

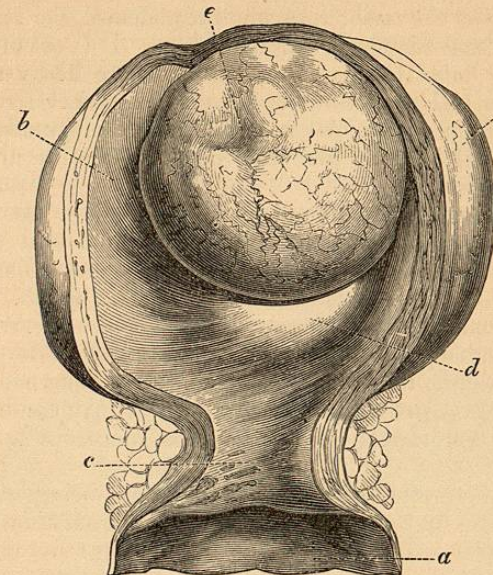
Mr. Hutchinson presented to the Path. Soc. (*Trans.* vol. viii.) a uterus, the seat of recurrent fibroid. A single woman, aged thirty-nine, had repeated floodings. The uterus was enlarged, os and cervix normal. The uterus enlarged rapidly; later a lobulated polypoid mass occupied the vagina connected with an intra-uterine growth. The discharge was very offensive; the patient's aspect resembled that of malignant disease. A portion of the mass was removed by the hand. The patient's state was very critical for a fortnight afterwards, masses of slough coming away. Then she recovered, and the uterus scarcely exceeded its normal size. But after some months of apparent good health flooding recurred, and the uterus was again found very large. Another attempt at enucleation was made by the hand. Again she recovered, the uterus returning to its ordinary size. Two or three months later the floodings returned, and a large growth was found in the uterus. It was removed by ligature, but she died in a fortnight. Every organ in the body was found healthy except the uterus and vagina. The uterus on section was found to contain a white soft growth, attached by a very broad basis to the whole of the fundus and posterior surface. The mucous lining of the cervix was healthy. The tumor grew far too rapidly for a fibrous tumor, was too soft, and too lobulated. Fibrous tumors, too, do not reproduce themselves. There were no other deposits in any organ of the body, although the disease had existed three years. Its history is like that of recurrent fibroids elsewhere. Bristowe, who reported on the tumor, confirms the opinion of Hutchinson. It did not present the characters of any of the forms of cancer usually met with; it was certainly not fibrous; there was no cancer-juice. The tumors were composed of the characteristic oat-shaped cells freely mingled with others of a flattened fibroid form, each containing a single nucleus, having within it several clearly defined nucleoli.

Mr. Callender describes (*Pathol. Trans.*, vol. ix.) a case of recurrent fibroid tumor of the uterus, with growths of a similar character in the pericardium, the lungs, and in the body of the sixth cervical vertebra. Partly by repeated operations, partly by sloughing of portions of the growth, considerable fragments were from time to time removed. The fragments removed presented the ordinary characters of recurrent fibroid tumor. Profuse hemorrhages occurred, portions of the tumor being discharged. This was her history for several years. The uterus at last increased greatly in size, being felt above the umbilicus, and a lobulated soft growth occupied the vagina, and was continuous with that which filled the interior of the womb. She died exhausted. The impression was that the operations did not retard the growth; the reproductive power was so great. The uterus contained a tumor continuous with one in the iliac fossa. Passing up from the pelvis, the lumbar glands were found infiltrated with the fibroid material.

Carswell figures (*Pathol. Anatomy*) an erectile tumor of the uterus. Fig. 156 "represents an erectile tumor of the uterus which gives rise to frequent and extensive hemorrhage. *a.* Vagina; *b.* Cavity of uterus greatly enlarged; *c.* A fibrous tumor lodged in the substance of the uterus, and projecting inwards, covered by the mucous membrane *d*; *e.* The erectile tumor rising above the surface of the uterus, covered by a

smooth, glossy membrane, and traversed by a multitude of vessels, from which the hemorrhage proceeded."

FIG. 156.



Erectile Tumor of the Uterus (Malignant?). (Half-size. Carswell.)

In the same work Carswell figures a specimen of atrophy of the uterus and ovaries from ossification of the arteries. Projecting in the cavity of the uterus is "a tumor composed of dilated veins and cellulo-fibrous tissue."

The Development and Decay of Fibroid Tumors.

1. *During the period of Growth.*—A fibroid tumor being like in constitution to the uterine muscular wall, growing in it and depending upon it for its existence and nutrition, may be expected to follow closely the conditions of its parent organ. Accordingly, it grows during pregnancy, and undergoes retrogression or involution when pregnancy is over; and sometimes involution being thus started passes into atrophy, and the tumor disappears altogether, as in cases narrated by Dr. Sedgwick,¹ Scanzoni, and others. Thus pregnancy may, in very exceptional cases, it is true, cure fibroid tumors. This process of complete absorption or atrophy has been unquestioned. It has been objected that the tumor was simply cast off unobserved. But since the uterus itself may vanish through atrophy, so *a fortiori*, may a fibroid tumor. The process, in most cases, no doubt is *fatty degeneration* the same as that which melts away the useless muscular tissue of the uterus. Lancereaux says the fatty transformation of fibroids is the most common. Virchow says it is per-

¹ St. Thomas's Hospital Reports.

haps constant. Klob expresses a similar opinion. Clinical observation will, I think, dictate a limit to this rather absolute doctrine.

They may *soften and become fluctuating*, œdematous. Cavities or cysts may form in them containing pus, blood, or serum. When these cysts are large, and the tumor rises into the abdomen, the tumor is called fibro-cystic, and may simulate ovarian disease. It is not often the pure fibroid which is liable to this state, but the more fleshy tumor, whose texture is looser and more continuous with the proper structure of the uterus. The fibroid may undergo inflammation, suppuration, and gangrene. This is also one of the ways in which fibroids are eliminated under pregnancy and childbed.

It has been supposed that fibroid polypi are liable to become converted into scirrhus or *cancer*. It can hardly be admitted that the abnormal muscular growth of which they are composed is more liable to such a change than is the normal muscular structure of the womb. A muscular fibre cannot be changed into cancer. It may, however, give place to it. It is quite possible that the cancer element may be developed in the substance of a uterine tumor, as it may be in the proper substance of the uterus; and that the activity of the new growth may cause the atrophy of the old, and the gradual substitution of a cancerous tumor for a benignant polypus.

Or the normal structure of the uterus or vagina being first the seat of cancer, the disease may spread and invade the fibrous tumor. Of this I have seen examples. In one case I removed a large fibroid or muscular tumor which showed no trace of malignant disease. The patient got apparently well; but two years later it was found that malignant disease had been developed in the uterus.

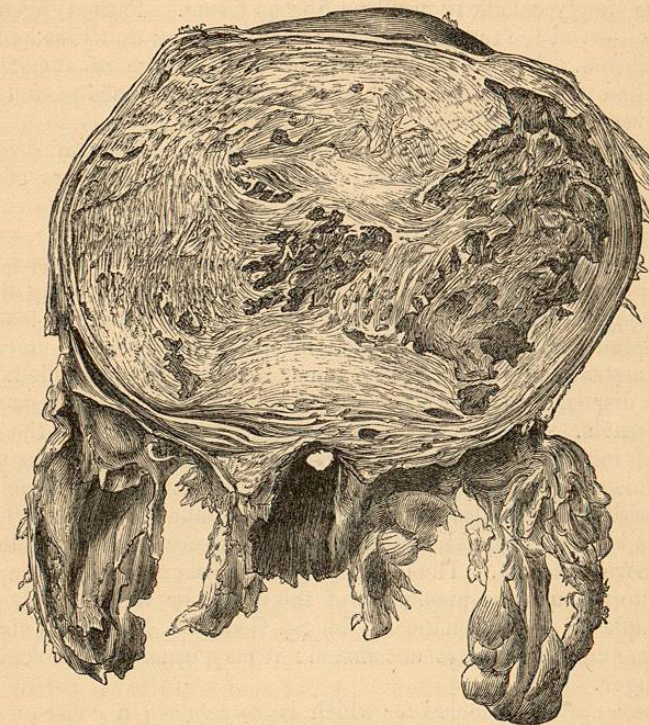
The following history by Drs. Benporath and Liebmann illustrates this question: A woman, aged forty-eight, had suffered from metrorrhagia, had had in early life several abortions, and in the latter years had never conceived. A tumor became manifest in the abdomen. After death a careful examination was made. There was a fibroid near the right Fallopian tube; another almost encircling the uterine cavity lower down; carcinoma of the upper part of the vagina. It resulted that the lower segment of the uterus was invaded by the progress of the vaginal cancer, and with it the fibroid tumors contained in its walls. The lower parts of the tumor were most affected, the upper parts, those most remote from the original seat of the cancer, were free. The case may be summed up as follows: Uterine fibroids possess no immunity from cancerous degeneration; but they are scarcely more prone to it than the proper uterine tissue.

2. *During the period of Retrogression.*—When the normal ovarian stimulus to uterine growth ceases at the climacteric, there is a tendency in fibroid tumors to undergo the like retrogression or senile involution or atrophy which seizes upon the uterus. They sometimes diminish in bulk. They generally tend to become inert, offending only by their bulk and mechanical interference with surrounding organs. But not seldom, uterine fibroid growing prolongs the period of uterine growth. Hence hemorrhages continue recurring with more or less periodicity until the age of fifty or even beyond.

Cretification.—In muscular tumors and polypi of long standing, the vessels often become very scanty, or disappear. Their entire structure sometimes undergoes an *earthy or bony degeneration*. In this condition the hemorrhages which had attended the earlier stages of their growth often cease. They seem to be removed by this change from the sphere of organic activity, and excite little or no irritation in the organs with which they are connected.

I examined the body of a lady who had died suddenly from heart-disease, at the age of about sixty. Thirty years previously she had suffered from repeated uterine hemorrhages, when she was thought by her physicians in Holland to be laboring under scirrhus uteri. I found one of the ovaries converted into bone; the other partly into cartilage

FIG. 157.



Ossified or Cretified Fibroid Tumor of Uterus (R. B.). (Half-size, St. Thomas's, G. G. 402.)

and partly bone. In the place of the uterus was an immense firm, fibrous tumor, partly converted into an osseous substance. This tumor had undoubtedly been the cause of the floodings she had experienced in early life.

This stony or bony conversion is not very uncommon. It especially affects the hard fibroid tumors. There are excellent examples in most of the hospital-museums of London. Fig. 157 is from a specimen in St. Thomas's.

The process of calcification may be manifested in two forms: one is peripheral incrustation, by which the tumor acquires a shell of calcareous matter; the other is, calcareous infiltration, the substance of the tumor being pervaded with the earthy material. This is found to be phosphate of lime and carbonate of lime. Virchow showed that by decalcifying these uterine stones one might bring back into evidence the muscular fibres. It is therefore to be inferred that the calcareous change chiefly attacks the connective tissue.

In St. Bartholomew's Museum is a specimen (No. 32.50) which affords clinical illustration of one feature in the history of calcification. "It is a large lobed fibrous tumor, spontaneously expelled from the uterus. The texture is softened and soaked with fluid, as if through partial decomposition. On its surface are numerous thin plates of bone-like substance, which seem to have been nearly separate while it decomposed. The plates are simply calcification of the fibrous tissue. Patient, aged forty-six, had observed the tumor for twenty years; during that time had borne many children. For many weeks prior to discharge of tumor, which was expelled with pains like those of labor, flakes of bones passed away. Her recovery was complete." (Catalogue.)

This source of bone must be borne in mind. By examination, the masses discharged may be distinguished from the foetal bones of extra-uterine gestations.

Effects of Fibroids upon the Uterus, surrounding Organs, and the System generally.—Let us first examine the *connection of fibroid tumors with the uterus*. The hard fibroids commonly have no continuity of tissue with the uterine substance. They are surrounded by a layer of loose connective tissue, and then by developed muscular tissue of the uterus disposed in a stratified manner. The tumor is therefore encapsuled. It is upon this disposition that the process of enucleation, spontaneous or surgical, depends. In some cases, however, it is presumed as the consequence of inflammation, the tumor contracts *adhesions with the uterine wall*. This may occur whilst the tumor is still intra-mural, attachments forming with the muscular wall in which it is imbedded. But when the tumor has become polypoid, and projects into the uterine cavity, adhesions become more frequent. Thus a tumor may be more or less completely adherent to the mucous membrane of the uterus or vagina. There is a fine example of vaginal adhesion in St. George's Museum (xiv. 43). The uterine adhesion is not uncommon; it may usually be broken down by the finger.

The source of the hemorrhage which is so common a consequence of fibroid tumors and polypi. It has been contended that the blood flows principally, if not exclusively, from the surface of the polypus. Lisfranc especially strenuously advocated this view. It has been urged in support, that the hemorrhage is observed to be immediately arrested upon the removal of the tumor, and even in many cases upon the application of a ligature. It has been pointed out that the pedicles of large polypi frequently carry bloodvessels of considerable size, that the investing membrane is highly vascular, and that it has been seen to pour out blood upon being injured. On the other hand, it has been urged that the real source of the blood is the mucous surface of the uterus. Whilst the particular facts urged in support of the view that the surface of the

polypus pours out the blood, admit of a complete solution by the theory that it is poured out by the uterus, there are also special reasons which support this latter opinion. It is observed that profuse hemorrhage attends very small polypi as well as those of large size; and it is difficult to imagine how the extensive and rapid losses of blood which often occur can escape from the surface of a tumor in many instances not larger than a small nut. Again, the hemorrhage mostly assumes the form of profuse menstruation; and it will not be contended that the ordinary menstrual flow comes from any other source than the uterus. Metrorrhagia may arise from any cause which sets up a preternatural action. The presence of a polypus is a cause of increased afflux of blood. It is difficult then to avoid the conclusion that excess of the ordinary menstrual discharge, occurring when a polypus is present, flows like the normal proportion from the womb. When the tumor or polypus is very large, almost the entire mucous membrane of the uterus may be protruded before it; that is, there is no mucous membrane but that investing the tumor. Why the hemorrhage ceases when the tumor is removed, is exactly why it ceases after the expulsion of the ovum in abortion. The developmental attraction of blood is at an end.

It has been observed that in some cases the menstrual flow is actually lessened.

Virchow suggests that fibrous bodies may possess a sort of *erectility* by virtue of which they may at any time be larger or smaller, harder or softer. This would depend upon the varying quantity of blood, and varying muscular action. It is certain that some tumors enlarge and soften at the menstrual epochs and during pregnancy. Some become *oedematous*; and it is by the absorption of the oedematous fluid that we may account for the occasional apparent diminution of these tumors under the treatment by ergot and other means.

Fibroids almost invariably cause *enlargement*, more or less *deformity*, and *displacement of the uterus*. They may produce every variety of flexion, and even inversion. By attracting an undue supply of blood, they often induce congestion; sometimes chronic endometritis; these conditions give rise to hypertrophy of the uterus generally, and to glandular irritation and out-growths in the cervix.

The disposition to neoplasms or out-growths where fibroid tumors exist, is very great. Thus we frequently find not only multiple tumors in the body of the uterus, but tumors of various kinds in the cervix as well. And it is not uncommon to find complications in the form of cystic disease of the ovaries, and dilatation with obstruction of the Fallopian tubes.

In St. Bartholomew's Museum is a specimen (No. 32.52) of a uterus, in the side wall of which is embedded a large fibrous tumor. The tumor has bent the uterus laterally, and so encroached upon its cavity, that the cervical portion was shut off from that within its body. The cavity of the uterus is greatly dilated; its walls are thinned; its mucous membrane was intensely vascular, and it was filled with pus.

Another specimen in the same museum (No. 32.13) shows retrograde dilatation of the uterus above the seat of constriction. It exhibits the obliteration of that portion of its cavity which is within the cervix. The

rest of its cavity is dilated. The extremities of the Fallopian tubes are adherent to the ovaries.

But in a considerable proportion of cases the cervical portion remains free from other than mechanical distortion. A small fibroid in the anterior wall of the body may cause anteflexion, one in the posterior wall retroflexion. A large tumor in the anterior wall may, however, push the fundus over backwards, producing retroflexion, and *vice versa*. If growing in the sides of the uterus, or indeed elsewhere, if they develop unequally they destroy the symmetry of the organ, may distort it in any conceivable manner, so that there is nothing in Nature more fantastic than the shapes which the uterus invaded by fibroid tumors may assume. The cervix itself, although generally free from tumor, may be twisted and distorted in the most extraordinary manner. It is often flattened out on the deformed body of the uterus; the course of its canal is made tortuous, and its calibre compressed or obliterated. The os uteri may be small or large. Sometimes it is very difficult or impossible to pass a sound along it, so devious and narrow is the canal.

The uterus impeded in its functions gives rise to the following symptoms: *dysmenorrhœa*, *dyspareunia*, and *sterility*. These are especially apt to occur when the body of the uterus is bent upon the cervix at a right or even an acute angle, constricting the os internum. In the event of pregnancy occurring, *abortion* is a very probable issue. Such cases may lead to profuse flooding. The uterine wall is unable to contract uniformly. The course to adopt is—1, to remove the ovum completely, after dilating the cervix, if necessary; 2, by swabbing the interior of the uterus with persulphate of iron or tincture of iodine.

Fibroids may cause *dragging* and *atrophy*. Thus Bristowe and Hutchinson (*Path. Trans.*, vol. viii.) report on a case of absence of the cavity of the uterus and extreme atrophy. Two tumors existed, and had become pedunculated, and it is evident that between them the uterus had been pulled out and attenuated. It is probable too that in this case, as in others, the tumors were at first surrounded by the substance of the uterus, and that as they became detached, they carried with them as a capsule a considerable portion of the uterine tissue, which has since wholly disappeared, and between these two processes, co-operating in the same direction, there can be no difficulty in understanding how the body of the womb should have been reduced to the remarkable condition in which it was found. Fibroids may even cause axial twisting of the uterus, as in a case related by Dr. E. Küster.¹ "An unmarried woman, aged thirty-four, who had suffered from dysmenorrhœa, died of diarrhœa. The body of the uterus was as large as a man's head, and presented several projections on its surface. Through the enlargement of the body of the uterus, the neck was enormously drawn out and twisted. It had undergone two and a half turns, so that the right ovary was turned to the left and forwards, and the anterior surface of the uterus was turned backwards. The cervical canal was almost closed; its walls were very thin, its length was ten centimetres. The cavity of the uterus was filled with blood."

¹ Beiträge zur Geburtskunde und Gynäkologie, 1870.

A submucous tumor even if not quite polypoid, may by pressure upon the opposite uterine wall cause *ulceration, perforation, and even rupture of the uterus*. Larcher relates the following case (*Arch. Gén. de Méd.*, 1867): "A woman was admitted into the Hôtel-Dieu with pain in the abdomen. After four days profuse bleeding set in. She refused examination. Two days later meteorism and peritonitis appeared, and she died. Section revealed diffuse peritonitis and adhesion of all the organs of the small pelvis. A polypus was found in the uterus, seated in the anterior wall near the isthmus. The posterior surface of the cervix was ulcerated, and at one point torn through, communicating with the cavity of the abdomen."

I have recorded a case (*Obstetrical Transactions*) in which a small tumor in the anterior wall of the uterus led to perforation into the bladder, owing to the pressure caused by the passage of the head in labor.

The *effects upon the surrounding organs* are those of *pressure* and consequent interference with their functions. If the uterus enlarged by tumors be retained in the pelvic cavity, and grow to the extent of compressing the surrounding parts against the unyielding walls of the pelvis, the results will be similar to those caused by retroversion of the gravid womb or a retro-uterine hæmatocele. But they come on more gradually. The uterus in its growth causes eccentric pressure. The *bladder*, at first irritated, is frequently excited to void itself, then, perhaps, retention of urine follows. Then may follow in retrograde or ascending order distension of the ureters, pelvis of kidney, hydronephrosis, and urinaemia. Intermitting retention of urine is occasionally noticed at menstrual periods. The *rectum* may exhibit signs of tenesmus, and constipation is very common. Pain and reflex irritation set up expulsive efforts in the uterus and abdominal muscles.

Complete obstruction may even be caused, and simulate most of the conditions of strangulated hernia. Dr. Peter Eade, of Norwich, commenting (*Lancet*, 1872) upon three cases of the kind, suggests that such cases might be relieved by Amussat's operation, and asks whether exploratory gastrotomy, with a view to the removal of the tumor, be worthy of serious consideration in the case of intestinal obstruction? If the obstruction be connected with movable sub-peritoneal tumors, as in one of Dr. Eade's cases, this proceeding would offer considerable hope of benefit. But where, as is most frequently the case, the obstructing tumors form part of the uterus, little good can be expected from gastrotomy, unless the uterus itself be removed. But regarding intestinal obstruction or strangulation from a broad surgical point of view, it may fairly be stated as a general proposition, that if no external hernia be found as the presumed seat of obstruction, search should be made for it by gastrotomy. Cases of internal strangulated hernia have been reported which justify this operation; and we may find constriction by fibrinous adhesions, which may be divided, or twisting of the bowel, or invagination, which may be released.

Pressure upon the sacral plexus may cause excruciating pain in the form of sciatica. This I have seen several times. Dr. G. H. Kidd relates an interesting example (*Dublin Med. Journ.*, 1872). The pain was relieved by wearing an air pessary to lift up the tumor. The tumor

ultimately completely disappeared. Dr. Kidd calls attention to the important clinical fact that these pressure effects are more or less intermittent. He explains this by remarking that the pressure is often greater at the menstrual epochs. He noticed in one case that sciatica was always increased at these times. He further observes that great increase of pressure arises from flatulent distension of the bowels. He has known pressure from above so caused to drive a tumor more firmly into the pelvis.

B. B. Browne, of Baltimore (*American Journal of Obstetrics*, 1877), describes a case in which *convulsions* and *coma* occurred whenever the tumor pressed upon the cervix and pelvis. There was œdema, retention of urine, but no albumen.

Pressure upon the vena cava or iliac veins may cause œdema of the legs, and if combined with septicæmia *phlegmasia dolens* may arise.

Large tumors growing in the abdominal cavity may produce mechanical effects similar to those resulting from large ovarian tumors. They may, although this seems rare, cause peritonitis and ascites, and adhesions resulting may lead to strangulation of the intestines. They may be the cause of laceration of the intestines by dragging, as under the influence of sudden shock or fall. And by mere bulk, they may so impede the action of the heart and lungs, as to bring about gradual asphyxia and exhaustion.

Pinault (*Bull. de la Soc. Anat.*, 1828), Neugebauer (1866), Duménil (1869), Loir (*Comptes rendus de la Soc. Anat.*, 1847), relate cases of fibroid tumors of the uterus *making their way through the abdominal walls*.

Retrograde disorder of the alimentary canal ensues from the rectal obstruction. Flatulence, various dyspeptic phenomena, blood-contamination from absorption of the products of decomposition of retained fecal matter—a condition for which I have proposed the term “copræmia”—ensue.

A time arrives when, if the tumor is not dislodged from the pelvis, the pressure becomes so great that the distress arising from pain and impeded function becomes intolerable; and the obstruction to the local circulation may be so complete, that gangrene of the vagina is caused. The bladder becomes congested, inflamed, the ureters and kidneys distended, and death may ensue from urinæmia.

We may sum up the dangers ensuing upon the presence of fibroid tumors in the uterus as follows, premising that in a large, but unknown proportion of cases, no ill consequence occurs: 1. *Hemorrhage*. This may be fatal. The hemorrhage is mostly recurrent, and, as in other cases of repeated hemorrhage, the system accommodates itself more or less to the losses, acquiring the power of rapidly regenerating blood. More often the hemorrhages prove injurious by degrading nutrition generally, by inducing 2, *Exhaustion*, under which the patient is liable to sink gradually or more quickly under the immediate effect of some secondary disease, to which the exhausted system is especially prone. 3. A not infrequent cause of death is *Peritonitis*. McClintock says “from his own experience the most fruitful source of danger is peritoneal, or pelvic inflammation.” The fatal attack may be induced by the giving way of the serous membrane over a fibrous tumor, which has undergone

the process of softening; or there may be escape of foul matter from the tumor into the peritoneum. *Ascites* occasionally complicates fibroid tumors, but not so frequently as it does ovarian tumors. Another mode in which not only peritonitis may occur, but 4, *Metritis* and *pycæmia*, is from partial decomposition of the tumor, or of the tissues forming its capsule. 5. *Pressure* impeding the functions of the bladder, kidneys, intestines, stomach, lungs, or heart, or causing mechanical lesions of these organs.

Symptoms and Diagnosis.—The symptoms are the expression of those features the history of which has been already discussed. They may be briefly summed up as follows: 1. Those which take their rise in the uterus itself. 2. Those which are the result of interference of the affected uterus on neighboring organs. 3. The remote or constitutional symptoms. 4. The physical or objective signs. The signs of the first three kinds are many of them common to other affections of the uterus or of neighboring structures. They can hardly obtain the importance of being diagnostic. Thus, pain and hemorrhage referred to the uterus, attend many other conditions. The pain is generally of spasmodic character; it is more common when the tumor projects into the uterine cavity, or towards its external surface; it is in these cases the evidence of contraction tending to cast out the tumor from its walls. It is not constant. Scanzoni observes that the spasmodic pain is greater in the case of intramural tumors than of polypi.

The hemorrhage varies greatly. Cruveilhier had noticed that it was less common when the tumor was subperitoneal. It is most common when it is submucous, and it is rarely absent when it is polypoid. It usually observes some degree of periodicity, that is, it takes the form of menorrhagia. But, in not a few cases, hemorrhage breaks out in the intermenstrual intervals; and in some of long standing, it becomes constant or nearly so, alternating at times with a sanious serous oozing likened to the green waters which follow labor.

Irritation or obstruction of the bowel or bladder, dorsal and sacral pain, dysmenorrhœa and dyspareunia, with or without hemorrhage, are common to retro-uterine hæmatocele, and retroversion of the uterus.

The remote signs, those referred to the nervous system, and those resulting from blood-impairment and disordered nutrition, are equally observed in various other pelvic disorders. We are then compelled to resort to physical exploration in order to trace these symptoms to their actual cause. Pain and hemorrhage must be regarded as “conditions indicating the necessity for examination.”

When examination is made by touch we become conscious that the uterus is altered in size, shape, position, and consistence. We then, by applying the various means at our disposal, try to assign these alterations to their true cause. Of the cases which most frequently lead to error some are external to the uterus; they deceive by concealing the uterus from observation. The moment we can detect the uterus and can determine its outline, we are at once in a position to exclude tumors in its substance. Such are retro-uterine hæmatocele, perimetric inflammatory effusion, ovarian tumors, accumulations in the rectum.

In some cases the source of error lies in conditions of the uterus itself.

Such are retroflexion, antelexion, and other deviations from the natural shape; enlargement from hyperplasia, of the uterus; pregnancy; malignant disease of the uterus.

The diagnosis of fibroid tumors flows in great measure from the consideration of their natural history, and of the effects they produce upon neighboring organs. It is, however, especially necessary to call attention to the signs brought out by physical exploration. The uterus is almost necessarily *increased in bulk*. This may be determined by vaginal touch. Poising the uterus on the tip of the finger we feel the increased weight. By combining abdominal palpation, we determine accurately the extent of the enlargement, measuring the organ between the two hands. We may often distinguish enlargement due to fibroid tumor from the enlargement due to pregnancy, hypertrophy or sub-involution, by observing the form of the uterus. In the latter cases the enlargement is uniform, the organ remains smooth on the outside, whilst tumors distort the contour, causing irregular bumps or protuberances, and these protuberances are often harder than the proper uterine structure.

Whilst the tumors are small, the *mobility* of the uterus is not much affected. But when they become large, *it may be much impaired or completely lost*. This is especially the case when the enlarged uterus is locked in the pelvis. This immobilization is distinguished from that produced by cancer by the os and cervix uteri being felt free from disease, by the absence of the other characteristic signs of cancer, and by the presence of the irregular nodosities on the fundus or body of the uterus, felt above the pubes. It is distinguished from the immobilization due to perimetric inflammation by the history of this latter affection; by the seat of the inflammatory deposits outside the uterus as ascertained especially by rectal touch.

Fibroid tumor of the posterior wall of the uterus producing retroflexion, or bulging of the posterior wall, is very likely to be mistaken for retro-uterine hæmatocele, or for simple retroflexion of the uterus. In all these cases a firm rounded mass is felt behind the cervix uteri apparently continuous with it. Combined rectal and abdominal palpation will help in the differentiation. But the sound gives the clearest evidence. If the sound penetrate in the normal axis of the uterus, the hand pressed in behind the symphysis will feel the body of the uterus impaled on the sound, and will make it clear that the mass felt behind the cervix is something else. Retroflexion is also determined by the sound being directed backwards; and simple retroflexion is made evident by our being able to lift up the fundus of the uterus, thus removing the apparent tumor. This can rarely be done if the apparent tumor be really a fibroid. If, when the sound is in the uterus, the contour of the body be explored by the finger or hand in the rectum, the presence of tumors may be made out with considerable probability by the irregular knobbed projections they produce.

Anteversión of the uterus may be distinguished by similar tests.

When tumors are of large size, especially if fluctuation can be made out in any part, the risk of confounding them with ovarian tumors is great. This point has been discussed when studying the diagnosis of ovarian tumors. One of the most characteristic marks of distinction is brought

out by the sound. By the use of this instrument and by the finger, we may generally in the case of ovarian tumors determine that the uterus is of normal size, and move it about separately from the tumor; and *vice versa*, moving the tumor about by the hand applied to it on the abdomen we find that no movement is imparted to the uterus. But great caution is necessary in trusting to these manœuvres. If the sound penetrate much beyond the normal length, the probability that the elongation of the uterine cavity is due to fibroid tumors is very great. The best sound to use in these cases is the whalebone probe, Fig. 44, p. 147. This will follow the sinuosities of the uterine cavities without danger of injuring the uterine wall.

The diagnosis of retro-uterine hæmatocele, perimetric inflammation, and ovarian tumors has been carefully discussed in the chapters treating of these subjects. The chief means of distinction consist of careful palpation, aided by the sound, so as to define the size and position of the uterus, and to isolate it from the extra-uterine tumefaction. In uterine fibroid the uterus, unless jammed in the pelvis, generally retains some degree of mobility; and when immovable from locking in the pelvis, the cervix is generally distorted, and the history is distinctive. In perimetric deposit there is a history of inflammation dating back to labor, abortion, or other tolerably defined event; whereas in fibroid the history is less defined, more often associated with menorrhagia, and of longer standing.

I have known a fibrous tumor in the bladder simulating fibroid in the anterior wall of the uterus or antelexion. The sound *in utero* and the catheter made the case clear.

McClintock points out that, to distinguish an ovarian tumor from uterine tumor, the ulnar edge of the hand should be pressed down above the pubes. If the tumor be ovarian, the edge of the hand can be passed down deeply between the tumor and the pubes. But where the tumor is uterine the hand is resisted, and cannot be sunk to anything like the same extent.

Palpation and the sound can also almost always be relied upon to distinguish flexions of the uterus. The removal of the tumor by restoring the uterus to its normal position by the sound is distinctive of flexions. The condition most likely to be overlooked is that where flexion is complicated with a tumor. In this there is generally more or less marked irregularity in the shape of the body of the uterus. Bumps or projections may be felt on its peritoneal surface or projecting into its cavity; and the size will often be greater than is usual in flexion or simple hyperplasia. If, in addition, the cervix be twisted, flattened, or otherwise distorted, the probability of the existence of fibroid tumors is greatly enhanced.

The diagnosis from pregnancy is a most important point to make out. Women, the subjects of tumor, may think themselves, or be thought by others, to be pregnant. In pregnancy, the enlargement of the uterus is uniform, thus being in contrast with the often irregular contour and hardness of the uterine fibroid. The speculum is not of much value in giving characteristic signs of fibroid; but it is of great value in giving presumptive evidence of pregnancy; and thus in leading us to prosecute diagnosis in this direction. A violet coloration of the vagina and os