

even the radical mastoid operation, though indicated, would give little advantage. Such cases are difficult and most dangerous. The superior petrosal sinus has rarely been injured. In the tympano-mastoid exenteration the digastric groove or the incisura mastoidea of Koerner may be of great aid. At the anterior part of the digastric or mastoid groove is the stylo-mastoid foramen and still more anterior the styloid process within which lies the jugular bulb. From an operative point of view, Dr. Wales would call the digastric groove the digastric ridge. The digastric ridge can be clearly shown in every mastoid operation and indicates the depth of the facial nerve. The position of the facial nerve is known on the floor of the aditus ad antrum and the mastoid ridge indicates the position of the facial nerve near the stylo-mastoid foramen. There are three known points, therefore, to orient the descending or third portion of the facial nerve: First, the aditus ad antrum, and we may also see the external lateral or tympano-mastoid, semi-circular canal; second, the digastric ridge, which is brought into view with the chisel, gouge or curette, and third, the posterior wall of the external auditory canal. Another aid, which was first mentioned by Trautmann, is the fact that as the facial canal is approached in chiseling the facial ridge, there may be spurting of the branches of the stylo-mastoid artery. It is a warning that one is close to the facial nerve.

Dr. B. A. RANDALL, Philadelphia, said that his study of nearly two thousand temporal bones had revealed no rule derived from the externals of the bone or of the entire skull, which can afford reliable indications as to what may be expected in regard to the inner structure. The sulcus is usually larger on the right side, although not necessarily more exposed to injury; and in the brachycephalic skull it is more superficial, but little more vulnerable than in the slab-sided negroid type. Now that we feel it so needful to scrutinize the dura in the sigmoid sulcus, and the middle cerebral fossa, on the slightest suspicion of disease of the inner table, our concern as to the exact relations of these cavities is less, since cautious operation ought not to wound them in exposing them.

One essential idea as to the temporal bone, Dr. Randall said, is too often lost sight of, that is, its osseous conformation is secondary to the form of the labyrinth and facial nerve within it, and that these prime essentials of the region are almost invariable in all cases and at all ages. The temporal bone is a mere primitive group of cartilaginous centers when these nerve structures are practically full-formed, which attain full size at birth and are not known to undergo further enlargement.

Therefore, the discussion as to the variability of location of the facial canal and labyrinth is based on reference, not to the fixed points of the skull, but to the varying external landmarks, which need not so much concern us. It is easy, he said, in every case to determine with close approximation the position of the oval window. Immediately above this in almost horizontal course passes the facial canal to make a turn abrupt rather than gentle, and to descend in an almost absolutely vertical line to the stylo-mastoid foramen, which is also easily defined in every temporal bone. Whatever the dimensions and configuration of the outer parts, whether the auditory canal is exactly transverse or is extremely oblique in its outward and forward course, can be determined with reference to these fixed points of the skull, such as the vertical plane and the horizontal plane, and need not disturb us at all in determining the proper location of the invariable structures.

Dr. Randall protested against the tendency to hold in a wrong position the specimens seen in book illustrations. An admirable picture by Politzer gives a section of the parts with the facial canal laid open, and what is said about the nerve is apparently justified, until the bone is placed in its natural position, when it is seen that the facial canal is vertical and the other parts oblique.

[NOTE: IN ADDITION TO THIS DISCUSSION, THE WHOLE SUBJECT OF MIDDLE EAR DISEASE RECEIVED A GENERAL DISCUSSION WHICH WILL FOLLOW LATER.]

PARASITIC UTERINE MYOMATA.*

THOMAS S. CULLEN, M.D.

BALTIMORE.

By this term we mean myomata that have for some reason become partially or almost completely weaned away from the uterus and receive their main blood supply from another source.

Uterine myomata, while primarily getting their entire nourishment from the uterus, may in time derive the greater part of it from: 1, The omentum; 2, large or small bowel; 3, bladder; 4, mesenteric vessels; 5, Fallopian tube; or from several sources at the same time. We are here chiefly interested in the rôle that the omentum plays where the myoma gradually changes its source of blood supply. The following pages will show beyond peradventure that the omentum is the guardian of the abdominal organs. In many cases where myomata exist the omental adhesions are associated with dense pelvic adhesions or with pus tubes. Here it is perfectly natural that the omentum should become firmly ad-

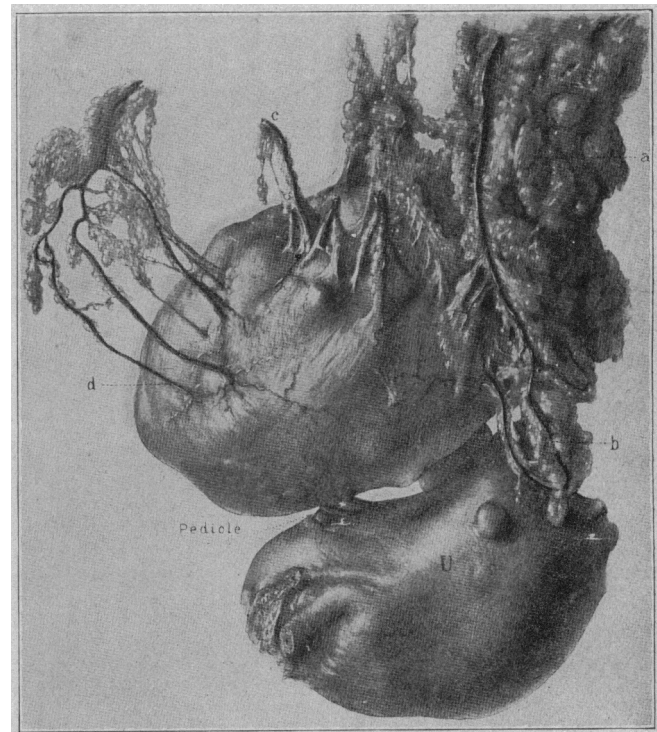


Fig. 1.—The gradual disappearance of omental fat when the omentum sends many vessels to a parasitic myoma (Path. 7925).

The uterus is about twice natural size and contains several small myomata. Attached to its anterior surface by a short slender pedicle is a slightly lobulated myoma and attached to the myoma over a wide area is omentum. At *a* the omental fat still presents the usual appearance. At *b* there is atrophy of the fat and the vessels stand out clearly. At *c* there is still further atrophy of the omentum, as only immediately around the vessels does the fat still persist. At *d* all semblance of fat has disappeared, and we see the omental vessels spreading out over the surface of the tumor or plunging directly into the depth.

herent. We are interested chiefly in that group of cases where the tubes and ovaries are comparatively normal and offer no particular incentive for the omental adhesions, and yet where for some reason the omentum manifests a certain affinity for the subperitoneal and usually pedunculated nodule, becomes adherent to it and soon furnishes a large part of its sustenance. Sometimes only a few vessels pass from the omentum to the myoma. As

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the pedicle of the tumor becomes smaller and its original source of nourishment diminishes, the omentum sends in more and more vessels. These vessels may spread out over the surface or divide into smaller branches and then enter the tumor, or they may plunge at once into the depth. As a rule, we have found large arteries each accompanied by two veins. The veins in some instances reach tremendous proportions. In one case, for example, some of them were more than 1 cm. in diameter and looked like small snakes.

CHANGES IN THE OMENTUM.

The function of the omentum can be most beautifully followed in these cases. If the omentum be called on for a small blood supply a few vessels are at once sent in, and but little change is noted in the omentum, but where the tumor is large and much is required of the omentum then the vessels rapidly increase in size and the omental fat gradually disappears. The first change noted is that the vessels in the vicinity of the tumor stand out clearly and that the tissue between the vessels is becoming rarified (Fig. 1). Later the vessels near the tumor are merely supported by the peritoneal folds of the omentum. The fat continues to be absorbed until little or no trace of omentum remains, and the vessels are only recognized as omental on account of their relation to the transverse colon. This is strikingly well shown in one of our cases, where a small fringe of fat 1 cm. broad and lying against the transverse colon was all that remained of the omental adipose tissue (Fig. 3). The omental vessels seem to have an unlimited activity; for instance, in one of our cases where a very large myoma with a small pedicle existed, not only was there a liberal supply of omental nourishment to the upper surface of the tumor, but the omentum sent out a bunch of vessels into the lower pole of the tumor. These vessels formed a cord 6 cm. in diameter. The vessels were held together by peritoneum, but were free, the only fixed points being their points of origin at the transverse colon and their disappearance into the lower end of the tumor. At operation we lifted this cord up, completely encircling it with the hand. It looked just like a bunch of small snakes. One isolated omental vessel lay absolutely free for a distance of 18 cm. The function of the omentum is certainly marvelous, as was noted in one of our cases. Here the subperitoneal tumor weighed 89 pounds and was attached to the uterus by a very small pedicle, the chief nourishment coming from the omentum.

DILATED LYMPHATICS IN THE OMENTUM.

Where large myomata exist dilated lymphatics are often found in the broad ligament. It is but natural that with the increased activity of the omentum its lymphatics also should be increased in size. In one of our cases we found marked dilatation in the broad ligament lymphatics, and coursing down from the omentum, which was densely adherent to the pedunculated myoma, were markedly dilated and tortuous lymph channels. In another case the omentum, which was rapidly losing its fat, presenting here and there oval clear spaces where even the peritoneum had disappeared, a large tortuous lymph channel was clearly seen coursing down the omentum (Fig. 2).

CAUSES OF PARASITIC MYOMATA.

The cause seems inherent in myomata and not in the surrounding organs. The uterus is naturally trying to get rid of its interstitial nodules and they consequently become submucous and subperitoneal. If subperitoneal

then with the continued uterine contraction they gradually become pedunculated and finally the mere weight of the nodule, making traction on the pedicle, will still further attenuate it. With the diminished blood supply these nodules are usually prone to degenerate, and often show hyaline degeneration or necrosis. The peritoneal surface evidently develops a slight roughening and the omentum at once becomes adherent.

If this reasoning be true, then we would naturally expect the part of the tumor farthest away from the pedicle to suffer first, and a reference to our cases has shown this to be true. The omentum appears to be fulfilling its normal useful function of guarding other abdominal organs from danger. If the omentum does not furnish the myoma with the necessary nourishment then

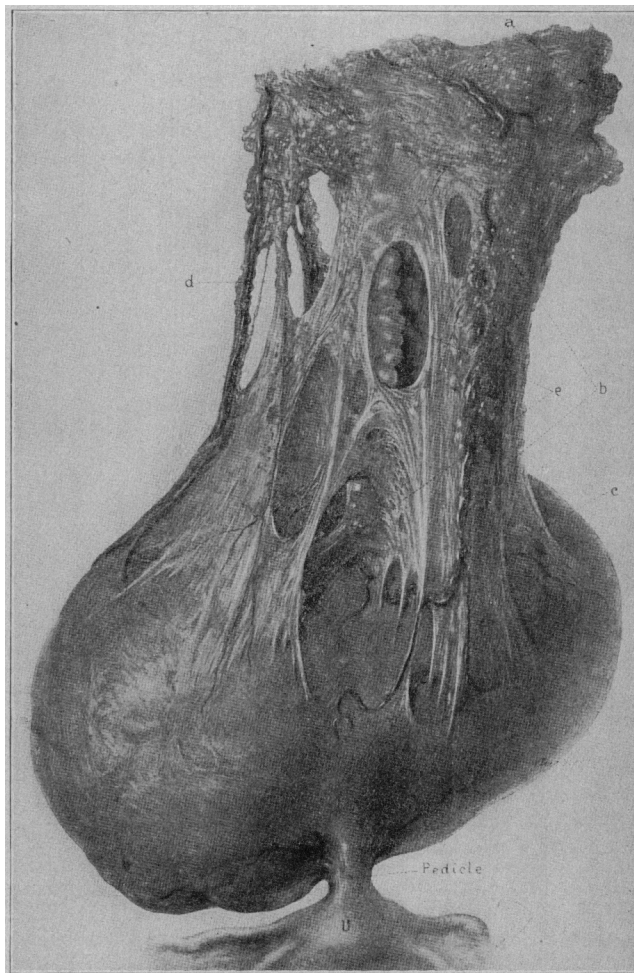


Fig. 2.—Parasitic myoma receiving a large blood supply from the omentum. Partial atrophy of the omental fat (Gyn. 7220).

The sketch was made immediately after operation. The uterus is normal in size. Attached to the fundus by a short slender pedicle is a myoma 19x14 cm. Covering the entire upper surface of the tumor are omental adhesions, and as seen from the pathologic report the greater part of the myoma had undergone hyaline and cystic degeneration.

The picture well depicts the gradual atrophy of the adipose tissue that follows when many omental vessels are furnished a tumor. At *a* normal omentum is seen, while at *b* the blood vessel has lost its adipose covering and stands out clearly. In the lower part of the omentum all trace of fat has disappeared, *c*, and nothing but the peritoneal layers of omentum and the vessels remain. At *d* the vessel is very clearly seen. At numerous points even the peritoneum is giving way, clear spaces resulting. In one of these a large tortuous vessel, *e*, filled with clear fluid, is seen. It is a markedly dilated lymph vessel.

the myoma will either develop an abscess in its interior and open into the intestine; for example, as in one of our cases, or it will call on the intestines or bladder for sustenance.

TECHNIC IN PRESENCE OF OMENTAL ADHESIONS.

Naturally the first thing to do after opening the abdomen will be to control the omental vessels. We always make it a point to tie off the omental vessels twice on the proximal and once on the distal or tumor side. These vessels are so delicate and tear so easily that we invariably tie instead of clamping and then tying. The mere weight of the artery forceps is at times sufficient to tear them and tremendous hemorrhage follows.

It is of the greatest importance always to tie under sight, consequently the incision must be sufficiently long to enable the operator to see all the vessels clearly. Where the omental adhesions extend over a wide area we gradually lengthen the incision as it is found necessary, never attempting to liberate adhesions far out under the abdominal wall, as they may contain large veins or arteries.

In one case where the tumor weighed 89 pounds these precautions were carefully observed, and yet so intimately was the tumor everywhere attached that notwithstanding our care a small piece of liver came away

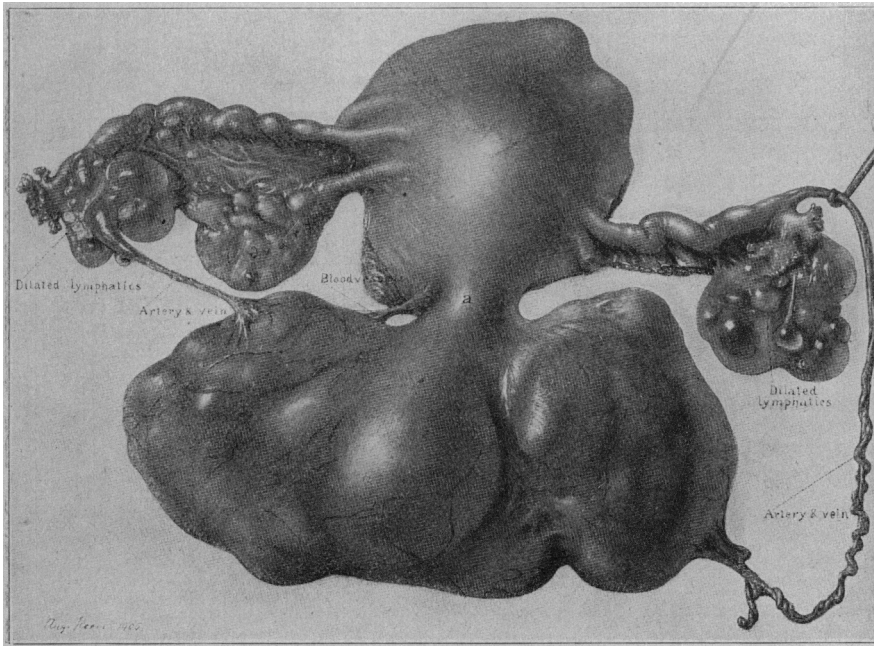


Fig. 4.—A partially parasitic myoma receiving part of its nourishment from the Fallopian tubes (Church Home and Infirmary No. 495).

The uterus contains several interstitial myomata. Attached to the posterior surface of the uterus by a short pedicle is a broad lobulated myoma. On the left side an artery and vein pass from the outer end of the tube to the anterior surface of the tumor. The branches of the artery spread out over the tumor. On the right side is what might be termed an unnecessarily long adventitious artery passing from the outer end of the tube to the posterior surface of the tumor, where it plunges into the depth. The accompanying vein clings like a vine to the artery, taking a very tortuous course. The fimbriated ends of both tubes are patent. The left ovary is normal. The right was not removed. The cystic spaces near the outer ends of both tubes seemed to be dilated lymph spaces. There was no evidence of pelvic peritonitis.

The further clinical history in such a case where operation is not undertaken would be of great interest. The pedicle would naturally become thinner and thinner until finally connection with the uterus would be severed. The tubal vessels would in the meantime all have materially increased in size. With the entire weight of the tumor now on the arteries and veins any misstep or jolting might be sufficient to rupture one or both of the vessels and fatal hemorrhage would speedily ensue.

with the tumor. With the careful and methodical tying of omental vessels even the largest tumors may often be removed with the loss of not over two ounces of blood.

ASCITIC FLUID ACCOMPANYING UTERINE MYOMATA.

Ascitic fluid is frequently associated with fibroma of the ovary, but rarely is there any appreciable amount with uterine myomata. We have had seven cases in which considerable ascitic fluid was detected at operation.

In Gyn. No. 9786, where the rounded myomatous tumor reached to within 5 cm. of the umbilicus, the abdomen contained 200 c.c. of free fluid. A glance at the history will show, however, that other factors were in all probability responsible for the ascites. The patient had a loud apical systolic murmur. There was marked edema of the feet and ankles, and the patient's hemoglobin, on her admission, was only 20 per cent., but reached 43 per cent. just before the operation.

In Case 6274 the uterus contained several subperitoneal myomata and was densely adherent. About three months before operation 1,550 c.c. of fluid had been aspirated from one pleural cavity. About eleven days prior to the operation 8,050 c.c. of ascitic fluid were withdrawn from the abdomen. In this case the cardiac lesion and the accompanying nephritis were probably responsible for the accumulation of ascitic fluid.

The presence of free fluid in the abdomen in five of our cases was undoubtedly due to the tumor and not to any constitutional impairment.

In Case 12155 a large pedunculated myoma had made a three-quarter turn on itself and the omentum was adherent over an area 14 cm. in extent. Some of its vessels entering the tumor were not 1 mm. in diameter. The abdomen in this case contained two ounces of clear yellow serum.

In Case 6418 the subperitoneal myoma weighed 29 pounds, and the abdomen contained 500 c.c. of ascitic fluid.

In Case 3387, where a partially parasitic myoma existed, marked ascites was present, seven liters of free fluid being found.

In Gyn. 1383 one-half of the omentum was densely adherent to the tumor and the abdomen contained 14,500 c.c. of straw-colored fluid and about 2,000 c.c. of clear jelly-like material that was scooped out with the hand. The urine contained albumin but no casts. With removal of the tumor the albumin disappeared.

Undoubtedly, one of the most remarkable cases of the intimate association of uterine myomata and extensive ascites is furnished by Case P., which I reported in detail in *THE JOURNAL of the American Medical Association* Nov. 19, 1904 (Fig. 3) In this case the subperitoneal myoma was almost completely weaned away from the uterus and received its chief blood supply from the posterior surface of the bladder and

from tremendous omental vessels. The abdomen contained 51 liters of clear ascitic fluid.

CAUSES OF THE ASCITIC FLUID.

This fluid is clear, straw colored and usually limpid, but may coagulate, forming a clear, jelly-like mass, as has been noted.

As previously mentioned, fibromata of the ovary are usually accompanied by ascitic fluid. Here the large

vessels in the loose pedicle become twisted, causing a transudation of serum. That the fibroma is undoubtedly responsible for the fluid is clearly proved by the total absence of free abdominal fluid after removal of the tumor.

In four of our cases the condition has been analogous. The myomata have been pedunculated and have received a large part of their blood supply from the omentum. Partial rotation of the tumor with twisting of the vessels has from time to time occurred and transudation of serum into the abdomen was the natural result.

On examination of the specimen from the case where 51 liters of ascitic fluid were present (Fig. 3), it will be noted that the myoma was attached by an exceedingly slender pedicle, and that a lateral movement of the patient was undoubtedly accompanied by partial twisting

ing into the anterior surface of the myoma was a small artery from the left tube and into the posterior surface of the tumor a large artery from the right tube. This artery was very long and lay perfectly free in the abdomen. Coiled around it was the accompanying vein, as is illustrated in Figure 4. There were no omental adhesions.

The fimbriated ends of both tubes were normal, hence it is at first glance difficult to explain how the tubal vessels ever reached the myoma. When the myoma formed an integral part of the uterus delicate adhesions have evidently formed between the outer ends of the tubes and the myoma, and as the myoma became more and more pedunculated the uterine blood supply diminished and the tubes gradually sent in vessels to the myoma through the tubal adhesions.

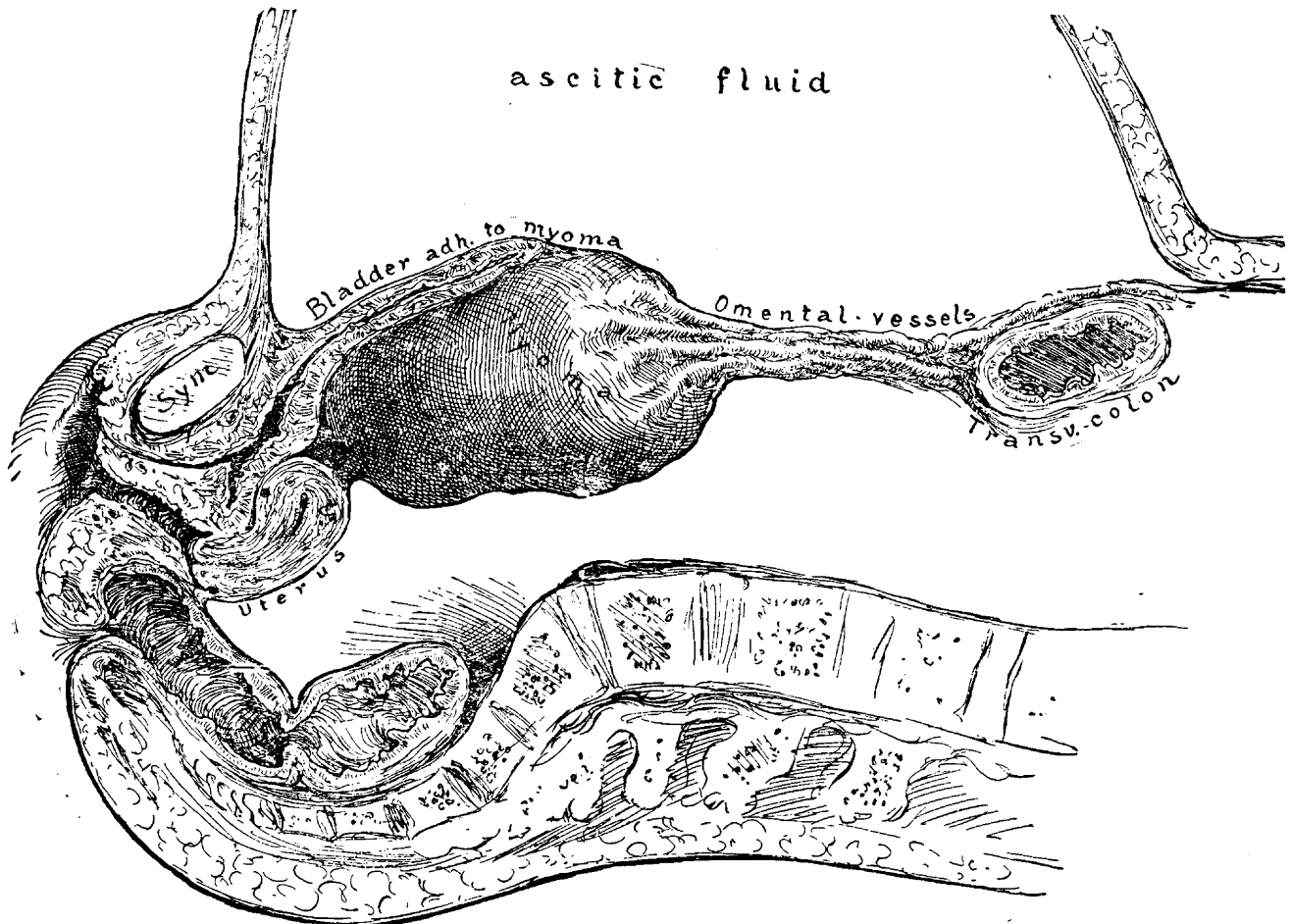


Fig. 3.—A partially parasitic uterine myoma associated with 51 liters of ascitic fluid. Attached to the fundus by a narrow pedicle is a subperitoneal myoma. Plunging into the edge of the myoma are the omental vessels. The omental fat has almost entirely disappeared. The myoma is intimately blended with the posterior surface of the bladder, from which it receives considerable nourishment. The abdomen is markedly distended with ascitic fluid. The small intestines were effectually held back by the tumor and the omental vessels.

of the tumor, shutting off the blood supply of the enormous omental vessels and favoring the pouring out of serum. It is now four and one-half years since the tumor was removed, and although the abdomen prior to operation contained 51 liters of fluid, there has never been a sign of ascites since then.

A PARTIALLY PARASITIC MYOMA RECEIVING PART OF ITS BLOOD SUPPLY FROM THE FALLOPIAN TUBES.

In this case the uterus was slightly enlarged and contained several small myomatous nodules. Projecting from the posterior surface was a broad lobulated subperitoneal myoma attached by a small pedicle. Pass-

From a clinical standpoint the case is particularly interesting, because if the pedicle had become still more attenuated and had been finally severed then the myoma would have been entirely supported by the large tubal vessels, and any sudden jolting on the part of the patient might readily have caused a rupture of one of the adventitious vessels and fatal hemorrhage have followed.

PARASITIC MYOMA AT PELVIC BRIM, RECEIVING BLOOD SUPPLY FROM SUPERIOR MESENTERIC VESSELS, PERITONEUM AND APPENDIX ADHESIONS.

This is the only case in our series where the myoma was entirely separate from the uterus. It lay just above

the pelvic brim and great care had to be exercised during its removal to avoid injury of the ureter and the neighboring vessels. The nourishment appeared to come from the arteries supplying the small bowel.

In this case the uterus was about three times the natural size, contained several myomata, and the appearance at operation indicated that the myoma originated in the uterus and had later engrafted itself on to the tissue at the pelvic brim.

ADVENTITIOUS INTESTINAL VESSELS NOURISHING UTERINE MYOMATA.

Uterine myomata, whether complicated with pathologic lesions in the appendages or not, are prone to develop adhesions and naturally where adhesions exist the intestines may be implicated. As a rule, these adhesions consist chiefly of fibrous tissue, but should the uterine nourishment to the myoma diminish then arteries will occasionally be sent from the intestines to the myoma along the already existing adhesions.

In the accompanying group we depict only the most pronounced cases.

In Case 6324 a large pedunculated myoma sprang from the posterior surface of the uterus and attached to over half the anterior surface were dense intestinal adhesions containing many blood vessels. The intestines furnished a liberal blood supply to the myoma.

In Case 9027 a multinodular myomatous uterus received much nourishment from the omental vessels. The intestines were adherent to one of the tumors. These adhesions consisted almost entirely of blood vessels. The main tumor in this case weighed 29 pounds.

The multinodular myomatous uterus in Case 6774 was wedged in the pelvis and fixed by adhesions. The sigmoid flexure was densely adherent to the uterus and furnished the tumor with large adventitious vessels.

In Case 7226 the patient was in a precarious condition due to partial intestinal obstruction from the adherent multinodular myomatous uterus. One of the pedunculated myomata was becoming strangulated through torsion of the pedicle. On exposure the sigmoid flexure was found adherent to the tumor and sent numerous well-developed vessels to the myoma.

In some instances the relation between the pedunculated myoma and the intestine becomes an intimate one, so that the myoma undergoes degeneration with cavity formation. An opening may be established between the cavernous myoma and the intestine. Such a condition existed in Case 9078. The pedunculated myoma received part of its nourishment from the omentum, part from the uterus and the remainder from the cecum. A direct communication existed between the interior of the degenerated myoma and the lumen of the cecum.

An even more advanced case somewhat similar in character came under the care of my friend, Dr. J. Mason Hundley, of the University of Maryland. The patient had been under the observation of another physician for over two years and a diagnosis of uterine myoma was made. At operation a uterus practically normal in size was found. It contained a small subperitoneal myoma. Filling the pelvis was a parasitic cystic myoma which received its entire nourishment from the small bowel. It had a broken-down cavity in its center. This communicated directly with the lumen of the gut, allowing the free passage of fecal matter from the bowel into the parasitic nodule. The myoma was attached to the uterus by a few slender adhesions. Such a condition as this is exceedingly rare, and yet the possibility of such a serious complication should not be overlooked.

ADVENTITIOUS BLADDER VESSELS NOURISHING UTERINE MYOMATA.

One of the first questions the surgeon asks before making an abdominal incision when a myomatous uterus exists is, Is the bladder high up? A knowledge of the dislocation of the bladder is of great importance to the surgeon, as he might otherwise open the bladder while making the abdominal incision. In our experience only five myomata derived any appreciable amount of nourishment from the bladder.

In Case 12194 a large multinodular uterus was present. The ovarian and uterine blood vessels were greatly distended. Rising from the anterior part of the uterus was a myoma with little or no uterine attachment. It apparently derived its blood supply from the tissue surrounding the bladder.

In Case 7739 a tumor filled almost the entire abdominal cavity. Much nourishment was furnished by the omentum, but a portion was contributed by very vascular adhesions from the bladder, anterior and left lateral abdominal walls.

The bladder in Case 3842 was so intimately attached to the tumor that a piece 1x6 cm. was excised with the growth. In this case omental and intestinal adhesions also existed.

Probably the most extensive vesical blood supply to a myoma that one may encounter was noted in Case P. Here the bladder was drawn high up in the abdomen, and from its posterior surface many large and tortuous vessels passed to the tumor.

A reference to Case 5784 also showed a bladder supplying its quota of blood to the myomatous uterus. Here there were large tortuous vessels emerging from the pelvis and entering the tumor.

In Case 6915 the bladder also apparently supplied many vessels to the enlarged uterus.

MYOMATA EXTRUDED FROM THE UTERUS AND LYING FREE IN THE BROAD LIGAMENT.

In the foregoing pages we have described subperitoneal myomata that have become partially or completely separated from the uterus. Occasionally a myoma that has extruded into the broad ligament loses its connection with the uterus and receives a meager blood supply from the tissue in which it lies.

Gyn. 9674 was a very good example of such a condition. On opening the abdomen the uterus was found in retroposition. There were a few adhesions about the left appendages. Beneath the round ligament and in the broad ligament was a hard tumor the size of a small egg. It was slightly movable. The peritoneum was incised, the tumor shelled out and the hole left behind closed with catgut. The myoma in the broad ligament apparently had no connection with the ligament itself or with the uterus.

DISCUSSION.

Dr. I. S. Stone, Washington, D. C., stated that his experience with tumors of this variety was like that of Dr. Cullen. He found that the omental vessels supply the greater amount of nutrition. It is very singular, he said, that these tumors have frequently been overlooked. A few years ago he wrote a paper on this subject, the first to appear in America. (Trans. Amer. Gyn. Soc., 1898, p. 411, "Migrant Tumors of the Uterus and Ovary.") In the report of one of the cases (p. 415) is contained an allusion to the omental changes which have been mentioned by Dr. Cullen. Dr. Stone considers this a very important subject, one of which surgeons should have accurate knowledge. When a subperitoneal fibroid makes its exit from the uterus it may not always reach the peritoneal cavity. He

has reported two cases where the tumor escaped through the broad ligament into the retroperitoneal space. (Trans. So. Surg. and Gyn. Soc., 1905, p. 128.) The largest of these tumors weighed 18 pounds, and was entirely independent of vascular connection with the uterus. It undoubtedly was of uterine origin because below the larger fibroid existed other fibroids which had been enucleated from the uterus through the broad ligament and had found their way also behind the peritoneum.

DR. H. J. BOLDT, New York, felt that Dr. Cullen did not lay sufficient stress on the practical side of dealing with this class of tumors in the tying off of the blood vessels. He does not believe that one should ever undertake to operate in this class of tumors until the blood vessels have been tied off. Too much stress can not be laid on the necessity of letting the adhesions alone until the blood supply has been dealt with. Dr. Boldt claimed that this class of tumors, though rare, does occur, and as Dr. Cullen has shown, the fat in the omentum disappears to a greater or less extent. In one class of tumors developing in the folds of the broad ligament the blood supply is rather meager and the tumors are disposed of easily.

DR. C. C. FREDERICK, Buffalo, recalled having seen three or four large fibroids of the uterus which started subperitoneally and had made adhesions to the omentum. He appreciated the force of Dr. Cullen's remarks concerning the necessity of securing the blood supply of these growths before removal. By making a large enough incision the adhesions to the omentum and other points of peritoneum can be ligated and fatal hemorrhage avoided. Dr. Frederick has seen fibroids weighing 35 pounds in which the adhesions to the omentum were the principal source of blood supply, and where the vessels were as large as lead pencils, running into the top of the tumor. The pedicle of the growth at the uterine origin was an inch or so in diameter, and the amount of blood supply through this pedicle was very small. When these tumors grow they will get their blood supply from the adhesions, and the blood vessels enlarge even though the pedicle is small. Therefore, the practical point in operation is to get at the zone of the blood supply by a free incision so that the vessels can be tied off before the tumor is removed, as Dr. Cullen has said.

DR. H. O. MARCY, Boston, said that some years ago he collected a series of cases not unlike these, and in one particular, such as he has not since seen. The growth was completely encapsulated in the abdominal wall. The peritoneum had been entirely closed off and he removed the fist-sized growth from the abdominal wall without opening the peritoneal cavity. There was much question as to its origin, but a careful histologic study showed clearly that it was of this type of growth. This is a class of cases not common, and yet any practitioner may find these rare conditions.

DR. SETH GORDON, Portland, Maine, recalled only two cases occurring in his experience where the pedicle was so small that it was almost impossible that there could be circulation through it, and the adhesions in both cases were to the omentum, with a slight adhesion of the intestine in one place. The important thing in all these cases, he said, is that mentioned by Dr. Boldt, to stop the blood supply. One can afford to take the time there and then. It is not time wasted. The pedicle is easily managed. One specimen that he now has in his office is a complete and absolute amputation from the uterus, and is as hard as calcareous deposit can make it. He had to saw it in order to open it. It lay absolutely loose. It had been kept alive for a while by the circulation from the adhesions, but finally had cut loose.

DR. J. H. CARSTENS, Detroit, Mich., has noticed that when ascitic fluid is present, one generally is dealing with a malignant growth. He has found this to be the case in quite a few cases when the fibroid has undergone degeneration. It was new to him to find ascitic fluid in ordinary cases. He asked Dr. Cullen whether he had observed the same thing.

DR. E. MCGUIRE, Richmond, Va., has seen just such cases as Dr. Cullen described. The largest tumor he ever removed weighed sixty-five pounds. The pedicle was very small and flat, not wider than two fingers. The circulation came almost entirely from the omentum. The fat of the omentum was almost entirely gone and some of the blood vessels were a half inch in diameter. In dealing with these tumors the most im-

portant point, as was emphasized by Dr. Cullen, is to deal with the blood vessels from the omental attachment before anything else is done. Dr. McGuire has seen ascitic fluid associated with these tumors in a small number of cases, and has attributed its presence to some obstruction to the outflow of blood from the tumor. It has been generally supposed that when this condition was found that the tumor was malignant, but he holds that this is not so, and believes the condition occurs probably a little oftener than was formerly supposed.

DR. D. TOD GILLIAM, Columbus, Ohio, has had a few cases of these pedunculated fibromata in which there have been adhesions, but not such as described by Dr. Cullen with large omental blood vessels.

DR. J. WESLEY BOVÉE, Washington, D. C., agreed with Dr. Cullen that these tumors belong to a very important class regarding treatment. The largest two tumors of this variety that he met with weighed forty and twenty-eight pounds respectively. Both these tumors were removed successfully. In the case of one tumor of small size, Dr. Bovée separated the adhesions by sweeping his hand over the tumor up near the diaphragm and removing the tumor. When this was done he found the abdomen full of blood, and the women died from the loss of blood within twenty-four hours. He believes that if he had controlled the hemorrhage properly at the time of operation the woman would have recovered. The important point is, he said, that of controlling the hemorrhage before the adhesions are separated.

DR. THOMAS S. CULLEN, Baltimore, agreed with those who spoke of the absolute necessity of controlling the blood supply before attempting the removal of the tumor. Take, for example, the eighty-nine pound tumor in the eighty-five pound woman. Here the tumor extended down as far as the patient's knees, and, as the growth had to be removed intact, the incision extended from the xiphoid in a convex line down to the knees and back to the symphysis. In other words, it was nearly four feet in length. Nearly all the blood supply came from the omentum; the pedicle not being much larger than one's thumb. The omental vessels were so large that Dr. Cullen was afraid to use catgut alone, consequently Pagenstecher thread, reinforced by catgut, was employed. On the tumor he also applied ligatures instead of clamps, as the tumor was exposed to much handling, and as a bloodless field was needed for rapid work. Dr. Cullen's experience coincides with Dr. Carsten's. An abdominal tumor associated with ascitic fluid usually indicates a malignant growth. He has noted several exceptions, however. Fibroma of the ovary is often accompanied by ascitic fluid. The fluid evidently results from partial torsion of the ovarian pedicle. As noted in the paper, a partially parasitic myoma which receives much of its nourishment from the omentum may become partially twisted and then serum escapes into the abdominal cavity. Finally, there is a certain group of cases where as a result of cardiac dilatation or renal insufficiency ascitic fluid coexists with the abdominal tumor. In these cases there are often other manifestations of cardiac or renal insufficiency, namely, general edema and pleuritic effusion.

Epidemic Jaundice.—Queirolo reports in the *Riforma Medica* for August 24 an epidemic of jaundice observed last summer on the island of Elba. Men, women and children were affected, most of the sixty cases showing probable contagion. All recovered except one pregnant woman, who was prematurely delivered and died with symptoms of intense intoxication. He attributes the disease to a telluric origin, the miasma generated and preserved in wet soil full of decaying organic matters. As the soil dries the miasma is released and spread by the winds and human beings become affected directly by the miasma or by contagion from those already affected. He found that extensive excavations had been going on for some months preparatory to building, and he ordered the turned up ground to be treated with lime followed by powdered charcoal. The epidemic was thus arrested. The feces were clay colored in some of the patients, but not in all, which suggests that the trouble is a radicular angiocholitis rather than merely jaundice from retention of bile.