

THE

# Journal of the American Medical Association.

EDITED UNDER THE DIRECTION OF THE BOARD OF TRUSTEES.

PUBLISHED WEEKLY.

VOL. XIII.

CHICAGO, OCTOBER 19, 1889.

No. 16.

## ORIGINAL ARTICLES.

### CONCEALED PREGNANCY—ITS RELATIONS TO ABDOMINAL SURGERY.

*Read in the Section of Obstetrics and Diseases of Women, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.*

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A half century ago a distinguished German surgeon was called in consultation by a very competent obstetrician to a case in which the patient had apparently been in labor for three weeks. A Cæsarean section was decided upon, and the abdomen opened, when, to the discomfiture of all, nothing but intestines distended with gas were found. That the Professor was chagrined and in a vindictive frame of mind, was demonstrated by the after-treatment, for he kept the abdomen packed in ice, applied two hundred leeches to the abdominal walls, and in addition subjected the woman to three bleedings. The patient recovered, and doubtless ever after desisted from trifling with the resources of surgery. This case has never been reported as a successful Cæsarean section. From then until now errors relative to the diagnosis of pregnancy, as a complication of abdominal section, have occurred, and doubtless will continue to occur; no one has been free from the liability to this error. The most eminent and painstaking surgeon of extensive observation, as well as the operator of few opportunities, have alike the same experience.

When mine came I must confess to you that I felt not a little humiliated. I asked myself after a careful review of my notes, and those of my assistant, "Have I exercised all the care that is possible in the examination of my case, and has my diagnosis been based upon good judgment?" Text-books on obstetrics and gynecology furnished but little aid or comfort. The few cases reported were widely scattered, and many found in the tables accompanying this paper were se-

cured only after diligent, personal inquiry. Many of the mooted questions of abdominal surgery have already been settled, and we are little benefited by papers devoted to the treatment of the pedicle, drainage, or the detailed histories of cases. I have thought that I might be able to contribute something for the benefit of the profession, by giving the results of my investigation of this subject. I shall relate to you the histories of two personal cases of exploratory incision in which pregnancy as a complication of fibroid tumor occurred, and which was not diagnosticated prior to the operation, either by myself or my colleagues, after repeated careful examinations. I purpose treating the subject with perfect frankness. I have collected all reported cases, wherein the same conditions existed, and personal inquiry has secured the histories of many others which are now presented for the first time. That the table is incomplete I know, for some of the operators have either perverted the histories of their cases, or have suppressed them altogether. This latter statement is capable of abundant proof. We shall later, when we come to the consideration of the table of cases, collect such facts as seem warranted from the clinical histories, and endeavor to draw from them such conclusions as are justifiable.

*Case 1.*—Abdominal Section, Exploratory. Operator A. VanderVeer, M.D. Operation October 7, 1887.

Mrs. E. C. W., æt. 34, native of United States, married and by occupation a housewife. Family history decidedly tubercular. Patient gave history of past ill-health, but aside from an expression indicative of much pain and suffering, she seemed physically strong. First menstruation at 13, scanty and painful; menstruation always irregular; has suffered for extended periods from amenorrhœa. No children, no miscarriages. Was treated during 1883 for ulceration of the cervix with leucorrhœa. June 5, 1887, was the date of the return or her menstruation, but no flow appeared, and on June 25, 1887, she noticed a tumor in the left iliac region which grew rapidly and became very painful. Patient had a slight show July 4, also noticed a slight tingling and swelling in the breasts; no nausea or vomiting. September 30 I gave her a careful examination at my

NOTE.—For much that pertains to the preparation of this paper, collection of cases, etc., I am indebted to Dr. Willis Goss Macdonald, Assistant in Abdominal Surgery, Albany Medical College; and I wish also to extend my thanks to those gentlemen who were so kind as to send me the history of their own cases hitherto unpublished, and other references.

office and made the following notes: Breasts slightly enlarged and tender, areola not markedly pigmented; abdomen, to the height of the umbilicus, irregularly distended. Palpation revealed a hard tumor on the left side, and a softer one (semi-fluctuant), on the right side. No absolute signs of pregnancy after repeated examinations. Per vaginam, a natural cervix could be felt high up and a mass at the left of the uterus was distinctly made out. I was in much doubt as to her condition, taking into full consideration the probability of a normal or extra-uterine gestation, also of fibroid or fibro cystic tumor of the uterus. I advised that she enter the Albany Hospital for further observation, which she did a few days later. Upon examination and consultation with Drs. Boyd and Townsend, having agreed upon the physical signs already detailed, and having introduced the sound into the uterus three inches without result, in view of the distress and great pain of the patient an exploration was deemed advisable. A full explanation was made to the family, an operation advised and consented to by them, having in view the great probability of an ectopic gestation. Abdominal incision revealed two fibroids upon the left of the uterus, subperitoneal in character, and the remainder of the uterine tissue, especially upon the right side, seemed involved by multiple myxomata of a softer consistence. Adhesions were very general, precluding its removal. No further operation being advisable, abdomen was closed. Patient went on well until fifth day, when localized peritonitis developed and rapidly became general. On evening of sixth day abdominal wound opened in consequence of great distension of the bowels, due in part to peritonitis and obstructive pressure of fibroids. A large dressing was saturated with serous effusion. Wound was brought together by strapping. Next morning drainage was introduced, peritonitis subsided in a day or two, and the case went on to recovery. Discharged from hospital November 8, 1887, abdominal wound completely healed. November 13 I visited her at a friend's home and found her presenting a very good condition of health, and able to move about the house. Advised the use of electricity, and requested her to let me know later on how she progressed.

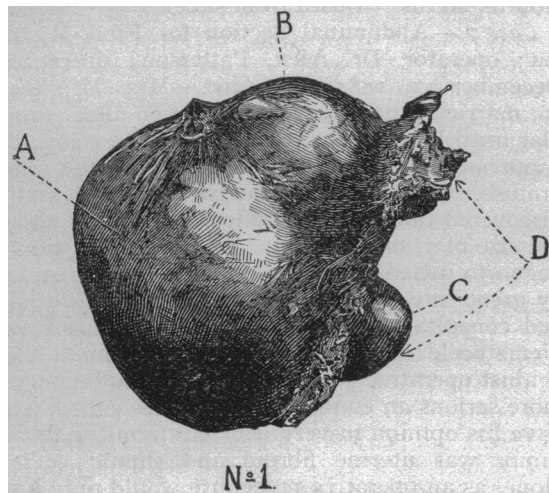
December 24, Dr. H. F. C. Miller, of Rensselaerville, N. Y., who had originally referred the patient to me, visited me and stated that he had been called to attend Mrs. W. a few days previous. Arriving at her house he found her partially delivered of a six months' foetus. The doctor delivered the placenta, noticing quite an enlargement of the abdomen remaining. Patient recovered from her abortion slowly, and since I have had no opportunity for an examination.

Case 2.—Abdominal Section, Exploratory. Operator A. VanderVeer, M.D. Operation May 11, 1888.

Mrs. M. M. S., æt. 35, native of United States, and by occupation a housewife. Family history excellent, and before puberty enjoyed good health. First menstruation at 14, always regular, but suffered from dysmenorrhœa and menorrhagia. The menstrual blood was always clotted. Married seven years, no children, no abortions. Three years previous had an attack of general peritonitis, from which she made a good recovery. Four years ago began to have a dull, dragging pain in the right iliac region, and extending down the thigh. A very competent gynecologist was consulted, who regarded the trouble due to the pressure of a displaced uterus.

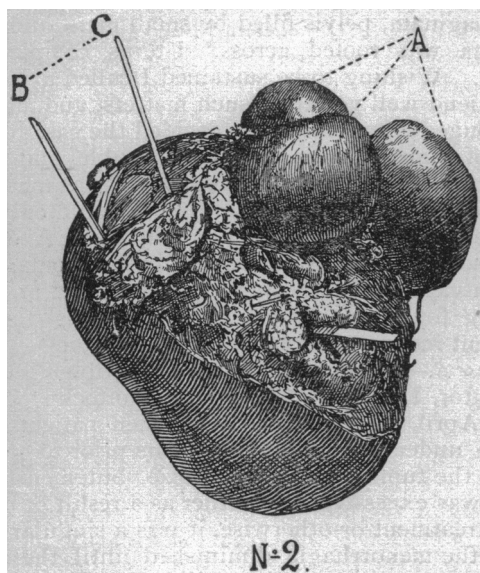
For the last eight weeks she had menstruated but one day, at the time for her menstruation. About the middle of March, 1888, patient noticed a small hard tumor in left iliac region which gave rise to little discomfort. The tumor grew very rapidly after discovery and was very painful, requiring the free use of anodynes to keep the patient comfortable. The breasts were tender, but the areola not markedly pigmented. The tenderness of breasts always occurred with menstruation. I saw her at her house in consultation with Dr. J. R. Davidson, her family physician, May 6, 1888. Upon palpation I found a growth in the left iliac, hypogastric, and extending upward in the umbilical regions and rather beyond the median line. It was very tender, nodular and boggy to the touch. Upon percussion was perfectly flat and did not fluctuate. Auscultation revealed no sign. Per vaginam the cervix could be made out far back towards the sacrum, but the body of the uterus could not be outlined. In the cul-de-sac of Douglas a body the size of an egg could be defined. Bimanually cervix and growth moved as a single body. The uterine sound passed  $3\frac{1}{2}$  inches. Ballotement failed to elicit anything. The vagina was not distinctly tinged. The patient was examined by Drs. Boyd, Townsend and myself a few days later. Although in consultation the intra-abdominal condition could not be agreed upon, from the urgency of the symptoms an exploration was deemed advisable, believing the growth to be a multiple, uterine fibroma, with a view to hysterectomy or the removal of the uterine appendages. The abdomen was opened by the usual median incision, and upon examination of the growth it seemed sarcomatous in its nature, springing from the broad ligament and the body of the uterus. From the extent of the pelvic adhesions, the great vascularity of the growth and the bad prognosis of sarcoma, its removal was not undertaken. The fourth day after the operation localized peritonitis occurred, but yielded kindly to salines and ice coil locally. In the morning of the tenth day a slight show was noticed, and at noon the patient aborted, the foetus being about four months. There was no flooding. Her condition rapidly became more

serious, and she died from exhaustion May 24, 1888. Autopsy three hours after death. Uterus implicated by large fibromyxoma, partially subserous in character, was studded with hard, nodular excrescences, thirteen in number, and which



Left anterior view. A, B, and C, fibroid in order of size. D, broad ligament.

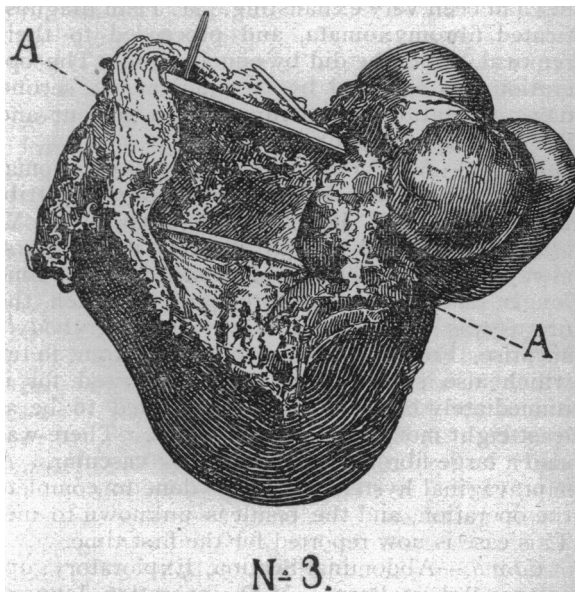
completely surrounded the uterus. The great mass of the uterine tumor lay to the left of the uterus. There were extensive adhesions of tumor to the intestines and bladder. Cavity of uterus 4 inches in depth, and contained small portions of



Posterior view. A, smaller masses left in cul-de-sac of Douglas. B, right Fallopian tube. C, right ovary.

the placenta. There was no fluid in abdominal cavity, and but slight evidence of recent peritonitis. No further examination was made. For a clearer idea of the tumor I invite your attention to the photographs here presented.

In addition to my personal cases I shall take the liberty of presenting to you abstracts of the histories of cases which illustrate the conditions that are properly open for discussion.



Same as No. 2, with cavity of uterus laid open, and showing a fibroid in posterior wall.

*Case 3.*<sup>1</sup>—Abdominal Section, Exploratory. Operator Dr. Cornelius Kollock. Operation May 21, 1889. *Abstract.*—A. C. F., æt. 28, colored, married and has one child, now 10 years old. General health apparently good. Four years ago she first noticed a fullness of the abdomen, more to the right than the left side. When I first saw her, (May 10) she was very much distended. The prominence was central and very high up. Tumor movable, hard and nodular. Fluctuation could not be elicited. Menstruation normal in every particular. She positively affirmed that she never missed a period save when pregnant the first time. There was no vaginal tilting, the os uteri was closed, and the cervix as hard as cartilage. The sound was introduced nearly 4 inches into the uterus, and she did not present a single symptom of pregnancy. The tumor had become so large that it produced severe dragging, dyspnoea and discomfort. An exploratory incision disclosed a very large subperitoneal fibroid springing from the fundus by a broad pedicle. The uterus was occupied by twenty-two other fibroids varying in size from an orange to a cherry. A supravaginal hysterectomy was done, and the uterine cavity found to contain a macerated foetus of two and one-half or three months. The patient was doing well June 1. A recovery.

*Case 4.*—Abdominal Section for Multiple Fibromyxoma. Operator M. Péan. Operation Decem-

<sup>1</sup>The abstract of this case is made up from notes kindly furnished by Dr. Kollock, who has frankly stated the facts in this and another case, and generously offered them for publication.

ber 15, 1874. *Abstract*.—Madame B., æt. 37, a widow for several years, always sterile. For several years had suffered from severe menorrhagia. Recently tumor had grown very rapidly and flooding had been very exhausting. M. Péan diagnosed fibromyxomata, and proceeded to their removal, which he did by enucleation. The operation was followed by abortion on the second day. Gestation had advanced between four and five months. Patient recovered.

*Case 5*.—Abdominal Section for Fibromyxoma. Operator Professor Freund, Strassburg, contributed by Dr. J. W. Poucher, Poughkeepsie, N. Y. *Abstract*.—Patient æt. 50, married many years, always sterile. Fibroid had existed for some time longer than discovered pregnancy. When the uterus was opened, to his own and everybody's surprise, Freund brought out a buxom foetus which also seemed very much surprised, for it immediately began to cry. It proved to be at least eight months old and all right. There was also a large fibroid which was very vascular. A supravaginal hysterectomy was done to complete the operation, and the result is unknown to me. This case is now reported for the first time.

*Case 6*.—Abdominal Section, Exploratory; operator, Robert Barnes, M.D.; operation January 7, 1877. *Abstract*.—Mrs. C. had been married for several years; no children or abortions. Always menstruated punctually until three months ago, without excess, since which time menstruation has been suspended and pelvic pain has arisen, with dysuria, retention and intra-pelvic pain, accompanied by vomiting. A fortnight ago swelling in the hypogastrium from pelvis upward became marked, and the abdomen was found partly filled by a tumor taken to be a fibroid. January 24, 1877, Dr. Barnes saw the case and found an enlargement of abdomen extending to a little above umbilicus on the right side and not quite so high on the left. It was tender and lumpy, and the os uteri was felt high above the upper edge of the symphysis pubis, small and compressed transversely. Sound passed two and one-half inches. Behind tract of sound, and apparently behind tract of uterus, another dense tumor could be felt. By rectum the mass could be felt rounded, filling sacral hollow. Two days later Drs. Baber, Braxton-Hicks and Barnes met in consultation and discussed the probabilities of the case. Under ether an attempt was made to dislodge the tumor from the pelvis, which was only partially successful. They thought the probability preponderated in favor of an ovarian tumor partially solid. It seemed impossible that fibroids could be developed so rapidly. The condition of pain, retention, vomiting and commencement of strangulation of impacted mass made it imperative to give quick relief. Gastrotomy was decided upon with this end in view. Abdominal section revealed general peri-

tonitis. On summit and side of tumor were numerous nodular projections. Trocar plunged in and a little blood and foul air was obtained. Tumor and uterus were removed by supra-vaginal amputation. Uterine cavity contained three months' foetus. Death from shock.

*Case 7*.—Abdominal Section for Fibro-Myxoma; operator, Dr. Alex. Patterson; operation, December 11, 1884. *Abstract*.—Mrs. M., aged 36, married nine years, menstruation always regular until last few months; now it was entirely suppressed. For years menstruation has been profuse. August, 1884, the patient accidentally discovered tumor in left side of abdomen about the size of a small plum. In September tumor began to increase rapidly and to be accompanied by great pain. September 22d a specially qualified consultant was called, and his diagnosis was hæmatocele in Douglas' pouch and his advice against operative procedures. Matters becoming more serious an eminent surgeon was called, who gave his opinion in very decided terms that the tumor was uterine fibroid and should be left alone, as an operative procedure would only hasten a fatal result. I was called December 21st and thought the case to be one of fibroid that could be removed and the patient recover. In the left iliac fossa, close to the pelvic brim, the tumor was most readily encountered. It was traceable across the lower abdomen, getting lower to the brim on the right side. The growth was firm, elastic, nodular, and painless on pressure. Per vaginam, pelvis filled by small mass, and the vagina was roofed across. Uterus completely fixed. Wishing to be sustained I called a medical friend well versed in such matters, and after a prolonged examination he decided the case to be one of ovarian disease, probably double, and that it should be removed. An endeavor was made to introduce the uterine sound, but it could only be made to pass one and one-half inches. Abdominal section revealed multiple fibro-myxoma. A supra-vaginal hysterectomy was done and uterine cavity found to contain a four months' foetus. Patient recovered without a bad symptom.

*Case 8*.—Abdominal Section, Multiple Fibroid; operator, Dr. George Granville Bantock; operation April, 1884. *Abstract*.—When patient first came under his notice, two years prior to operation, the tumor was of small size, but menstruation was excessive. Whether as a result of medical treatment or otherwise, it was a singular fact that the menorrhagia diminished until the flow became quite moderate and even scanty, while the tumor kept on growing. For over three months before operation menstruation had been absent. As the patient was single his suspicions were not aroused, and it was impossible to examine the uterine body, for the cervix was so drawn up that the os could only be touched with the tip of the finger, while the uterus was covered in

front by one of the tumors. After separating omental adhesions to the larger of the two tumors, which had undergone cystiform degeneration, and turning out the whole mass, it was easy to secure a very good pedicle at the level of the internal os. He confessed he was rather glad he had not diagnosed the pregnancy, for had he done so he probably would not have performed the operation. Uterus contained three months' fetus. He was happy to say that when last seen the patient was in excellent health and even contemplating marriage.

*Case 9.*—Abdominal Section, Supra-Vaginal Amputation of Pregnant Uterus, Complicating a Multilocular Fibroid Tumor; operator, Dr. James H. Etheridge. *Abstract.*—Mrs. A. B., aged 34, no children, first experienced uterine symptoms four years ago. Two years later suffered from retroversion and impaction of the uterus, at which time a sub-peritoneal myoma was diagnosed. In May, 1886, four years since first symptoms, patient suffered from distressing nausea. Mammary changes supervened. In the ensuing three months the tumor grew rapidly, and Dr. Knox diagnosed pregnancy. At the expiration of three months he decided to produce abortion. August 1, 1886, sound was introduced into uterus four inches. Its withdrawal was followed by a small amount of blood, the nausea and vomiting ceased, and the mammary symptoms disappeared. Nothing further followed indicating the previous existence of pregnancy or abortion, and the conclusion was reached that conception had not occurred. The rapid encroachment on the abdominal organs, her diminishing strength, emaciation and suffering were progressively killing her. From external examination it was found that the tumor extended from the right iliac fossa across the abdominal cavity in a straight line to the spleen. Its length was apparently double or treble its width. It was freely movable, free from adhesions, and solid. It presented great tenderness in right iliac fossa. Per vaginam, the cervix uteri was found very high up in the left iliac fossa, and the fundus uteri was apparently thrust into the right iliac region. The whole tumor moved with the uterus. A very slight resiliency, offered to conjoined manipulation, led me to think that I had to do with a fibro-cystic tumor of the uterus. The sound entered the uterus four inches and seemed to pass toward the umbilicus; tumor was removed by supra-vaginal hysterectomy. Patient died from septicæmia. Examination of the tumor showed it to be fibro-myxomatous, and that the uterine cavity contained a three months' fetus lying in its unruptured membranes. Fetus was evidently alive at time of operation. The cervical canal was five and one-half inches long. Weight of tumor, 10 pounds.

*Case 10.*—Fibro-Myxoma of Uterus Compli-

cated by Pregnancy. Reported by J. Lucas Worship, Esq. *Abstract.*—Mrs. C. C., aged 35, married two and one-half years, family history good, previous health good. Six months after marriage she suffered from severe pain in the left iliac region, but continued her service. Later she began to enlarge and was examined repeatedly, but no signs of pregnancy ever elicited save amenorrhœa. Never suffered from menstrual disorders. Tumor grew very rapidly and was irregular. Cervix was very high, firm and near the sacrum. A diagnosis of malignant tumor of the uterus was made and palliative treatment instituted, but the patient died in two months. Post-mortem examination revealed multiple fibro-myxoma of the uterus and pregnancy. Period of gestation at death, six months.

*Case 11.*—An abstract of a personal letter from Prof. Czerny, of Strassburg. The case was operated upon January 7, 1881, for supposed ovarian cyst: The cervix uteri was elongated, but not well defined from the fundus. No foetal pulsation. The uterine sound passed, without any obstruction whatever, 21 centimetres, and, as I thought at the time, through the tube into the abdominal cavity. On making the incision through the abdominal walls I at once recognized a gravid uterus and immediately closed the wound. I had evidently cut down to a gravid uterus, which was in an anti-flexed position and contained a large quantity of liquor amnii. I must add that the patient, aged 31 years, who in her capacity as midwife had delivered seventy-five women, strenuously denied that she was pregnant, and as firmly asserted that she had had the menstrual flow within a few days. There was some deposit of pigment about the nipples and areola. Without any bad results following the laparotomy she was safely delivered April 28, 1881. Some time after the cicatrix became indurated. This was remedied by making elliptical incisions and applying sutures, with good result.

#### INDICATIONS FOR OPERATION.

A study of the clinical histories, especially in the cases of fibro-myxoma, shows that there was an immediate demand for operative procedure. Robert Barnes so tersely states the indications for abdominal section in his case (see case 6) that the repetition is useful: "The condition of pain, retention, vomiting and commencing strangulation of impacted mass made it imperative to give quick relief." To these symptoms exploratory laparotomy reveals that other often fatal condition, peritonitis. Alex. Patterson's case was equally unpromising but happier in its results. Pain has been a prominent symptom in nearly all of the cases, often requiring the continuous use of anodynes. Palpation gave so much distress that, if done at all, it was imperfect and unsatisfactory. The rapid growth of the tumor has led

to dyspnoea, dysuria and constipation, or to more active obstruction of the bowels, œdema of the extremities, vomiting, emaciation and peritonitis. Universal experience has shown that temporizing with cases wherein there are symptoms such as have been related has been uniformly disastrous. The case of J. Lucas Worship, Esq., has been introduced in this article for the purpose of illustrating this point. Teachers have been often too prone to advise the waiting for extended observation. It seems to me that Mr. Lawson Tait has carefully and clearly enunciated that which is the best practice in one of his numerous controversial papers (*Am. Jour. Obstetrics*, vol. xxi, p. 295), in which he says: "Conditions within the abdomen are such that the life of the patient is evidently threatened, or the conditions combine in such a direction as to defy ordinary treatment and make life unendurable. Do not let any doubt as to accuracy of diagnosis stand in the way of an exploratory incision, for this will at once make a complete diagnosis possible and open a road for successful treatment."

#### DIAGNOSIS.

The influence of gestation upon fibro-myxoma demands our consideration. The consistency of the abdominal tumor has been variously described as firm, doughy, soft, fluctuant, and, indeed, the sense of fluctuation has led the surgeon more than once to puncture the tumor with the needle of the aspirator, or trocar. There can be no reasonable doubt that the different degrees of density are dependent upon three conditions, viz: the structure of the tumor, its situation, and certain degenerative changes. The growths made up largely of muscular elements are more readily affected by the increased intra-pelvic circulation of pregnancy, become more œdematous and grow more rapidly, than those in which fibrous elements preponderate. Intra-mural fibro-myxomata, from their more intimate connection with the uterine walls, exhibit more active metamorphoses than do sub-peritoneal ones with slender pedicles. Pregnancy may also bring about necrotic degeneration and softening from pressure. If the foregoing facts are sufficiently established, then sudden enlargement and softening of pre-existing fibro-myxoma is a valuable sign of pregnancy. But this rapid increase in volume has not been uniformly observed (*Gusserow Cycl., O. G.*, vol. ix, p. 300). Again, as this rapid growth is more frequently dependent upon increased vascularity, causes other than pregnancy may operate similarly. Tumors largely myxomatous often markedly enlarge during menstruation and grow with great rapidity. On the other hand, fibro-myxoma, in which sarcomatous degeneration takes place, or primary sarcoma of the giant, or small round cells type, are very rapid in their development and are attended with great pain.

In the case of Worship (l. c.) the diagnosis of malignant disease of the uterus was made. *A priori*, sudden increase and softening in a fibro-myxoma, to be of value as a presumptive sign of pregnancy, is dependent upon the exclusion of primary sarcoma, or sarcomatous degeneration, and the soft and rapid growing variety of fibro-myxoma.

For these reasons, in those cases where the diagnosis of pregnancy has been made upon the observance of rapid increase in size and softening in the fibro-myxoma, it is to my mind, although quite enough to arouse suspicion, based upon insufficient evidence. However, in connection with amenorrhœa and mammary changes it is of great value, and yet has not been referred to with uniformity by writers. Ectopic gestation may occur in these cases, giving rise to the same changes in the tumor (see cases of Smutz and Bayle). Amenorrhœa is a valuable symptom when it occurs. It will be noted that it occurred in eleven of the twenty-six cases, the study of which form the basis of the greater portion of this paper; yet there are circumstances which may materially modify its value as a symptom. For example, in my first case the patient gave a history of having suffered for extended periods from amenorrhœa. Again, in the case reported by Bantock the menstrual flow had been growing more scanty for a long period and finally ceased. The menstruation may continue, or an irregular flow may exist during pregnancy (Mundé, Bayle, Gusserow, and others). Abortion in cases of fibro-myxoma is most frequently induced by flooding. The sympathetic mammary disturbances which are observed in pregnancy were noted in four of the cases, but they are of themselves of no great value. In my second case they were present, but not more prominent than at any menstrual period. "The gastric, mammary and nervous symptoms of pregnancy sometimes result from ovarian disease." (Thomas.) Abdominal palpation, especially in the earlier months, can add but little in the elucidation of the problem and often has misled surgeons of great ability. Auscultation may reveal a bruit, but who will say that it is the bruit of fibroid or of pregnancy? Later both palpation and auscultation are invaluable, revealing ballottement, quickening, and the foetal heart sounds. The sign of pregnancy, to which, in later years, Braxton-Hicks has called particular attention, the alternating contraction and relaxation of the pregnant uterus, may be entirely obscured by the fibro-myxoma. English operators have laid great stress upon this sign.

Per vaginam, the vaginal venous injection observed in pregnancy does not differ materially from that occurring with the large fibro-myxoma, in which a concealed pregnancy may occur. In none of the cases here reported were there such changes in the cervix uteri as are regarded char-

## ABDOMINAL SECTION COMPLICATED BY PREGNANCY NOT DIAGNOSTICATED BEFORE OPERATION.

Case.	Operator and Reference.	Age.	Civil Cond'n	Parity.	Condition Diagnosed Before Operation.	Condition Found at Operation.	Per. of Gest'n.	Result.	Symptoms, if any, of Pregnancy Prior to Operation.	REMARKS.
1	M. Péan, Chir. Chirurg. Pavé, '76, Vol. i, p. 677.	37	W	0	Fibromyxoma of uterus.	Fibromyx. of uterus and pregnancy.	4 m.	R.	None stated, . . . .	Rapid growing tumor, very large, patient a widow 9 years; aborted 2d day; enucleation.
2	Prof. Freund, pers'l com. Dr. J. W. Poucher, Poughkeepsie, N. Y., who saw the operation.	50	M	0	do do	do do	8	R.	None . . . . .	Porro's operation.
3	Geo. Granville Bantock, Brit. Gyn. Jour., Vol. ii, p. 65, also personal com.	34	S	0	do do	do do	3	R.	Amenorrhœa for 3 months.	do do
4	J. H. Etheridge, Am. Jour. Obst., Vol. xx, p. 69.	34	M	0	do do	do do	3	D.	do also mammary changes.	do do
5	Meredith, Am. Jour. Obst., Vol. xiv, p. 923.	41	M	0	do do	do do	2	D.	Amenorrhœa for 2 months.	do do
6	Hofmeier, Die Myo Tomie, p. 76, etc.	41	M	0	do do	do do	3	R.	Preg'cy not absolutely excluded; amenorrhœa.	do do
7	Dirner, Centrbl. f. Gynak., 1887, Bd. ii, p. 119.	49	M	0	do do	do do	2	R.	Amenorrhœa . . . .	do do Fœtus dead and macerated.
8	Karström, Hygieia for April, 1885.	36	M	1	Exploratory. . . . .	do do	5	..	None . . . . .	Porro's operation.
9	Kaltenbach, Centralb. für Gynekol., 1887, Bd. ii, p. 435.	33	M	1	Fibromyx. of uterus.	do do	2	R.	do . . . . .	do do Disintegration of tumor begun fœtus macerated.
10	Alex. Patterson, Glasgow Med. Jour., April, 1885.	36	M	0	do do	do do	4	R.	do . . . . .	Porro's operation.
11	R. Barnes, St. Geo. Hosp. Rept., 1874-76, Vol. viii, 91-95.	..	M	0	Exploratory. . . . .	do do	3	D.	Amenorrhœa . . . .	do do
12	Wesseige, Bull. de l'Acad. Royal de Belgique, 11 Cer. 3, No. 4.	35	M	1 % 0	Fibromyx. of uterus.	do do	..	D.	do . . . . .	do do Called attention to absence of signs of pregnancy.
13	A. C. Bernays, Reprint Clin. Rept. Surg. Cases.	35	S	0	do do possibility of pregnancy.	do do	Via-ble.	D.	No symptoms stated in report.	Porro's operation.
14	J. Lucas Worship, Esq., Lond. Obst. Trans., Vol. xiv, p. 305.	35	M	0	Malignant tumor of uterus.	do do	4	D.	None . . . . .	Patient died in 2 months without operation.
15	J. Henry, Gyn. Jour., 1871, Vol. ix, p. 331.	..	..	0	Fibromyx. of uterus.	do do	4	D.	do . . . . .	Patient died in 2 hrs. after operation.
16	Prof. Weith, pers'l com. . . . .	..	..	..	Cystoma ov. cyst. . . . .	do do	2	D.	do . . . . .	Died from intraperitoneal hæmorrhage.
17	Bayle, Annals de Soc. de Méd., St. Etienne.	..	..	..	do do	do do	..	D.	do . . . . .	Patient flooded very severely.
18	H. Tuholski, St. Louis Polyclinic.	36	M	0	do do	do do	3	R.	Amenorrhœa 3 mos. before.	Fœtus dead and macerated; patient suffering from septicæmia.
19	W. Walter, Brit. Medical Jour., Vol. ii, 1883, 718.	29	M	0	Fibromyxoma (s) exploratory.	Fibromyxoma and pregnancy.	4	D.	Amenorrhœa, slight mammary changes.	.. . . .
20	VanderVeer, Trans. N. Y. State Med. Soc., 1888.	34	M	0	Exploratory, probable fibroid, extra-uterine pregn'cy.	do do	4	R.	do do	Explor. inc. closed; aborted 2 mos. later; recover'd.
21	VanderVeer, not reported.	35	M	0	Fibromyx. of uterus, prob'ly explorat'y.	do do	4	D.	None . . . . .	Aborted 10th day after operation, and died.
22	C. Smutz, Brit. Gyn. Jour., Vol. iii, p. 691.	42	M	0	Fibromyx. of uterus.	Fibromyxoma and extrauterine preg. do do	..	D.	Amenorrhœa, slight mammary changes.	Porro's operation; death from shock.
23	Thos. Keith, rep'd in dis. by Skene, Keith, Obst. Tr., Edinburg, '84-85.	..	..	0	do do	do do	..	D.	None . . . . .	By after-history learned that fœtus has been dead nearly 4 years.
24	Stoltz, County Diseases of Women.	..	..	0	do do	do do	..	D.	Not stated. . . . .	.. . . .
25	C. Kollock, personal com.	28	M	1	Exploratory. . . . .	Fibromyxoma and pregnancy.	3	R.	None, absolutely . .	Found macerated fœtus of 2½ or 3 mos; menstruation normal in period and quantity.

## PREGNANCY IN BICORNATED UTERI, ETC.

1	A. McDonald, Obst. Tanr. Edinburgh, '84-85, p. 76.	23	M	0	Fibromyxoma of uterus.	Pregnancy in bicornated uterus.	..	R.	Very ignorant pat.; indefinite history.	Hysterectomy; ut. cont'd macerated fœtus, 5 lbs.
2	Schlossowski, Rev. Gen. de Clin., No. 13, 1889.	..	M	1	Exploratory. . . . .	Pregnancy in right corner of uterus.	7	R.	No def. sympt's; pat. flooded severely.	Fœtus dead and macerated.
3	P. T. Mundé, N. Y. Obst. Soc., May 7, 1889, personal com.	..	..	..	4th mo. extrauterine pregnancy.	Pregnancy in corner of uterus.	..	R.	Phys'l sympt's were all evid'ce of extra-uter. preg. 4th mo.	Incision in abd'n closed; abortion; recovery (letter of May 11, 1889).
4	Dr. Janvrin. . . . .	..	..	..	Extrauterine pregnancy.	Pregnancy in corner of uterus.	..	D.	.. . . .	.. . . .
5	H. O. Marcy, pers'l letter.	..	..	..	Exploratory. . . . .	Interstitial pregn'cy thought probable.	3	R.	No symptoms. . . .	Aborted and recovery.

acteristic of pregnancy. The cervix has been described as firm, compressed transversely, elongated, and has been located high up behind the symphysis pubis, or back in the hollow of the sacrum, or operators have been unable to palpate it at all. Because of these distortions Hegar's

sign of early pregnancy has been of no assistance. The use of the uterine sound in both of my cases and in nearly all of the cases detailed (in table 1) has not aided in the diagnosis. So complete has been its failure that any facts determined by it should not enter into one's judgment of the case,



## ABDOMINAL SECTION COMPLICATED BY PREGNANCY NOT DIAGNOSTICATED BEFORE OPERATION.

Case.	Operator and Reference.	Condition Diagnosed Before Operation.	Condition Found at Operation.	Result.	Symptoms, if any, of Pregnancy.	REMARKS.
1	Sir Spencer Wells, Abdominal Tumor, Philadelphia, 1885.	Ovarian cyst . . . . .	Ovarian cyst and pregnancy.	Recovered.	None stated. . . . .	Pregnant uter. punctured by trocar; Cæsean section.
2	Thos. Hillars, Australian Med. Jour., February, 1875.	do do . . . . .	do do do	do	None . . . . .	do do patient single woman.
3	Wm. H. Byford, Byford's Dis. of Women, Med. and Surg., 4th Ed., 753.	do do . . . . .	do do do	do	None stated. . . . .	do do
4	Erskine Mason, Byford's Dis. of Women and Med. Rec., N. Y., 1877, Vol. xii, p. 749.	do do	do do do	Died.	do do . . . . .	Preg. uterus punctured, wound closed by sutures, abort'n and death; patient single woman.
5	Geo. Fortesque, Australian Med. Gaz., 1884, Vol. iii, p. 169.	do do . . . . .	do do do	do	do do . . . . .	Trocar puncture of preg. uterus; Porro's operation.
6	Esmarch, Kiel, personal letter, Kiel, 1877.	Ovarian cyst, multilocular.	do do do	Recovered.	None . . . . .	Delivered of a healthy male 6 mos. after operation.
7	Pollock, London Lancet, 1862, ii, 277.	Ovarian cyst . . . . .	do do do	do	None stated. . . . .	The cyst was tapped 4 mos. before operation and pat. aborted at that time.
8	Bateman, Lon. Lan., 1869, ii, 410.	do do . . . . .	do do do	do	do do . . . . .	Patient went to term safely.
9	J. Marion Sims, Trans. American Gyn. Soc., Vol. v, p. 108.	do do . . . . .	do do do	do	do do . . . . .	Pat. died 2 mos. later from vomiting of pregnancy.
10	W. L. Atlee, Trans. Am. Gyn. Soc., Vol. v, p. 108.	do do . . . . .	do do do	do	do do . . . . .	Patient went to term. Patient abort'd 2d day after operation.
11	do do	do do . . . . .	do do do	do	do do . . . . .	Patient went to term.
12	F. Bird, Trans. Am. Gyn. Soc., Vol. v, p. 108.	do do . . . . .	do do do	do	Absolutely no signs of pregnancy.	Patient abort'd 2d day after operation.
13	G. Kimball, personal letter. . .	do do . . . . .	do do do	Died.	Pregnancy suspected but positively denied by patient.	Died from peritonitis.
14	do do	do do . . . . .	do do do	do	Preg'cy suspected by att. physician, who explored uter. day before operation.	Died from peritonitis.
15	Dr. Dunlap, Trans. Am. Gyn. Soc., Vol. x, p. 111.	do do . . . . .	do do do	do	Operator misled by statements of physician.	Patient aborted, sank rapidly and died.
16	Thad. A. Reamy, personal letter.	do do . . . . .	do do do	do	No symptoms. . . . .	Pat. aborted and died.
17	J. C. Warren, personal letter . .	do do . . . . .	Dermoid cyst of ovary and pregnancy.	Recovered.	do do . . . . .	do do
18	A. Reeves Jackson, pers'l com. . .	do do . . . . .	Ovarian cyst, pregnancy	do	do do . . . . .	Patient safely delivered at term.
19	Hunter McGuire, personal com.	do do . . . . .	do do do	do	do do noted or suspected.	Patient safely delivered at term.
20	S. D. Gross, personal com. from Dr. J. M. Barton.	Exploratory. . . . .	do do do	do	None stated. . . . .	Patient aborted same night.
21	E. W. Cushing, Annals of Gyn., Boston, 1888, Vol. 1, p. 335, also personal communication.	do . . . . .	Parovarian cyst, 40 lbs., and pregnancy.	do	Amenorrhœa . . . . .	Patient safely delivered at term.
22	O. Prince, personal com. . . . .	Parovarian cyst and pregnancy.	Parovarian cyst and pregnancy.	do	do . . . . .	Patient safely delivered at term.
23	C. Kollock, personal com. . . . .	Ovarian cyst, large. . . . .	Small ovarian cyst, pregnancy, twins.	do	None . . . . .	Safely deliv. of twins, all well 3 mos. after.
24	Geo. E. Jarvis, Abst. of Records Hartford General Hospital.	Ovarian cyst (?) . . . . .	Ovarian cyst, pregnancy.	Died.	None stated. . . . .	Patient aborted on 3d day and died.
25	H. A. Kelly, personal com. . . . .	Exploratory. . . . .	Large elongated ovary, 2½ in. long, ¼ in. wide, and pregnancy.	Recovered.	None . . . . .	Safely deliv. at term by forceps of living child.
26	Dr. Cameron, St. John's Hospt., Toronto, personal com. from A. H. Wright.	Hydrosalpinx . . . . .	Hydrosalpinx and pregnancy.	do	do . . . . .	Safely delivered at term.
27	Dr. Cameron, St. John's Hospt., Toronto, personal com. from Dr. A. H. Wright.	Ovarian cyst. . . . .	Ovarian cyst, pregnancy.	do	do . . . . .	Has now nearly reached full term.
28	Dr. Winckel, Munich, personal com. from operator.	Ovarian cyst, multilocular.	do do do	do	do . . . . .	Pat. safely deliv. 3½ mos. after op.; when uterus expos'd child moved vigorously.
29	Sir Spencer Wells, Wells' Abd. Summary, p. 119.	Multilocular ovarian cyst.	do do do	do	do . . . . .	do do
30	do do p. 120.	Ovarian cyst. . . . .	do do do	do	do . . . . .	Abortion on 6th day.
31	Dr. John E. Summers, Omaha, pers'l com. fr. Dr. R. C. Moore.	do do . . . . .	do do do	do	do stated. . . . .	do do
32	do do	Ovarian cyst and pregnancy.	do do do	do	do . . . . .	do do
33	Mr. Burd Shrewsbury, Wells' Abd. Surgery, Ed. 1885.	Ovarian cyst. . . . .	do do do	do	do stated. . . . .	Abortion.
34	Mr. Cook, London Lancet, Vol. ii, 1865.	do do . . . . .	do do do	do	do . . . . .	Abortion.

and I am in great doubt if it should be used at all. Besides, the great difficulty of introduction and the danger of perforating the uterine walls are not altogether innocuous. In sixteen cases there were either no signs stated, or an emphatic statement that there were no signs of pregnancy present. Granted that in a given case of fibromyoma the diagnosis of pregnancy is made, how does the operator know that the gestation is not ectopic, or that it is not located in a rudi-



## PREGNANCY UNCOMPLICATED BY NEW GROWTHS.

Case.	Operator and Reference.	Condition Diagnosed Before Operation.	Condition Found at Operation.	Result.	Symptoms, if any, of Pregnancy.	REMARKS.
1	Olshausen, personal com. Dr. F. C. Bressler.	Ovarian cyst . . . . .	Pregnancy and hydramnion.	Recovered.	None stated . . . . .	Mistake discovered after abd'l incision.
2	Wm. Varian, Phila. Med. and Surg. Rept., 1888, Vol. ix, 457.	do do . . . . .	Pregnancy and hydramnion.	do	None stated; patient wilfully deceived operator.	Successful Cæsarean section.
3	O. Prince, personal com . . . .	Fibromyxoma . . . . .	Pregnancy . . . . .	do	Patient deceived operator by giving history of prof. menstruation and gradual increase for long period.	operator by giving history of prof. menstruation and gradual increase for long period.
4	Jas. Overton, Nashville Med. Jour., July, 1866.	Ovarian cyst . . . . .	do . . . . .	do	None stated . . . . .	An amusing acc't given in Nashville Med. Journal.
5	Warren, Brit. Med. Jour., Vol. ii, 1881.	Extrauterine pregn'cy.	do . . . . .	Died.	Mammary changes, nausea and vomiting; expulsion of decidual memb.	Porro's operat'n; coroner investig'd case & op'r exonerated.
6	Joshua Bradford, personal com. Dr. W. W. Dawson.	Ovarian cyst . . . . .	do . . . . .	do	Operator misled by husband and physician.	statement's of patient's husband and physician.
7	Henry Miller, personal com. Dr. D. W. Yandall.	do do . . . . .	do . . . . .	do	do	Both op'tors now dead and cases unpublished, hence particulars are unknown.
8	Geo. W. Bayless, personal com. Dr. D. W. Yandall.	do do . . . . .	do . . . . .	do	do	do
9	E. E. Montgomery, pers'l com. from operator.	Enlarged retroverted uterus, pregnancy suspected.	Pregnancy . . . . .	Recovered.	No symptoms, but enlarged uterus.	Safely deliv'd at term; well since.
10	Prof. Czerny, Strassburg, pers'l com. from operator.	Elongated cervix, uterus ante-flexed, pregnancy not suspected.	do . . . . .	do	Mammary changes.	Safely deliv'd at term; good recovery.
11	Joseph Price, Philadelphia, personal com.	Adherent ovary and pelvic adhesions.	Pelvic adhesions and pregnancy.	do	None . . . . .	do

mentary horn of a bicornated uterus. Experience has shown that these errors have occurred, and if the diagnosis is to be exact, differentiation is demanded. But the possibility of the diagnosis of simple ectopic gestation before rupture of the tubal sac and hæmorrhage is at least vigorously assailed, not only abroad, but in America. Manifestly this is no time for entering into the discussion of the merits of this last important question. I would not have it understood that, in my opinion, the diagnosis of early pregnancy as a complication of fibro-myxoma, *i. e.* before the fourth month, is impossible in all cases, but that the diagnosis is at the best a matter of presumption, and that it is often impossible when immediate operative interference is demanded. With no desire to be critical, I must say that many of our text-books give very meagre accounts of pregnancy as occurring with fibroids. Barnes, after writing at length, came to the conclusion "that the chief characteristic in the complication was the want of uniformity in the uterus." His statement regarding the diagnosis of pregnancy with ovarian cyst is equally as clear. Thomas makes no mention of the complication, and Byford, after referring to the mistakes made by himself, Sims, Wells and others, says: "A careful examination of the cervix uteri, the abdomen and the breasts for evidences of pregnancy will seldom fail to make the diagnosis of this complication clear." Hart and Barbour, Emmett, Hewitt, Simpson, Scanzoni, Courty and many obstetric authors either do not mention the complication, or advise waiting. Prof. Skene relates the histories of two cases wherein pregnancy occurred with fibroids, and in which the diagnosis was not made until months later. Karl Schroeder expresses the

opinion "that it may be exceedingly difficult to differentiate between simple fibroids and fibroids complicated by pregnancy." Hirst (*Am. Sys. Obstetrics*) says: "In rapid growing soft myxoma the diagnosis may be exceedingly difficult or impossible." Gusserow (*Cycl. O. G.*, vol. ix) rather neglects early pregnancy, but attributes the error in the latter stages to carelessness. The editor of the last edition of "Speigelberg's Midwifery," 1887, makes the statement that, "as a rule, there is very great difficulty, especially in the cases of intra-mural growth, since, at any rate during the first four or five months, they often conceal the pregnancy. The most careful examination may not elucidate the case." After the fourth or fifth month the error has occurred but three times. In Karström's case ascites as a complication obscured the diagnosis. In the case of Prof. Freund, of Strassburg, the patient, 50 years old, always sterile, presented no symptoms that led even to a suspicion of pregnancy. It is only fair to Dr. Bernays to say that he suspected the possibility of pregnancy, but from the history of the case there seemed no ground for the suspicion, and the suspicion was not confirmed in consultation.

There is no error in diagnosis which brings the physician into so much undeserved disrepute in the popular mind as a failure to recognize the presence or absence of pregnancy. Yet I am familiar with several cases where this error has either led to abdominal section, or all the preparations for one have been made. Recently a member of the British Gynæcological Society amused a meeting exceedingly by relating a case wherein a specially qualified operator journeyed many miles to a case.

After his arrival, late in the afternoon, he examined the case carefully, decided the growth to be fibroid, and that it should be removed. Being much fatigued by his journey he decided to remain and perform the operation the following morning. Early the next morning he was gravely informed that his services would not be required, as the patient had, during the night, given birth to a fine baby, and the tumor had disappeared. Nor does this experience stand alone. Others have brought cases to the operating table with a dilating os uteri. Of the nine cases of simple pregnancy found in the table, five of them occurred early in the history of abdominal surgery, when methods of differential diagnosis were not as well taught and practiced as now. I want to call your attention particularly to the case of Dr. Wm. Varian. From the history of the case I have no doubt that many, if not all of us, would have been led into the same disagreeable error. Dr. Prince had a similar experience. The frequency of the complication of undiagnosed pregnancy in single women will be noted in the tables. I am reminded of a remark attributed to the late Prof. MacNaughton, in answer to the inquiries of an anxious mother who had called him very late one night to see her daughter, who had just returned from a ball in a blissful state of intoxication: "Ah, madam, the best slip, the most cautious fall; your daughter will be better in the morning." It is well to have the quaint saying of the good old Scotchman always in mind when single women present themselves with abdominal tumors, and we should never be in a hurry to operate. The history obtained from the patient, and often from her relatives as well, will be full of deceit at least, and may be, as in Prince's case, made to fit minutely a variety of actual disease. Such cases should be subjected to the most painstaking physical examination; nor should any protestations upon the part of the patient deter the surgeon from making a complete examination of the vagina and breasts, as well as of the abdomen. His judgment must be based entirely upon the physical examination.

Pregnancy as a complication of ovarian cyst is met with considerable frequency, and is not always diagnosed before operation. We can hardly enter into the discussion of the symptoms, for in the twenty-eight cases that go to make up the table none are stated save in one case, amenorrhœa. In some of the cases the operators state that there were absolutely no signs of pregnancy. The period of gestation in twenty-one cases was before the fourth month. Three others occurred in single women, and the remaining two cases were at about the fifth month. The presumptive signs of pregnancy occurring with fibro-myxoma are, in cases of ovarian cyst, obscured or modified; yet to some of them greater diagnostic value can be attached. Close attention to men-

strual disorders will occasionally determine the fact that the patient's menstruation has been perfectly normal until a recent period, when it has ceased altogether. This is sufficient ground for suspicion. The examination of the breasts should be a matter of routine; yet the evidence obtained will be of no great value. The vaginal examination here will be of greater value than with fibro-myxoma. If the uterus can be palpated and found regularly enlarged, yet independent of the tumor, if the cervix is softened and os patulous, if the vaginal walls are tinted, then there exists strong presumptive signs of pregnancy. Hegar's sign in such cases, if demonstrable, makes the diagnosis absolute. Palpation of the abdomen in the earlier months, when the error occurs, is of no value. When the uterus rises into the abdomen, then palpation and auscultation are with ballottement, and the sign of Braxton-Hicks sufficient, as a rule, to make the diagnosis. But the pregnant uterus may be obscured anteriorly by the large cyst; it may be retroverted and impacted in the pelvis, or drawn up and dislocated laterally by the rapidly increasing cyst, so that it will be impossible to explore it satisfactorily; then the diagnosis is impossible. When the slightest suspicion of pregnancy exists in connection with ovarian cyst, the use of the sound is absolutely unjustifiable, although it seems, in the cases where it was used, that it only confirmed the error in diagnosis. Accumulated experience has shown conclusively that abdominal section for ovarian cyst in the pregnant woman should be done generally and without the previous induction of abortion.

*Conclusions:*—1. Finally, from the study of the seventy cases, I am convinced that the errors of diagnosis are dependent, in a large proportion of the cases, upon conditions which make it absolutely impossible, when these conditions recur in other cases, to avoid the same diagnostic conclusions.

2. That it is the duty of every operator, before making an abdominal incision, to secure personally, or by a specially qualified assistant, a fully classified, written statement of the facts which go to make up the clinical history of the case, together with the results of the physical exploration made by the operator and his consultants, using a formal blank statement (that of Sir Spencer Wells, for example), so that no facts may be omitted. That no part of this duty should be delegated, except under supervision, to internes of hospitals.

3. That the probable diagnosis should be based upon the physical signs contained in the notes, corroborated, with few exceptions (unmarried and ignorant patients), by the rational signs contained in the clinical history, and not by simple abdominal palpation and "the dim light of a pelvic examination."

4. That whenever the slightest probability of pregnancy exists, it should be fully explained to the patient and her friends.

5. That the necessity for operative relief and the consequences of delay or neglect should be carefully stated to the parties interested, before obtaining their formal consent to the operation.

6. That it is the duty of every operator to report fully all such cases, that the methods of diagnosis may be improved, if possible.

7. That it is the duty of the profession at large to maintain that pregnancy may be absolutely concealed, especially prior to the fourth or fifth month, by other intra-abdominal conditions.

Bibliography in addition to references found in tables:

Barnes, Simpson, Hart and Barbour, Hewitt, Jones, Courty, Scanzona, Hagar and Kaltenbach, Pean, Hofmeier, von Flammerding, Tait, Wells, Thomas, Emmett, Skene, Byford and Goodell.

Obstetrics—Barnes, Playfair, Simpson, Leichman, Schroeder, Spiegelberg, Cazeaux and Tarnier, Lusk.

Reports—"London and Edinburgh Obstetrical," "St. George and Guy's Hospital Report," "Journal British Gynaecological Society," "American Journal of Obstetrics," "Annals Gynaecology," "Transactions of the American Gynaecological Society," etc.

## CHRONIC ENDOCARDITIS.

*Read in the Section of Practice of Medicine at the Fortieth Annual Meeting of the American Medical Association, June 28, 1889.*

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It is proper that I should offer to you some reasons for selecting so ordinary a disease as is chronic endocarditis as the subject for this paper. But the ordinary diseases are, after all the important ones, and often as we see them we never really know them well enough. Any fresh record of facts, any new way of grouping, or of looking at these facts must be of some little service. It is the object of this paper, therefore, not to give a systematic account of endocarditis, but to draw attention to some features of the disease; not to give a history of the views of other observers, but to state simply what I have put together from my case books and post-mortem records.

Of the ordinary diseases few are more common than is chronic endocarditis. In few of them is there so great a variety in the severity of the symptoms. From the condition of a trifling inconvenience to that of a distressing and fatal disease there seems to be no limit to its various phases. We constantly meet with patients whose heart valves are seriously damaged and who yet enjoy good health, can follow laborious occupa-

tions and are often ignorant that they have any disease. On the other hand, we, with equal frequency see patients in whom the same valvular lesions are attended with the most serious symptoms and with death. It is, therefore, a matter of practical importance to determine as accurately as we can why it is that some of these patients do so well and others so badly. For it is in this way that we are most likely also to determine a rational treatment for the disease.

It seems evident that nearly all the most important symptoms of chronic endocarditis are due to the disturbances produced in the distribution of the blood throughout the body. It is by these disturbances of the circulation that the cerebral and pulmonary symptoms, the loss of nutrition and the dropsy are produced. The problem before us, therefore, is to determine why in some cases of chronic endocarditis there are disturbances of the circulation, and why in other cases there are not.

It might seem at first that the solution of this problem is an easy one, that the disturbances in the circulation are simply in proportion to the stenosis or insufficiency of the valves. A very moderate experience, however, is sufficient to show that this is not the case. The problem is a complicated one, and the disturbances of the circulation are due to a number of causes which act singly or together.

We may enumerate these causes as follows:

The endocarditis.

The dilatation and hypertrophy of the ventricles.

The inflammation or degeneration of the wall of the heart.

The inflammation of the coronary arteries.

The abnormal heart action.

The associated pulmonary emphysema, chronic endarteritis, and chronic Bright's disease.

To follow out the mode of action of all these causes is not possible in a paper of this character. I confine myself to the consideration of three of them: The endocarditis; the abnormal heart action; and the secondary and complicating changes in the kidneys. Not that the others are unimportant, but that these three are perhaps the most important of all.

1. The Endocarditis.

In thinking of persons with valvular lesions, we must remember that some of these persons, while under our observation, are suffering from chronic endocarditis, and that some are only suffering from the changes produced in the valve by an endocarditis which no longer exists. In the one case they suffer from a chronic inflammation, in the other from a deformity. It may be indeed that such deformity leads to progressive changes in the cavities and walls of the heart. But this is much less likely to happen than if the changes in the valves are also progressive.