course of the disease, and in some, and even fatal cases where the diarrhoea had not been considerable, the patient lost but little of the round and plump appearance of health; and this, even where the fatal termination had been delayed to the tenth day; and upon the other hand, the most emaciated beings that I have ever seen, either dead or alive, have been in protracted cases of this disease which terminated favorably; and what is worthy of remark, whilst this extreme emaciation obtained over the body and extremities, the face, and face alone, would be round and full, being somewhat dropsical.

Nausea, vomiting, pain, and occasionally great thirst, we always have; there is always a loathing to food. Grave hepatic symptoms are present in all cases; the function of the liver is feebly or irregularly performed, and a strict examination will occasionally detect slight, and still more rarely considerable, enlargement of this organ. The spleen also is always more or less enlarged, which may be detected by percussion, and careful examination with the fingers. Likewise may be met every degree of tympanitic distension, which symptom is rarely absent, but does not generally attract much notice before the eighth day.

The secretion of urine often, and I believe in most cases, will be found scanty, and occasionally almost entirely suppressed; and I have long since been led to consider that the giddiness, buzzing in the ears, stupor, and watchfulness, and other cerebral disturbances, more especially in the earlier stages, have much dependence on the tardy performance of this very important function; I have never found these symptoms present in any very remarkable degree, when I clearly ascertained the secretion of urine to be abundant. Great muscular debility generally characterizes this fever from its commencement until termination in convalescence.

In the treatment, alterative doses of calomel are given in combination with quinine and bicarbonate of soda. Mercury is a good remedy and indispensable except in the later stage of the disease. A thapsia plaster to the stomach, and the neutral mixture with a little tincture of opium, will always check nausea and vomiting. After the stools become healthy and fever lessened, the calomel is stopped, and the quinine, and soda bicarb., with piperin, continued until the patient is out of all danger. If tenderness or griping pains in the bowels occur, warmth externally, and ginger tea given as a drink, (made from the root ginger and sweetened), which is quite palatable and refreshing.

Opium in this disease is best avoided as bad results have occurred from its use. Where the fever is very high, ice placed to the wrists, and tr. aconite root three drops every two hours, has been of benefit; for the thirst, soda water flavored

with sassafras fresh from the fount is of marked value, the patient eagerly drinking and saying, how cooling it is in allaying the intense heat of the stomach. If stimulants are necessary, bicarbonate of ammonia is the best. I have always excluded everything like active purgatives, or any gastro-intestinal irritant, whether medicine or diet. In fine, the more rigidly I have adhered to the treatment above recommended, the more successful I have been in my practice.

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UTERUS BILOCULARIS.

Read in the Section of Obstetrics and Diseases of Women, at the Forty-first Annual Meeting of the American Medical Association, at Nashville, Tenn., May, 1890.

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Of the various forms of malformation of the uterus due to defective development of the ducts of Müller, uterus bilocularis shows the least deviation from the normal, and ranks as second in point of frequency of occurrence. Of the 271 cases of such malformations, the histories of which have been studied by the writer, there were of uterus bipartitus, 14; uterus unicornis, 18; uterus bicornis, 175; uterus bilocularis, 68. This represents all the cases on record and classified in the library of the Surgeon-General's Office to May 1, 1888.

The causes operating to produce these malformations are unknown. The inner walls of the ducts of Müller meet and coalesce previous to the eighth week of embryonic life. The septum disappears between the eighth and twelfth weeks. It is in these periods that the form of malformation is, in the main, determined. When the walls of the ducts fuse, but do not disappear by absorption, the malformation in question results. It is interesting to note, and difficult to understand, how the causes of the malformation leap over a period, and are apparent again, during the time for the development of the fundus.

The septum, which forms the partition wall between the two chambers of the uterus, may extend from the fundus to the external os, to the internal os, or only a portion of the way from the fundus to the internal os. In nearly one-half of the cases, there is a duplex condition of the vagina also, and there is not infrequently deficient development of the Fallopian tubes. It would appear natural that there should be developmental faults in these two structures as well as in the uterus, since they are developed from the same ducts of Müller as in the uterus.

When there is a duplex condition of the vagina, the partition may be complete or incomplete, or vary greatly in thickness, size and shape. The writer has been unable to find a single instance in which there was atresia of one vagina, while this is not uncommon when the defective forma-

tion of the vagina is associated with other forms of congenital malformation of the uterus. In external form and appearance, the uterus does not differ very much from the normal, though usually the body and fundus are broader. Sometimes there is a flatness or slight depression in the centre of the fundus, and sometimes there is a marked fissure. The os is more frequently single than double, yet occasionally will be found a perfectly duplex condition of the vagina, with a perfect cervix in each vaginal tube. So slight is the deviation from normal, in instances in which there is no vaginal septum and there is a single os, the deformity is likely to be overlooked. In the majority of the cases reported, the malformation was discovered either during labor or at autopsy. When there is a double vagina, and each half has within it a cervix and os, it is fair to conclude there is a duplex condition of the uterus, though this is not always true. The form and shape of the body and fundus must determine to which class it belongs. If there is a markedly bifid condition of the uterus, it does not belong to the class we are considering. The passage of two uterine sounds will yield much desired information. The presence of two chambers in the uterus can be readily demonstrated when there are two ora. The same may be said if the uterine septum extends to the external single os, or even if it extends only to the internal os, and the condition be suspected.

Pass a sound along each cervical canal, into the uterine cavity to the fundus. The approximation or divergence of the handles will indicate the directions of the canals.

If the points of the sounds cannot be made to meet, steel to steel, we know there is a complete partition, and if there is a deficiency, it may in this way be discovered. Should the divisions of the uterus into two chambers be incomplete; *i. e.*, should the septum extend but part of the way to the internal os, the fundus be but little deformed, and the os single, I know of no way of detecting the malformation in the non-pregnant woman, except by dilating the cervical canal, introducing the finger into the uterine canal, and making thorough exploration.

The true anatomical condition of the uterus in the patient in the case I am about to report was accidentally discovered.

October 16, 1888, I was urgently requested to visit Mrs. H., whom the messenger stated was flowing alarmingly. I responded at once, and quickly learned that two or three hours previously, Mrs. H. had had an abortion. She was three and one-half months in the period. The embryo had been expelled, and something the attendant supposed to be the placenta. The hæmorrhage had evidently been profuse, for the patient was pale from the loss of blood, and the pulse was weak and rapid. The placenta was retained and partially detached, hence the hæmorrhage. I quick-

ly prepared myself, and introduced one finger into the vagina, pushed it on into the widely dilated os. The finger readily entered the uterine cavity. By pressure of the right hand above the pubes, the uterus was brought well down, so that the fundus was reached by the left index finger within its cavity. Nothing was found within the uterine cavity except a few small clots, so I concluded I must have been mistaken in supposing there was a retained placenta. While washing my hands, the patient had a violent pain, and said she had passed a large clot of blood. There must be a retained placenta, yet how could I doubt my sense of touch. Sitting down by the bedside again, two fingers were introduced into the vagina, and one through the os into the uterus, when it came in contact with the placenta, which was separated from its uterine attachment and removed. I was puzzled, but the thought flashed into my mind, possibly there is a double-chambered uterus. So a further exploration was made. The os being largely dilated, two fingers were introduced into the uterine cavity, and the organ pushed well down by the hand upon the abdomen. The edge of a septum was felt about 1 inch above the internal os, and a finger made to pass upward, one on either side of it, each into a separate cavity, and thus was demonstrated the presence of the malformation known as uterus bilocularis. The right cavity, into which ovum developed, was much larger than the left; the walls were thicker and the surface more irregular. If any decidua had formed in the left cavity, it was never seen.

The patient had borne a healthy child three years previous to this abortion. She made a good recovery. She promised to call at my office as soon as she was able to be about, but went to her home in a distant city two weeks after the abortion; so I did not see her after she left the bed. The cause of the abortion is unknown. She had safely passed through pregnancy and delivery three years previously.

It might be hastily attributed to the insertion of the placenta upon the septum, yet study shows this is the only instance of abortion occurring in the seven cases of uterus subseptus in the list. It is, however, a fact worthy of notice that of the three patients who died during or after labor, in two the form of malformation was uterus subseptus (uterus bilocularis unicorporeus).

In a former paper¹ the writer presented a table showing the number of women pregnant, with some features of their subsequent histories. The table was correct so far as it went, but did not include his collection of cases reported in his first paper, and he did not discover until he began writing the present paper that this omission so materially affected the proper estimate of the rate of mortality of child-bearing women having such malformation of uterus. That table shows

¹ Journal American Medical Association, March 16, 1889.

that of twenty-six child-bearing women, seven died in consequence of pregnancy and labor. This gave a death rate of 26.9 per cent. Three died of hæmorrhage, two of peritonitis, one of collapse, one of eclampsia. We wish to add to this list nine cases included in a former article, and the one reported in the paper to-day. In these ten cases there were sixteen pregnancies, twelve normal labors, three abortions, one artificial delivery and no deaths.

This addition to the table very much lessens our estimate of the dangers to the life of the woman having uterus bilocularis. Now we can approximately estimate the rate of mortality as 19.4 per cent. This addition, and this correction, strikingly shows the little scientific value of conclusions drawn from a small number of cases or from incomplete reports. The writer is strongly inclined to doubt the statement made in some of our text books, that a decidua is cast off and expelled from the unimpregnated chamber of the uterus at labor or shortly afterward. He is positive it did not occur in the first one of his cases and thinks it did not in the second one, for nothing answering the appearance of a decidua was seen by the attendants who were instructed to look for it. Very few reporters mention the existence of a decidua.

Considering all the facts it does not seem reasonable a decidua should develop to the extent of becoming ripe and of being cast off. That the first steps toward the formation of the decidua are taken is quite probable, but the complete development of the decidua vera and of the decidua reflexa is dependent upon the presence of the ovum. The site of that body determines the activity of the processes leading to their perfect development. Separate a part of the uterine cavity from this stimulating influence, and if we reason from analogy we must conclude the growth ceases.

Again, one must observe that the nutritive changes taking place in the unimpregnated horn are much less marked and in some instances are not at all similar to those occurring in the pregnant horn. This is perhaps more apparent in the bicornute uterus, but has been quite frequently demonstrated in the uterus bilocularis. The unimpregnated chamber of the uterus may, and sometimes does, take on menstrual activity even during the growth of the fœtus in its fellow.

Ross' case, reported in the American reprint of the London *Lancet* for November 1871, demonstrates this possibility. The patient miscarried between the fifth and sixth month. She informed the doctor there was another child in her womb, so Dr. Ross introduced his hand into the cavity and found it empty, though by palpation the uterus seemed quite large. Three months later this woman gave birth to a living child, and the bilocular condition of the uterus was then demonstrated. Between the miscar-

riage and the birth of the child the woman menstruated three times in a perfectly normal manner. This patient was seen and the diagnosis verified by Dr. Hall, of Brighton. It has been shown by repeated observations that sometimes the opposite sides of the uterus alternate in the performance of the menstrual function, and it is probable here may be found an explanation of the occurrence of menstruation in some women during pregnancy. No doubt in some of these instances there is a double uterus, one half is pregnant the other half menstruates.

In no instance did hæmatometra appear in a woman who had become pregnant. Two cases in the number pregnant are recorded. One is an anatomical specimen with little history, in the other there was occlusion of one os and the formation of a hæmatometra. It was opened by trocar and the opening kept patulous by the daily passage of a sound. It may be incidentally mentioned that in the other forms of congenital malformation of the uterus these accumulations of blood in the uterus resulting from menstruation and occlusion are not infrequently found, and experience has shown that the most effective means of cure, and the least dangerous to the life of the patient is to freely incise the tumor, empty the cavity, and wash it out with antiseptic solutions.

Menstrual disorders are not found common to this malformation, neither are its subjects more liable to diseases of the reproductive organs, hence our chief interest as practitioners will be in those cases where pregnancy occurs.

Such an occurrence exposes the patient to greater dangers than does pregnancy in women having normal uteri, the chief cause of danger being hæmorrhage. Septic peritonitis under our present forms of treatment should rarely occur. The lodgement of the fœtus in a chamber having no os or an impervious one is a remote possibility.

Irregular contractions of the uterus rendering labor tedious has been quite frequently observed, and the presence of a vaginal septum has in a number of instances retarded labor and necessitated operative interference. Various methods have been employed with uniformly good results. A thick vascular septum where immediate action is demanded is best served by the galvano- or thermo-cautery. The elastic ligature has been used in such a condition where haste is not imperative with good results. The thin, slightly vascular septum may be incised at once with knife or scissors. In not a few instances nature is able to overcome all obstruction either by dilating the parts or by tearing the septum before the descending head of the fœtus.