we may still call the mother-cell, lies at the outer edge of the tubule, while the other, or daughter-cell, lies towards the centre. The mother-cell continues to produce daughter-cells, so that the column grows centripetally; how many daughter-cells are produced is not known. The column also grows by the multiplication of the daughter-cells, but the cells thus formed lie in the innermost part of the column; they are smaller than the first generation of daughter-cells; they have relatively large nuclei, with the chromatin gathered into two or three spots — nucleoli. We thus have a column of cells, in which we can distinguish three zones: 1, The outer zone of the mother-cell; 2, the middle zone of the daughter-cells; 3, the inner zone of the second generation of daughter-cells. These zones remain more or less marked for some time, for as the cells of the inner zone change into spermatoblasts, those of the middle zone change into second daughter-cells; and as the inner spermatoblasts change into spermatozoa, the cells of the second zone change into spermatoblasts. Hence, through several stages, the three zones are marked out, and in a section, where we find the stages jumbled together alongside one another, the wall of the tubule shows the well-known division into three zones.

The spermatoblasts arise from the nuclei of second daughter-cells, and not as Brown has, I think erroneously, believed, out of the whole cell. Biondi seems to me right in his statement that the cells break down and form a granular mass or column, in which the nuclei are found. When all the cells have thus broken down, the developing spermatozoa lie in the column produced by their detritus; at the outer end of this column, the mother-cell can often be distinguished, and has been taken by many observers for the nucleus of a big, so-called supporting cell, the body of which these observers supposed the mass to be, in which the spermatoblasts are seen imbedded. The mother-cell has altered its character, especially in that the chromatin has gathered into a single spot or nucleolus, as in an ovum. The mother-cell ultimately disappears, but how is not satisfactorily ascertained.

The nuclei change into spermatozoa as follows: the chromatin gathers at one end, and makes the head of the spermatozoon, and a small tail arises within the nucleus, and attached to the hump of the chromatin (head). The nuclear membrane is very distinct. It soon elongates into an oval bag, at one end the young spermatozoon head, and at the other, the remnants of the nucleus, together with a special round body, which may be obtained by chloride of gold, while the chromatin is unstained. The tail grows out beyond the membrane; the head elongates, and gradually assumes its adult form. The remainder of the nucleus undergoes certain changes of form, which are well figured by Brown. Finally, however, as shown by Weidersperg, the membrane ruptures, and it and its contents are lost, leaving the spermatozoon lying in the detritus. From this the spermatozoa are ultimately liberated, and falling into the lumen of the tubule, pass off.

The series of changes may be summed up as follows:

¹ The papers referred to are:

1. Herbert H. Brown. On Spermatogenesis in the Rat. *Quart. Jour. Microsc. Sci.*, July, 1885, xxv., 343.
2. Gustav. von Weidersperg. Beiträge zur Entwickelungsgeschichte der Samenkörper. *Arch. für Mikros. Anat.*, xxv., 113.
3. Gustav Platner. Ueber die Spermatogenese bei den Pulmonaten. *Arch. Mikros. Anat.*, xxv., 564.
4. D. Biondi. Die Entwickelung der Spermatozoiden. *Arch. Mikros. Anat.*, xxv., 594.
5. Gustav Platner. Ueber die Entstehung des Nebenkerns und seine Beziehung zur Kerntheilung. *Arch. für Mikros. Anat.*, xxvi., 343.
6. Valette St. George. Spermatologische Beiträge. Erste Mittheilung. *Arch. Mikros. Anat.*, xxv., 561.