

in which an ovarian tumor coming down before the head in labor accelerated by ergot, tore its way through the vagina. Recovery took place.

16. The tumor may escape by *bursting or perforation of Douglas's sac through the rectum*, and present at the anus. A. W. Stocks (*Brit. Med. Journ.*, 1875) relates a case. The tumor was removed, and the woman recovered.

The *rate of growth or natural duration* of ovarian cysts varies with the kind of tumor, and other circumstances, one of which is the age of the patient. The simple non-malignant cysts generally go on steadily increasing, attaining a size that entails distress of breathing and danger to life, in about two or three years from their first attracting attention. But it is almost certain that the earlier stages of growth may extend over a considerable time before, either by bulk or pressure on the abdominal viscera, the tumor is noticed by the patient. We have, then, an unknown quantity to add to the known; and this circumstance frustrates all attempt to arrive at a precise estimate of the rate of growth or duration. Not seldom there are alternations of increase and of standing still. After remaining passive for a considerable time, a stage of rapid accumulation may set in. Scanzoni believes menstruation stimulates the growth. The partly solid non-malignant tumors may last many years, growing very slowly, thus admitting of gradual adaptation of the compressed organs, and of the system generally, to the inconvenience, before distress becomes intolerable, or a fatal result ensues. I have known distinct evidence of ovarian tumors to extend over twenty and even thirty years. The dermoid cysts especially are of unlimited duration.

The malignant and proliferous forms proceed more rapidly. The history of many of these cases is brief. It is measured by months rather than by years.

In cases of long standing, œdema of the legs is a frequent consequence. It is caused either by pressure on the renal vessels, inducing hyperæmia of the kidneys, by independent or induced Bright's disease, by pressure on the pelvic veins, or by thrombosis in the pelvic and femoral veins. In the latter case the prognosis is bad, as it generally indicates malignant disease spreading into the broad ligaments, and matting the pelvic structures together. If ascites be added, the probability of malignant disease extending to the abdominal glands and other structures is much increased.

The effects of ovarian cystic disease upon the proper ovarian functions are various. We have seen that in many cases ovulation may go on. Even in a diseased ovary a portion may remain unaffected, and suffice to stimulate menstruation. And, although in many cases it is found that both ovaries are invaded, yet it is rare that the proper structure of both is entirely destroyed. In some cases, perhaps exceptional, and only for a time, there is menorrhagiâ. More frequently menstruation becomes scanty, and at last ceases. This undoubtedly is often the consequence of general dyscrasia. That menstruation may go on is *primâ facie* evidence of the possibility of conception. Morgagni said (*Epistola xlvi.*, art. 28) that a woman may conceive if there remain as much of one ovary sound as pertains to one mature vesicle. It is a fact that in many cases pregnancy does take place. It may even go on to the natural term, and delivery take place without accident. I have known examples of several succes-

sive pregnancies thus being accomplished. But the risk is serious. In another class of cases the uterus is unable to pursue its full development, and abortion or premature labor sets in. *During pregnancy* the tumor may be twisted on its axis; it may burst; it may become inflamed and suppurate. *During labor*, again, it may burst. I have seen a fatal result in this way. Or if bursting be avoided, the crushing of the tumor may give rise to hemorrhage, suppuration, or gangrene. There is an extraordinary specimen in St. Bartholomew's Museum (No. 31.34) contributed by Mr. Berry, of Birmingham. It is an ovarian cyst which had protruded through the external parts by rupture of the vagina during labor, and which was afterwards removed by ligatures with success—a singular instance of ablation of an ovarian tumor by this route.

On the other hand, the uterus may rupture from the obstruction to labor caused by an ovarian cyst. (Ogier Ward, *Path. Trans.* vol. v.)

The breasts are often affected. In some cases they become tumid, even yield a little milky fluid, and the areola is darkened. This chiefly happens during the earlier stages of the active tumors. Generally when the disease is of long standing, the breasts become flaccid, and shrivel. This may be an indication that the follicular structure of the ovary has been destroyed.

#### DIAGNOSIS OF OVARIAN TUMORS.

The *Diagnosis of Ovarian Tumors* involves the analysis of all pelvic and abdominal tumors. The recognition of an ovarian tumor really involves very often the decision between life and death. Whether an operation of a most severe, possibly fatal, nature shall be performed or not, depends upon the diagnosis. And if we do not operate for want of an accurate diagnosis, the patient may equally incur the penalty of death. The pregnant uterus has been tapped or opened in mistake for an ovarian tumor. An ovarian tumor has been often mistaken for pregnancy; and this latter error may subject the patient to an imputation of dishonor, than which death itself will, to some minds, appear more tolerable.

The first point to determine is the presence or absence of *pregnancy*. Peaslee observes that the diagnosis of pregnancy in the early months does not come into practical consideration, since it is only when ovarian tumors have attained the size of the gravid womb at five months or more, that the question of extirpation arises. But there are other reasons for forming a diagnosis at even the earliest stage. A proper weight must be given to the evidence of history. This may or may not be useful; but it not safe to rely upon anything but physical exploration. We must, then, make a systematic search for the objective signs of pregnancy. We must examine the breasts; observe the degree of tension, the veins running to the areolæ, the pigmentation and area of the areolæ, the development of the follicles, the presence or absence of milky secretion. Then, examining the abdomen by careful palpation, we search for uterine and foetal movements; by stethoscope in the groins and over the abdominal tumor we listen for uterine and foetal sounds; by vaginal touch we determine the softness or hardness of the cervix uteri, the patency of the os, its relative position in the pelvis; the presence or absence of what I have

described as vaginal roof-stretching, that is, the tense inclined plane formed by the enlarged body of the uterus pressing upon the roof and anterior wall of the vagina—(see Fig. 57, p. 164)—and through which, if the uterus be pregnant, we may feel its rounded solid bulk. The speculum may furnish almost conclusive evidence. If the dark-blue turgescence of the vaginal-portion and vagina, with softness of the vaginal-portion, the enlargement with anteversion of the uterus coexist, pregnancy may with confidence be affirmed. If to this combination be added venous and capillary distension of the superficial vessels of the legs, and increased vascular tension, we have a concord of symptoms which I believe is only to be found in pregnancy. And this concord is found in early pregnancy. Later on, as the fetus grows, new signs are developed. Place the patient on her back, with the shoulders a little raised, then strike upon the rounded mass of the uterus in front of the cervix with the tip of the finger, to elicit the phenomenon of ballottement; or if the os be patulous perform this experiment cautiously through the os. If we thus get positive evidence of pregnancy, we have gained an important step in the diagnosis of the case. But it must not be hastily concluded that because there is pregnancy there is not ovarian tumor. Both may coexist. And if we fail to bring out any of the absolute signs of pregnancy it must not hastily be concluded that the woman is not pregnant. It is not a very uncommon thing, even in an uncomplicated case of pregnancy of three, four, or even five months, to miss the unequivocal signs. And there are cases, rare it is true, in which the pregnant womb is sunk out of reach in a large accumulation of ascitic fluid. This mostly happens in connection with albuminuria, when there is anasarca as well.

*Ballottement* of an enlarged uterus, or of a tumor partly suspended in ascitic fluid, may so nearly simulate the ballottement of the fetus suspended in the liquor amnii, that error is easy. The indication is never to rely upon one sign alone.

Before discussing the special or particular cases for diagnosis, it will be convenient to describe summarily the general principles of proceeding by which we determine the presence of an ovarian tumor. These flow partly from the knowledge acquired of the nature and progress of these tumors, and partly from the application of means of physical exploration.

The means at our command are:—

1. *Inspection of the Abdomen.* The patient should be on her back, with the abdomen, and at least the lower part of the chest, bare. We then note the shape, size, and position of the tumor. An ovarian tumor generally gives the abdomen an *arched form*, sometimes uniform, especially if the tumor be mainly monocystic; sometimes there is oblique or sloping form, one side being prominent, another depressed; this indicates polycystic tumor.

Very large tumors may rise under the ribs, push up the liver, and make place for themselves by everting the false ribs and cartilages. It is not uncommon to find the xyphoid cartilage protruded forwards. The recti muscles are sometimes parted; and the tumor, projecting forwards, may even find a resting place on the thighs and knees.

Generally the abdomen is in full tension, the skin is shining, sometimes marked by scar-like cracks, as in pregnancy. In the depending parts,

especially that which hangs over the pubes, the skin becomes thick and doughy from infiltration of serum into the cellular tissue. This is sometimes so great as to give a brawny or hypertrophied character to the skin. Furrows and ridges are thus formed. This feature is rare in pregnancy.

The form of the abdomen depends upon the form of the tumor. If the cyst be single and its walls thin, so that it has yielded easily and uniformly to distension, it will tend to arch out in the direction of least resistance; that is, forwards, protruding the abdominal wall. The umbilicus, as in pregnancy, is pushed out, but the arching of the abdomen from below the xyphoid cartilages to the pubes, is even more prominent, generally, than is the bow produced by the pregnant womb. It even seems sometimes to point above the umbilicus. The walls of the gravid uterus are not merely stretched; they *grow*, and the uterus always preserves, more or less, its original shape, that is, it is pyriform, and compressed or flattened a little in its anterior wall. If the cyst is multilocular and the cysts are distended unequally, the form of the abdomen will be unequal; but still, as one cyst, and that one which enlarges in the direction of least resistance, is sure to be most anterior, the general form is like that of the monocystic tumor. In the early stages there is commonly more prominence on one side of the abdomen, one iliac region being visibly more tumid than the other. By inspection, also, we observe the peculiar expression of countenance which attends so many cases of ovarian disease. This is often so striking as to be alone diagnostic to the trained eye. Wells<sup>1</sup> gives a drawing, taken from a photograph by the late Dr. Wright, which represents this very graphically. He calls it the "*facies ovariana*." The emaciation, the prominent or almost uncovered muscles and bones, the expression of anxiety and suffering, the furrowed forehead, the sunken eyes, the open sharply-defined nostrils, the long compressed lips, the depressed angles of the mouth, and the deep wrinkles curving these angles, form together a face which is strikingly characteristic.

2. *Mensuration* gives more precision to what the eye has observed. Carry a tape from the spinal column round on either side to the umbilicus or linea alba. If the two semi-circumferences are unequal, this raises a presumption in favor of ovarian tumor. Another measurement is perhaps more useful. Measure from each anterior superior spinous process of the ilium to the umbilicus, and also to the xyphoid cartilage. These comparative measurements will show clearly the greater protrusion of one side, if it exist. Mensuration is more valuable as a means of keeping a precise record of the increase or diminution of the size of the abdomen. The most precise results in measurement are obtained by aid of the *cyrtometer*. This instrument, consisting of bands of thin lead, enables us to take not only the distances between two points, but also to take a mould of all the intervening projections and depressions, which can be taken off in tracings for future comparison. Nothing brings out so clearly the differences on the two sides.

3. *Palpation.* By feeling with the outstretched hands, we get information as to the size, form and solidity or waviness or penetrability of

<sup>1</sup> Diseases of the Ovaries.

the abdomen. If the hands can be made to sink in a marked manner towards the spinal column below the umbilicus, the presumption against ovarian tumor, unless a very small one, is strong. If an ovarian tumor lie behind the abdominal wall, this is impenetrable. Fat, phantom-tumors, tympanites may thus be excluded, especially if we aid relaxation of the abdominal walls by anæsthetics, carrying the open hands all round the swollen abdomen. By gentle pressure we can often determine the outline of the underlying tumor; we make out the rounded cyst or bag which contains and confines, within definite limits, the fluid which is felt waving in it. This sense of a waving fluid is called *fluctuation*. It is most clearly brought out by placing one hand spread out, or one or two fingers, lightly, at one point of the tumor, whilst with a finger of the other hand we gently flip in another part. By shifting the positions of the observing and the striking hands, we explore the area of fluctuation and its degree in different parts. If the fluctuation be felt freely in all directions, of equal force, transversely, obliquely, longitudinally, along the extreme breadth and length of the tumor, the inference is justifiable, not that the tumor is strictly monocystic, but that the main volume of the fluid is contained in one cyst. In polycystic tumors the long axis is often oblique.

If we find there is fluctuation in one part of the tumor and not in another; if we find the fluctuation is different in force in parts; if we find the wave propagated from one point is wholly or partially arrested in its spread across to another part of the tumor, we may infer the presence of septa or solid parts, and hence that the tumor is polycystic.

Plain as fluctuation often is, this sign is not free from ambiguity. I have known a solid fibroid of the uterus communicate a sense of fluctuation that imposed upon skilful observers. And we may have what may be called *double fluctuation*. There may be ascites as well as ovarian tumor. Or the fluctuation may be due to ascites. The latter case will be diagnosed by-and-by. When, as not unfrequently happens, there is fluid in the peritoneal cavity as well as in an ovarian tumor, if the tumor be large, the peritoneal fluid will be diffused as a thin layer all over the tumor. Thus, when we first flip the abdomen, we may see and feel a light wave run along the surface. By pressing the fingers rather firmly and suddenly into the abdomen, we may displace the thin peritoneal stratum, and come down upon the resisting bag of the tumor; then, by giving a rather smart impact to another part, we may elicit the feel of another deeper fluctuation, that proper to the tumor. But even this is open to fallacy. Striking in this manner, we may, displacing the fluid in a cyst, come down upon a solid mass projecting into the cyst.

In pregnancy, also, when the uterine and abdominal walls are very thin, and the quantity of liquor amnii excessive, fluctuation may be as distinct as in some cases of ovarian dropsy.

We may also make the phenomena of fluctuation available in determining the limits of the sac. Thus, by applying two observing fingers spread out, so as to leave a space of two or three inches between their tips, to one flank, whilst impact is given by the other hand, we may feel fluctuation by the upper finger, and not by the lower one, showing that the boundary of the cyst is between the two fingers. It is very difficult,

sometimes impossible, to differentiate the fluctuation of colloid matter from that of limpid fluid. The colloid tremor is propagated through a multilocular tumor without being sensibly affected by the intervening septa.

A form of palpation, sometimes decisive, consists in grasping the tumor between the hands, rolling it about from side to side, and *lifting it up* beneath the abdominal wall. This gives conclusive evidence of tumor. If this lifting be practised by an assistant whilst the operator keeps an observing finger on the cervix uteri, the uterus may be felt dragged up by the tension put on the pedicle.

*Intra-vaginal touch* is a form of palpation. By it chiefly, aided by the sound, we determine *the state of the uterus* and its relations to any complicating tumor. So long as the tumor is within the pelvis, the uterus is almost invariably in front, pushed forward. When the tumor has risen out of the pelvis, it generally gets in front of or above the uterus. By touch we determine some of the physical signs of pregnancy, if existing. In advanced cases, where the tumor has assumed the balloon shape, and even the lower pole of it is too large to enter the pelvic brim, the uterus is often dragged up a little, and tilted on one side, generally to the opposite side of the tumor; the os is generally directed backwards, the fundus forwards. The vaginal roof is mostly covered in by the spherical pole of the tumor; it feels elastic if the tumor is monocystic, and sometimes fluctuation may be transmitted to it by flipping the abdominal wall.

The upward dragging of the uterus tends to obliterate or conceal the vaginal-portion of the uterus; it is drawn out of the vagina, so that the os uteri is often felt almost flush with the vaginal roof. The vaginal roof itself is sometimes drawn up into a cone. The body and neck of the uterus are sometimes greatly flattened and elongated. This is usually due to adhesion with the tumor, so that the tumor in its growth compels the uterus to spread with it. This is strictly analogous to the enormous hypertrophy to which, under like circumstances, the Fallopian tubes are subject. In the opposite class of cases in which the tumor, or a part of it, descends in Douglas's space, this space is much enlarged, the posterior vaginal roof is distended and made to protrude, sometimes so as to be prolapsed beyond the vulva.

The touch is extended by the *uterine sound*. But before using it we must first clearly exclude pregnancy. This instrument, passed into the uterine canal, determines—1, the length of the uterus; 2, its inclination or position; 3, its mobility or freedom from the tumor. If the uterus is easily moved, and of its ordinary size, it may be inferred, not only that the tumor is extra-uterine, but also that the pedicle is long.

Vaginal and rectal touch is further of great service in determining other questions, especially that of complication with malignant disease.

The information obtained from inspection and palpation is corrected and supplemented by that obtained from

4. *Percussion*. This is perhaps the greatest test. It may be said to be but a form of palpation, but it brings out information that mere palpation could not supply. By percussion we determine the areas of dullness and of resonance. In ovarian cystic tumor the relation of these areas is

characteristic. The tumor, arising from one iliac fossa, pushes the hollow intestines over towards the opposite side. Whilst the tumor is small, that is, not so large as to reach the level of the umbilicus, the contrast between the dulness of the side where the tumor lies, and that where the intestines are driven to, is marked. When the tumor is so large as to reach the scrobiculus cordis, this contrast is not so obvious; but it may almost always be traced. The intestines lie in the space between the last false rib and the crest of the ilium and back to the spinal column, because the cyst, occupying the opposite side of the abdomen, has left only this space for the intestines to retreat to; and has not driven them directly and all upwards, because it grew, always occupying a more or less lateral position. The contrary of this happens in pregnancy and ascites, in which conditions the intestines are driven straight and gradually upwards, the gravid womb rising from the centre, and ascitic fluid filling the lower parts, to rise with its level uniformly upwards. Hence we have in cystic tumors resonance on one side, between the last false rib and the crest of the ilium, whilst on the opposite side the dulness is more extensive, because the cyst is there. So much may be taken as generally true, but we must guard against fallacies.

In pregnancy, as in ovarian tumor, the intestines are so crowded back that, whatever the position of the patient, the dulness is heard all over the front of the abdomen, whilst there is an area of resonance in both flanks. In advanced pregnancy there is often marked obliquity of the uterus; it inclines so much to one side that the area of resonance in one flank may be notably smaller than in the other. And in ovarian tumor we almost invariably find some resonance in both flanks, although the resonant area will be greater on one side.

5. *Auscultation* is chiefly of use in determining the presence of pregnancy. It is true that by it we may detect a friction-sound, produced by the ascent and descent of the tumor under the respiratory movements; and sometimes a blowing-sound in one groin, which might impose for the *souffle* of pregnancy. But these signs are of minor clinical value. Some variety of vascular murmur is much more common in uterine tumors than in ovarian. It is synchronous with the pulse.

Nor does the difficulty end here. Two or more of the above cases may co-exist. After discovering the existence of some one of the conditions enumerated, we may overlook a complication which is masked by the prominence of that which we have discovered. For example, just as ovarian tumor may be complicated with pregnancy, so it may be complicated with uterine fibroid, or with ascites. Nor is it enough to determine the presence or absence of complicating tumors or fluid collections. When we have settled that there is an ovarian tumor and nothing else, it is still important, with a view to forming a prognosis and the selection of the mode of treatment, to determine—1, Whether the tumor be monocystic or polycystic; 2, whether it be benign or malignant; 3, whether or not adhesions have been contracted with the abdominal walls and viscera; 4, whether the uterus be enlarged, or in any way involved; 5, the condition of the general health, and especially the presence or absence of diseases of other organs, as of the heart, lungs, liver, kidney.

A sound judgment as to these points will greatly influence the choice between tapping, extirpation, or expectation.

Diagnostic research must be applied to the solution of the following problems:—

- a. Is there a uterine pregnancy?
- b. Is there an extra-uterine (ectopic) pregnancy?
- c. Is there an extra-ovarian cyst?
- d. Is there an enlargement of the uterus from fibroid tumor or fibro-cystic tumor?
- e. Is there enlargement of the omentum and intestines?
- f. Is there enlargement of the spleen, liver, pancreas, or kidneys?
- g. Is there pelvic cellulitis or peritonitis or hæmatocele?
- h. Is there ascites or encysted peritoneal dropsy or abscess?
- i. Are there adhesions?
- j. Is the tumor benign or malignant?
- k. Is there distension of the bladder or fecal accumulation?

It follows from the foregoing discussion that to enter properly prepared upon the task of diagnosing ovarian tumor, the inquirer must have a good clinical acquaintance with thoracic and abdominal pathology.

a. *Is there a uterine pregnancy?* This initial question has been already discussed.

b. *Is there an ectopic pregnancy?* This question trenches to some extent upon the first, a; but it involves many points quite distinct from uterine pregnancy. Ectopic pregnancy is rare; but for this very reason, and also because the seat of the tumor which it forms is more nearly identical with that of ovarian tumor, the diagnosis is more difficult. The diagnosis between extra-uterine gestation and ovarian tumors is discussed in Chapter XIII. on "Ectopic Gestation." But it is useful to add here that in some cases of abdominal gestation, there may be so much fluid in the sac that the foetus cannot be felt in the dorsal or erect positions. But in the knee-elbow position the foetus may fall down to the front, and give ballottement. Another point is that in extra-uterine gestation the sac usually projects lower in the recto-uterine pouch than in ovarian tumor.

It must not be lost sight of that ovarian tumor may be complicated with pregnancy, uterine or extra-uterine. In the case of uterine pregnancy we may expect to make out the positive signs of pregnancy; but these will be likely to mask those of the ovarian tumor. One characteristic of the double condition is that the abdomen is more widened out than in either of the single conditions; and we may usually define by palpation, percussion, and auscultation the limits of each tumor. There is commonly a marked sulcus or depression at the upper part, where the two spheres diverge, as shown in the diagram, Fig. 87. By auscultation we commonly mark the seat of the foetus.

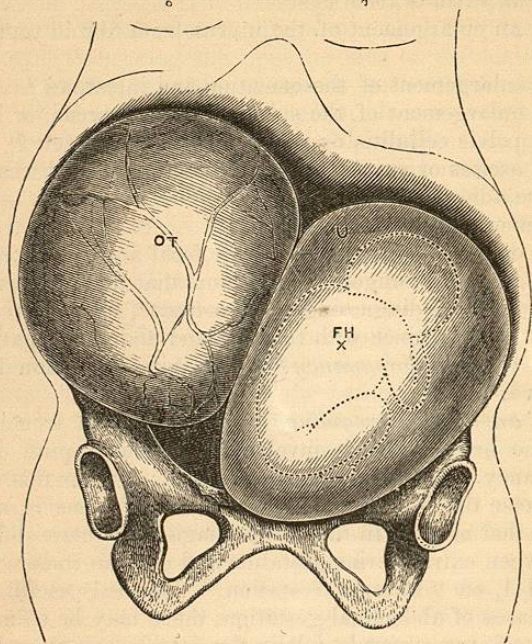
In ovarian solid tumors it almost always happens that the tumor is of irregular form. There are projections, angles, sometimes simulating limbs of a foetus; but they do not move; nor do we feel that peculiar vermicular movement characteristic of the gravid uterus.

If the uterus be at all fixed, and any hardness be felt around it, ex-

amine by rectum as well. If malignant, projections hard and irregular, will probably be felt more plainly here.

c. *Is there an extra-ovarian cyst?* When by internal and external examination, no nodular hardening of the cyst wall can anywhere be de-

FIG. 87.



Ovarian Tumor and Pregnancy.

o T, the tumor lifted out of the pelvis by the uterus, U, which is pushed over to the side and over the brim of the pelvis; F H, spot where foetal heart may be heard (R. B.).

tected, where the cyst is uniformly smooth and elastic over its whole surface, where the wave of fluctuation is equally perceptible in all directions, the inference is strong that the cyst is practically unilocular; and if in a young person it is either flaccid and of long duration, or excessively tense and of recent formation, the inference is almost equally clear, that the cyst is extra-ovarian and the contents limpid.

It is a good rule in any case presenting the above characters to tap in the first instance, as this operation may be sufficient to cure.

d. *Is there enlargement of the uterus from fibroid tumor or hydrometra?* This is one of the great practical questions. Under the belief that an ovarian tumor existed, the abdomen has many times been laid open, only to discover what should have been known before, namely, that the tumor was uterine. The diagnosis is not seldom extremely difficult, and especially so when the tumor is fibro-cystic, that is, containing fluid so superficially placed as to yield the phenomenon of fluctuation. The uniformly solid tumors ought rarely to deceive, so far as to carry one

into the practical error of opening the abdomen. Uniformly solid ovarian tumors are so rare, whilst uniformly solid uterine tumors are so much the rule, that if I were disposed to be aphoristic, I would submit no aphorism with less hesitation than this: If you find a smooth, solid tumor, beware: it is uterine. If a solid tumor of the ovary be rare, a large solid tumor, so large as to give rise to questions of operating, may be said to be amongst the curiosities of pathology.

In seeking to determine whether a tumor be uterine, we must be governed greatly by what vaginal and rectal exploration teaches as to the condition of the uterus. The great point is to determine whether the tumor felt above the pubes is continuous or identical with the uterus. This is done by the immediate touch by finger *in vagina*, by mediate touch by sound *in utero*, separately and combined with palpation by hand outside on the abdomen. If, by these means we ascertain—1, that the uterine cavity much exceeds two and a half inches in length; 2, that the course of the uterine canal is tortuous (a flexible bougie, which will worm its way along a tortuous canal, is sometimes better than the metal sound); 3, that the body of the uterus is directed backwards; 4, that the bulk of the tumor moved by the hand outside communicates a continuous movement to the cervix, as felt by finger or sound—we may fairly infer that the tumor is uterine. This inference will be strengthened if the tumor be of very long standing; and if the patient have suffered from frequent metrorrhagia.

But it is right to declare frankly that we cannot always elicit these phenomena, although the tumor is fibroid; and that some of them, when elicited, are not absolute proof that the tumor is ovarian. I have pronounced a tumor to be ovarian, influenced by the apparent separate mobility of the uterus, in a case where the tumor proved to be uterine. This sign is very deceptive. The great bulk of the uterine tumor may be connected with the uterus by a comparatively narrow portion below. At this narrowed point the portion of uterus below it may easily move upon the great mass above, which is comparatively fixed by its volume and solidity. I think it may be affirmed with some confidence that a large abdominal tumor is uterine if we get a combination of the following conditions: 1, absence of the *facies ovariana*; metrorrhagia; solidity of the tumor; descent of any considerable mass into the pelvis; deviation of the os uteri; distortion of the lower part of the uterus; and especially if with the above, the sound travels to an abnormal distance. Or, in other cases, when the vaginal-portion is effaced, the os uteri forms the centre of a rounded hard mass resting on the pelvic brim.

It is not very uncommon to find a complication of fibroid of the uterus with ovarian tumor. In such a case we must carefully weigh the evidence showing that both organs are implicated.

An ovarian tumor of moderate size, especially if in great part solid or semisolid, may closely simulate a uterine fibroid, if there be great thickness of the abdominal wall. A thick mass of fat intervening between the examining hands and such a tumor will often effectually mask the two great distinctive features of an ovarian tumor, namely, fluctuation and irregularity of surface. We must depend upon careful examination of the uterus by the vagina, isolating, if possible, this organ from the tumor,

aided by abdominal palpation under chloroform, to establish a diagnosis. The *facies uterina* differs from the *facies ovariana*. The general health is often less affected in uterine tumor unless hemorrhage attend. Very deep sulci between masses of tumor, especially if these masses be hard, are more characteristic of fibroid tumors. Small marble-like tumors sessile or pedunculated on the main mass are strongly suggestive of fibroids.

Dr. C. C. Lee has collected nineteen cases of fibro-cystic tumor of the uterus; and has analyzed them, with the view of establishing grounds of diagnosis between it and ovarian tumor.<sup>1</sup> As proof of the difficulty of diagnosis, it is stated that in one only was the true nature of the tumor ascertained before operation. Koeberlé, however, thinks the diagnosis may be established by the following signs: 1. The discolored hue and dejected expression of the face, the so-called *facies uterina* of the patient. 2. The variable consistency of the tumor, as made out by abdominal palpation. 3. The results of tapping. If the trocar touch a fibrous spot in the tumor-wall, blood will flow; even when the cyst is reached the fluid never presents the clear viscid character of ovarian cystic fluid, but is either yellowish, thin, serous, and rich in lymph or cholesterin, or it is brown, muddy, sero-purulent, or bloody, and the tapping leaves only partial collapse. 4. The indurated or nodular feel of the tumor after tapping. 5. The uterine connections of the growth, as made out by vaginal uterine examination, by aid of the sound. The uterus is more displaced than in ovarian tumor.

The history, although liable to deceive, must be taken into account. The rate of development of ovarian tumors usually gives less than two years, whilst that of fibro-cystic tumors is generally much slower. Ovarian tumors begin early, uterine late. But the variations are numerous.

The fluctuation in fibro-cystic tumors is confined to certain regions, generally to the upper part, and the solid portions preponderate; whilst in ovarian tumors having solid elements, the fluctuating parts predominate, and the solid element is almost always at the lower part. The characters of the fluid drawn by aspiration may offer valuable aid.

We must, however, be prepared to find all the above signs giving, at best, ambiguous indications. The signs most common in fibro-cystic tumor may be present, or appear to be so, in ovarian tumors, and *vice versa*. Where doubt is unavoidable, error is excusable. Hence we are occasionally driven to the exploratory incision, and to the direct examination of the tumor. This gives another order of signs. If the tumor be uterine, the exposed mass is dark, vascular, thick, and frequently fasciculated with fibrous bands. If it be ovarian, the sac is usually pearly white, or blue and glistening. But these appearances again I have seen interchanged. More than this, even after removal from the body, tumors believed by the operator to be ovarian have turned out to be fibroid outgrowths from the body of the uterus, more or less pedunculated. Some of the largest tumors which have been the motive for laparotomy have been fibroid or fibro-cystic tumors of the uterus; and more than a hundred cases are on record where the abdomen has been opened with the object of removing an ovarian tumor, when the operator discovered that it was

<sup>1</sup> New York Journal, 1871.

uterine. The uterus may be enlarged from a collection of watery or mucous fluid, constituting *hydrometra*. There is a specimen in Guy's Museum described by Wilks, of a uterus as large as the gravid organ at seven months from this cause. Being of very slow development, not answering to the progress of pregnancy, of which state also the ordinary signs are wanting, such a case might simulate ovarian dropsy. This probability adds force to the rule to explore the uterus by sound in every possible case. *Hæmatometra* presents analogous conditions. When due to vaginal atresia, there is small likelihood of error. *Physometra* usually follows childbed; and the resonance ought to prevent error.

*e. Is there enlargement of the omentum and intestines?* At the climacteric age, a woman, falling off perhaps in health, notices with alarm that she is increasing in size. She fears that it is due to a growing tumor. The phantom-tumor or pseudocyesis of the climacteric period has been already discussed. We have now to eliminate fibroid and ovarian tumors. Where there is nothing but fat and inflated intestines, we may always exclude *large* fibroids and ovarian tumors by palpation and percussion. Resonance in front may be dulled, but still the sound is different from the dead sound returned on percussing over a solid or fluid tumor. The hands will sink in towards the spine, on firm pressure, especially if the abdominal muscles are made to relax under chloroform or under expiration. The sensation to the hands is doughy, not resisting. The condition of the uterus can commonly be determined by vaginal examination and by sound, so as to leave only the possibility of ovarian tumor to investigate. And here we come to the practical difficulty of excluding a *small* ovarian tumor. This may be buried in one iliac region, so much masked by surrounding fat, that neither by external nor by internal touch can we get at it so as to bring out distinctive characters. It may help us to remember that women who are storing up fat do not commonly have ovarian dropsy or pregnancy. These states usually cause emaciation. Some of the most difficult cases to diagnose are those of *malignant growths* from the omentum. They may attain enormous bulk. Sometimes they may be turned out after separating adhesions. I removed such a mass, weighing 28 lbs. The woman recovered; but another mass developed. This I removed in the following year. It weighed 22 lbs. She recovered from this operation also; but sank some months later from the development of fresh growths. These growths are generally of irregular shape; fluctuation is indistinct or wanting; and the aspirator-trocar draws nothing, excepting perhaps a few drops of blood. They are more likely to be extensively adherent than ovarian tumors.

When the uterus is fixed, by the matting together of the structures at the brim of the pelvis, whether with or without extensive ascites, the case is likely to be malignant.

*f. Is there enlargement of the liver, spleen, pancreas or kidney?*

Tumors of the stomach, liver, spleen, or pancreas may in most cases be eliminated by evidence showing that they grow from above downwards. This may generally be obtained by percussion. If dulness prevail from the ribs downwards, leaving an area of resonance below the tumor, that is, between its lower margin and the pelvis, the inference that the tumor is not of pelvic origin is nearly certain; and this probability is greatly