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TRANSACTIONS  
OF THE  
PHILADELPHIA ACADEMY OF SURGERY

STATED MEETING, HELD JANUARY 5, 1914.

DR. GWILYM G. DAVIS, President, in the Chair.

TUBAL PREGNANCY.

DR. A. D. WHITING reported the following case:

L. L., a white female aged nineteen, was admitted to the Germantown Hospital, November 22, 1913. Her history states that she was married when 15 years of age and that she gave birth to a normal child 3 years ago. Her menstrual history dates back 7 years. Her menses were regular but very painful and the flow was always profuse. Her last menstrual period started April 7, 1913, and lasted 4 days, being normal in every respect. There has been no vaginal bleeding or discharge of any character since that time. She began to have the nausea and vomiting of pregnancy in May and also had pains in the lower abdomen which were intermittent in character. These were similar to pains she had had while carrying her first child, although she thought them more severe. Fetal movements had been felt for more than two months before admission and had been unusually severe and painful on the day of admission. The patient had noticed practically no difference between this pregnancy and her former one and had made arrangements for her delivery in January.

At 11 A.M., November 22, 1913, after returning home from shopping, she made and ate a sandwich which she says caused marked nausea followed by vomiting and retching and severe pains, of a lancinating character, in the lower abdomen. She became faint and felt very cold, weak, and thirsty. She drank considerable water, which she immediately vomited. The symptoms continuing, her physician, Dr. Sutliff, was called. He immediately sent her to the hospital as a case of concealed hemorrhage.

On admission, the lips and conjunctivæ were blanched, the skin was pale, the breathing was rapid and shallow, the pulse was



thready and too rapid to be counted accurately. Patient complained of extreme thirst, was very restless, and showed great excitement in her facial expression.

Examination revealed a large, rounded mass extending from the pubes to above the umbilicus slightly to the right of the median line. Percussion elicited dulness over the entire right side of the abdomen, present but not so marked on the left side. Vaginal examination revealed an enlarged uterus with a soft cervix. The fundus could not be distinguished; the uterus seemed to be continuous with the abdominal mass, which moved freely with the cervix. There was no vaginal discharge. No fetal movements could be felt; fetal heart sounds could not be heard. The temperature was 97° F.; respirations, 48; pulse rate approximately 160. A diagnosis of internal hemorrhage was made and immediate operation advised.

Operation at 3 P.M., November 22, within 4 hours after the onset of the alarming symptoms. Under ether anæsthesia, an incision was made through the right rectus. The right iliac fossa was filled with an enormous blood clot, while clots and fluid blood almost filled the peritoneal cavity. Rapid removal of the blood allowed an examination of the tumor which presented. It was found to be a globular mass springing, apparently, from the right broad ligament and containing a hard, irregular body. It was freely movable; there were no adhesions between it and any surrounding structure. On its surface were many broad, flat ribbon-like vessels, one of which was bleeding freely but without pulsation. The tumor was attached to the right broad ligament and to the right cornu of the uterus by a short portion of the right fallopian tube; the right ovary was to the right and below; the fundus of the uterus was below and to the left; both ovaries and the left tube were apparently normal. The right tube had apparently entirely disappeared in the tumor.

The broad pedicle of the tumor was ligated and the tumor removed. The abdomen was flushed with hot saline solution and the wound was closed in tiers without drainage. Two thousand c.c. of salt solution were given intravenously during the operation and one-half grain morphia was administered hypodermically.

The patient reacted well from the operation. Examination of the blood twenty-four hours after admission showed a hæmoglobin of 21 per cent.; red blood cells, 2,460,000; and white blood cells, 18,600. The temperature rose to 101.6° F. after the operation

and continued between 99.6° and 103° for 15 days, although no cause for the continued fever could be found. The wound healed without infection; the lungs remained normal; there was no cardiac complication; there was no phlebitis; there were no signs of peritonitis. Forty-eight hours after operation the patient expelled from the vagina a mass that seemed to be a cast of the inside of the uterus. With this exception, there was no uterine discharge. At 5 P.M. on the fifteenth day after operation the temperature was 103° F.; at 5 A.M. on the sixteenth day, it registered 98.6°, and remained between 98° and 99° until the patient was discharged from the hospital on the twenty-eighth day after operation.

The tumor weighed, immediately after operation, 3670 grammes and measured 68 cm. in its longest circumference. An X-ray picture revealed the bony structure of a well-developed foetus.

Study of the specimen after it had been opened and hardened in formalin solution gives the following findings. The gestation sac is, in part, membranous and in part occupied by a thick, friable, spongy mass, evidently placental tissue. The sac varies in thickness from 0.1 cm. in the thinnest membranous portion to 4 cm. in the thickest part. The foetus measures 40 cm. in length. It is a well-formed female covered with vernix caseosa and in no ways differs from the usual normal foetus. The cord, which is 55 cm. long, is not attached immediately to the placental area, but is inserted into the membranous portion of the sac at a distance of about 3 cm. from the placental margin. From the insertion of the cord a number of large, thin-walled, tortuous vessels radiate in all directions and ultimately find their way to the placental area. Some of the vessels leading from the cord run on the inner aspect of the sac and some on the outer. One of the external vessels presents a small rupture of its thinned-out wall.

Microscopic examination of a section through the thin membranous portion of the gestation sac shows stratified fibrous structure rather well vascularized and lined internally by the amnion. There is no apparent muscular tissue in this portion of the sac.

Microscopical examination of a section through the thicker area shows typical placental tissue of the later months of pregnancy, which is implanted upon a thick lamellar structure composed chiefly of concentric layers of fibrous tissue in which can be seen what are apparently bundles of smooth muscle. The attachment of the placenta to this fibromuscular wall is not an immediate



one, but is obtained through the medium of a layer of large vesicular cells which bear considerable resemblance to decidual cells. This layer varies in thickness in different portions and in some parts spreads out into thin strands which are themselves separated by fibrous bands.

Dr. Whiting remarked that this case was of more or less interest on account of the length of gestation; and on account of the termination, rupture of the vessel on the outer aspect of the wall of the gestation sac without any rupture of the sac wall. The absence of symptoms of tubal pregnancy might be noted, as well as the perfect freedom of the tumor within the abdominal cavity, there being no restriction other than its attachment to the broad ligament and the cornua of the uterus.

Although Tait, in his memorable articles on the subject of tubal pregnancy, claimed that primary rupture of the sac of a tubal gestation occurred at or before the fourteenth week, numerous cases greatly exceeding this period, without rupture, have been recorded. The average length of tubal gestation, without rupture or the expulsion of the embryo through the fimbriated extremity, however, is much less than that recorded in this case. Thus Webster quotes Henning as having reported 95 cases of tubal pregnancy in which rupture occurred in 80 per cent. before the sixth month. In this series of cases, 1 ruptured in the sixth month; 1 in the seventh; 6 in the eighth; 1 in the ninth; 9 in the tenth, and 1 beyond the tenth month. In Von Schrenk's 141 collected cases, in Schauta's 87 cases, and in Mackenrodt's 38 cases, rupture took place in every instance before the expiration of the fourth month (quoted by Webster).

At the German Hospital, during the last ten years, there have been 128 cases of tubal pregnancy. Operations in these cases were performed by Dr. J. B. Deaver, to whom he was indebted for the privilege of citing them, by Dr. G. G. Ross or himself. In 99 of these patients, rupture through the wall of the tube had taken place; in 10 the products of gestation, in whole or in part, had been expelled through the fimbriated extremity; and in 5 there had been bleeding from the fimbriated extremity at or before the time of operation. Fourteen cases were operated upon before rupture or bleeding had taken place.

Among the cases that ruptured, aborted, or bled from the fimbriated extremity, the catastrophe occurred in 3 during the first month; in 57 during the second month; in 30 during the third

month; in 13 during the fourth month; and in 2 during the fifth month. In 9 cases the period of gestation was not stated.

In a very limited search through the literature of tubal pregnancy, he was unable to find any reference to a termination similar to that recorded in this case. In all of the cases noted, there was rupture of the sac wall; expulsion through the fimbriated extremity; or free bleeding from the fimbriated extremity without expulsion of the gestation products. In this case there was a rupture of the wall of one of the ribbon-like vessels without any discoverable rupture of the sac. This rupture was possibly caused by traumatism during the violent vomiting and retching, although the vomiting may have been due to the ruptured vessel and not to the sandwich, to which the patient attributed it. If caused by the marked activity of the foetus on the day of the rupture, it is probable that some signs of internal violence would have remained or that the sac itself would have been ruptured. Possibly the vessel had reached the extreme limit of stretching and could not be thinned out any more.

#### RECURRENT STONES IN THE URINARY BLADDER.

DR. HARRY S. CARMANY, in presenting this case, said that he had reported it before to the Academy in 1911 as one of a rather large stone removed by spinal anæsthesia. At that time cystoscopy was ineffectual on account of size of stone, although sounding and X-ray discovered it. He was admitted to St. Timothy's Hospital October 11, 1911. He was fifty-eight years old. On admission complained of frequent urination and a sense of burning in perineum. Sound revealed stone, X-ray confirmed it. Removal under spinal anæsthesia; was in hospital 49 days, when he was discharged cured. He remained well until June, 1913, when he again began to have frequent urination and burning in perineum; July 10, 1913, he was again admitted to the hospital with a distended bladder. His condition was such that little time was consumed trying to pass instrument, and suprapubic drainage was immediately decided on. He was given chloroform, as his cough was still present which had determined the use of spinal anæsthesia at the first operation. On opening his bladder, a calculus was forced out and on examination another one was found loose in bladder and yet another impacted in the posterior urethra.

DR. ALFRED C. WOOD said, in regard to the re-formation of



stones, or stones thought to have been overlooked at the time of operation, if a patient has some obstruction to the emptying of the bladder, either prostatic or urethral, and particularly if he has infection of the urine with ammoniacal decomposition, stones may form in a comparatively short time. Also in a certain number of cases there may be stone lodged in the ureter which later coming down forms a nucleus for a larger stone. He recalled one case in which during a suprapubic lithotomy, after removing a great many stones, four ounces in all, one was found projecting from the ureteral orifice. This was removed, when another was felt and removed, and so on until five had been delivered from the lower end of the ureter. If these had not been discovered they might later have appeared in the bladder and given the impression that they had been left from the previous operation.

DR. JOHN SPEESE said that about three years ago he operated upon a boy two years of age, and removed three stones from the bladder by the suprapubic method. The boy returned to the Children's Hospital several months ago with renewed symptoms of vesical calculus, and another stone was removed by Dr. Wharton. The calculi removed at the first operation were phosphatic, octagonal in shape, smooth, and each was about the size of a small hickory nut. The stone removed at the second operation was about the size of an almond, mulberry in appearance and was composed of urates. After complete recovery symptoms of a stone in the kidney developed, and an X-ray corroborated the diagnosis.

Such a case demonstrates the possible recurrence of vesical calculi at an early age, although the subsequent history of a kidney stone points to this organ as the point of formation of the vesical calculi.

DR. ADDINELL HEWSON, in connection with the stones not being found, said that some years ago he found in a man whose history he obtained subsequently, eighty years of age, who came from an almshouse in the interior of the State, a completely encysted mulberry calculus about the size of an ordinary thimble, completely walled off from the bladder. It was just behind the symphysis pubis. The man had complained of no symptoms whatever of stone.

## SARCOMA OF THE SMALL INTESTINE.

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THE clinical and pathological aspects of sarcoma of the small intestine have been thoroughly reviewed in the comprehensive papers of Baltzer, Rheinwald, Lecene and Libman. While little can be added to their conclusions, the writer desires to report two new cases and to summarize the results of operation in the large number of cases which are now on record.

A statistical review of sarcoma of the intestine proves the rarity of the affection, as Baltzer in 1894 was able to collect 14 cases, Libman 59 cases in 1900, and Lecene 89 cases in 1904. The autopsy records in various large hospitals also confirm the view that sarcoma is infrequent in the intestinal tract, especially when compared with carcinoma. Nothnagel found 243 instances of carcinoma of the intestine in 2124 autopsies on cancer cases, while of 243 sarcomata but three were in the bowel. Smoler in 13,036 autopsies found 13 cases of primary sarcoma of the small intestine. Sarcomata of the large intestine, excluding the rectum, are much less common. Of Krueger's cases, 16 occurred in the small intestine, 6 in the large intestine and 16 in the rectum. Jopson and White, in 1901, found 22 cases of the large intestine, whereas Libman's paper appearing a year earlier contained 59 cases of sarcoma of the small intestine.

Sarcoma of the small intestine does not appear to affect any particular age, although Baltzer found that the majority of his cases occurred in the fourth decade. The 75 cases in which the age is mentioned may be divided as follows: 1-10, nine; 10-20, ten; 20-30, seventeen; 30-40, eighteen; 40-50, fourteen; 50-60, five; 60-70, two.

The rather large number of cases occurring at an early



age is a fact of much interest. The tumor in Stern's case was present at birth and caused intestinal obstruction from which the child died. In addition to this instance, sarcoma of the intestine has been observed in children of five and six years of age for which successful operations have been performed (Power, Barling, Zwahlenburg).

Any portion of the small intestine may be the seat of a primary sarcoma. The following is an analysis of 53 cases in which the part involved is mentioned. As many of the case reports merely state that resection of the small intestine was performed, they could not be included. Duodenum and jejunum, 3; jejunum, 12; jejunum and ileum, 2; ileum, 32; entire intestinal tract, 4.

All writers on the subject mention the predisposition of the male sex in intestinal sarcoma. Adding the cases which I have collected to Lecene's we find of 101 instances, 67 occurred in males and 34 in females, or practically twice as many in the male sex.

As lymphosarcoma constitutes one of the chief types of intestinal sarcoma and as such growths tend to spread early to the neighboring lymphatic nodes, the mesentery of that portion of a bowel in which the sarcoma arises is involved frequently. In 45 autopsies 34 (75 per cent.) instances of mesenteric involvement are recorded by Lecene, a fact demonstrating the importance of thorough removal of the mesentery of the affected bowel. On the other hand metastasis to the superficial lymph-nodes or those in the retroperitoneum or mediastinum is rare.

Involvement of practically all the abdominal viscera has been noted in advanced cases, although the liver and kidney are especially liable to metastatic deposits. Direct extension to the peritoneum of adjacent viscera is quite common, and at the time of operation several loops of gut may require resection. Involvement of the bladder is met with frequently because the tumor in many cases occupies a pelvic position.

The histological variety of sarcoma is of great interest in connection with the question of metastasis. The majority of recurrences or metastases have arisen in lymphosarcoma or in

the round-cell variety. The spindle-cell sarcoma, on the other hand, has a pronounced tendency to remain localized. This fact is explained partly by reason of the stenotic action such tumors exert on the intestine, in consequence of which the indications for early operation arise before marked extension can occur.

The association of single traumatic insults has long been held important in the development of sarcomata in general. The numerous instances recorded by Coley, Lowenstein and others support this view. It is not surprising, therefore, that such a factor is mentioned in some of the reported cases and is of particular interest, as the disease occurs much oftener in the working class. Zwahlenburg records an abdominal injury in a boy aged five; six weeks later a tumor one inch in diameter was noted at the site of injury. Nothnagel observed a case of lymphosarcoma developing on the base of an old tuberculous ulcer. The association of tuberculosis and lymphosarcoma elsewhere has been observed and is regarded as an accidental association. Three cases of sarcoma have been reported to have occurred in the ileum years after severe attacks of typhoid fever. Firth noted an instance developing five months after an operation for strangulated hernia. Syphilis has also been present in several cases.

From these factors of more or less etiological importance, we are unable to draw any conclusions which might throw light upon the cause of intestinal sarcoma.

Kasemeyer has investigated very thoroughly the subject of intussusception caused by tumors, and has collected 284 cases, of which 85, or 30 per cent., were caused by malignant formations. Of these 85 cases, 57 were carcinoma and 26 were sarcoma. The symptoms of intussusception as seen in children, the severe abdominal pain, vomiting, bloody and mucous stools, are seldom present in intussusception secondary to tumor formation. In such cases a chronic course is pursued and the symptoms extend over months even with an intussusception present, as is demonstrated by the dense adhesions about the bowel or by extension of the invaginated tumor to the intestinal wall with which it comes in contact. The in-



frequency of complete obstruction following tumor intussusception is explained by the fact that the infiltrated intestinal wall undergoes dilatation.

Tenesmus may be the chief symptom complained of, but is as inconstant as is meteorismus and abdominal tenderness. The presence of a sausage shaped tumor, the situation of which varies, along with other symptoms of chronic intestinal obstruction, has been regarded as distinctive of tumor invagination by several observers, and the diagnosis correctly made (Ewald, Kasemeyer).

Many varieties of sarcomata have been observed in the intestine; the 99 cases in which the type is mentioned are divided as follows: Lymphosarcoma, 34; round-cell sarcoma, 43; spindle-cell sarcoma, 13; fibrosarcoma, 3; mixed-cell sarcoma, 1; myxosarcoma, 2; myosarcoma, 2; melanotic sarcoma, 1.

The lympho- and round-cell sarcomata greatly predominate. Many cases diagnosed as round-cell sarcoma probably belong to the lymphosarcoma group, but the histologic descriptions are too incomplete and indefinite in many cases to make the classification correct.

The tumors in the majority of cases originate in the submucous tissues (lymphosarcoma) or in the connective tissue of the muscularis or perivascular region, and in some instances reach a considerable size without producing any ulceration of the mucous membrane. They may extend parallel to the long axis of the bowel, producing a gradual infiltration of all the tissues but not causing stenosis. The bowel above the area of infiltration frequently undergoes dilatation and resembles an aneurism; the lumen of the intestine, in such cases, is filled with necrotic tumor tissue, pus and fecal material. Dilatation of the intestine is seen in the round-cell and lymphosarcomata, whereas stenosis and obstruction result from the fibrosarcomata. In exceptional cases the tumor extends through all the coats of the gut, gradually involving neighboring coils and forming a large adherent mass. The tumor may be single or multiple; in the latter event the growths appear as plaques or small nodules under the mucosa. The single

tumors, especially if pedunculated, are singularly prone to produce intussusception, although this complication has developed in the infiltrative types of tumor.

Marked variations exist in the size of the tumors, although as a rule the growth has reached considerable proportions before the diagnosis has been made or the operation performed. The shape is spindle, the contour irregular and the consistency firm in most cases.

Although partial occlusion of the bowel is present in about one-half of the cases complete stenosis practically never develops from the mere presence of the sarcoma. Even in large tumors encroaching upon the intestinal lumen, a narrow passageway can be demonstrated, thus explaining the chronic intermittent symptoms of intestinal obstruction. When complete occlusion occurs and is followed by the symptom of ileus, the condition is caused by adhesions or by an intussusception.

Sarcoma of the small intestine manifests itself in the beginning by symptoms of an indefinite nature. In the majority of patients generalized abdominal pain is first noted; this is followed by loss of appetite, nausea, vomiting, the bowels are irregular, diarrhoea alternates with constipation, and distention of the abdomen soon follows. The patients are very thin, pale and weak, when first seen. Moderate elevation of temperature and slight leucocytosis may be present. Unless the acute obstruction is due to kinking of the intestine or to an intussusception, complete constipation is unusual, although repeated attacks of obstinate constipation may be complained of. Baltzer and Nothnagel both asserted that apart from complications, sarcoma of the intestine does not produce symptoms of stenosis. This view has been disproved by subsequent articles, in which it has been shown that at least 55 per cent. of the cases do have symptoms indicative of some degree of intestinal obstruction, but the course is not similar to the stenosis caused by cancer of the bowel. When carcinoma produces an obstructive lesion, the course is generally a protracted one and the patient's loss of strength and weight is slow and gradual. Sarcoma, on the other hand, causes rapid loss of weight,



the disease rarely lasting over a year and the average duration, according to Rheinwald, being four to five months.

A careful study of the histories of many cases shows that attacks of constipation and diarrhoea are common, although these symptoms are wanting in a small proportion of the cases. It is also worthy of note that in many instances vague intestinal disturbances are the earliest symptoms noted, and that operation performed a few weeks or months later will often reveal a larger or even inoperable sarcoma.

Blood in the stools has been present in a small proportion of the cases, and is sometimes one of the earliest symptoms mentioned.

In a few instances the patients have noted the presence of a tumor. This on examination varies considerably in size, the surface is smooth and nodular, and unless seen quite late, the growth is freely movable. Its consistency is as a rule dense and hard. In late cases metastatic nodules are palpable and the primary growth demonstrated with difficulty.

As the result of pressure of the tumor on the intestine, distention may result, and pressure on the vessels may produce ascites, or œdema of the legs, distention of the veins of the abdominal or thoracic walls, jaundice, dysuria or diminution in the amount of urine (Libman). Examination of the blood shows merely a secondary anæmia.

Libman has classified the varieties of the disease as follows: (1) Latent cases, the disease being first discovered at autopsy. (2) Cases with the clinical picture described by Baltzer, either the general symptoms, the distention of the abdomen, or the tumor being first noted. (3) Cases in which the first symptoms are due to an intussusception or other variety of intestinal obstruction or to perforation. (4) Cases resembling tuberculous peritonitis. (5) Cases in which jaundice is the first symptom. (6) Cases resembling ovarian cysts. (7) Cases bearing a close resemblance to appendicitis, an observation noted first by Libman and described in several reports since that time.

An early diagnosis in these cases seems impossible because the symptoms are so mild and transitory in the beginning.

When, however, a tumor is discovered, freely movable, producing pressure symptoms of a mild type, with the absence of severe obstruction symptoms, sarcoma of the small intestine should be suspected.

The treatment of intestinal sarcoma is of course surgical, although in inoperable lymphosarcomata benefit has been followed by the administration of arsenic. Libman recommended its use even in cases in which successful resection of the intestine has been performed.

For a long time sarcoma of the intestine was regarded as almost invariably fatal. This view is not sustained by an analysis of the cases reported in the past decade, in a large number of which many years have elapsed without recurrence since the time of operation. The vague nature of the symptoms delays operation, although a palpable tumor is almost invariably present at the time of operation and a history of a chronic intestinal disturbance can be obtained in the majority of cases.

The number of resections of the small intestine for sarcoma is 75; of these 15 are collected by Zwalenburg, 37 by Moynihan, 6 by Lecene, 17 by Speese. There were 55 recoveries (74 per cent.), and 19 deaths following operation. Nine instances of recurrence are noted, the periods varying from three months, 5 months (2), 12 months (2), 15 months. The cases in which recurrence arose in 7 instances were diagnosed as lymphosarcoma or round-cell sarcoma, thus emphasizing the malignant nature of this variety; one case of myxosarcoma recurred.

When the infiltration of the bowel is too extensive for removal or metastasis has occurred, the abdomen should be closed without further exploration. If stenosis is present some surgeons advise an artificial anus to relieve the immediate and urgent symptoms.

The large number of intussusceptions noted in the series is a matter of considerable interest and importance. In 14 of the 74 resections, this complication was encountered. Ten of these 14 cases recovered, 1 died immediately after operation, and 3 from recurrence. The type of tumor has no influence



upon the development of an intussusception, for the complication has occurred in the round-cell, the lymphosarcoma and other forms. A pedunculated tumor may predispose to invagination, but it also follows cases in which the intestinal wall is extensively infiltrated by the tumor.

The amount of small intestine resected in the majority of cases is from 10 to 40 cm. Barclay removed 190 cm., and Storp 510 cm. of the bowel. In the former case the patient suffered from frequent and liquid stools, and in the latter no metabolic or other disturbances were noted.

The effect of the removal of large amounts of small intestine has been investigated experimentally by Flint, whose conclusions are of great importance in view of the radical measures which may have to be undertaken in some of the cases. It was found that in dogs as much as 50 per cent. of the total intestine may be removed without fatal results, and the animals may gradually return to a condition of practically normal weight and metabolism when maintained on a favorable diet under good conditions. Resections of 75 per cent. or more of small intestine may be survived, but such animals do not show a return to normal weight with the establishment of a good compensatory process.

Animals at first suffer from a severe diarrhoea, ravenous thirst and appetite, and loss of weight, from which they gradually recover until conditions may return to those of a normal animal. They remain extremely sensitive to unfavorable conditions of diet and living.

The compensatory process consists in a hypertrophy and hyperplasia of the remaining portion of the small intestine. There is no regeneration of villi or crypts.

Human cases behave in general like animals and show similar metabolic disturbances. There are over 58 cases in the literature in which over 200 cm. of small gut have been resected. The mortality is 16 per cent., which is lower than it should be, as only the successful cases have probably been reported. Metabolic disturbances in human beings bear no definite relationship to the amount of small intestine resected.

Resection of over 400 cm. of intestine has been followed

by recovery, while death from inanition has resulted from resection of 284, 289, 300, 380 cm. respectively.

Profound digestive disturbances have resulted from removal of 192 and 204 cm. of ileum.

Progress in human cases should be guarded. Apparently successful resection may, for lack of suitable compensation, succumb ultimately to a slow process of inanition. Experiments and series of human cases emphasize the fact that neither the stomach nor the colon is able to compensate for the loss of large portions of small gut.

The writer desires to express his thanks for permission to report the following cases, operated upon by Dr. John B. Deaver at the University Hospital.

Male, aged fifty, has been suffering with hemorrhoids for several years and for the past several weeks has complained of constipation, distention of the abdomen, severe cramps and vomiting. The constipation was relieved by enemas and laxatives, the resulting movements were as black as ink, although free blood was not noticed. He has had successive attacks of pain, tenderness and obstinate constipation. The mass was not discovered until the time of examination, seven weeks after his symptoms began. The examination disclosed a round mass in the right lower quadrant of the abdomen. The tumor is tender, regular in outline, and is movable.

Blood examination, red blood cells 4,980,000, polynuclears 70, white blood cells 9,800, lymphocytes 20, hæmoglobin 100, monoleucocytes 0, transitionals 1, eosin 0.

Examination of the fæces for occult blood was negative.

*Operation.*—A large mass about the size of an orange was found in the ileum about 3 feet from the ileocæcal junction. The ileum was resected with its corresponding portion of mesentery, and end-to-end anastomosis was performed. Five days after the operation the patient developed a fecal fistula; this was followed by peritonitis, from which he succumbed eleven days after the operation.

*Pathological Examination.*—The specimen consists of 57 cm. of ileum. The intestine at one area contains a globular mass 8 cm. in diameter, the wall of the intestine is enormously thickened, measuring 3 cm. The section through this thickened portion shows that the intestinal mucosa is



greatly ulcerated and that the lumen of the bowel is represented merely by an irregular area of ulceration through the centre of the tumor mass. At one point the lumen is almost completely occluded by the tumor tissue (Fig. 1). The tumor mass, as represented by the greatly infiltrated wall of the intestine, is composed of firm whitish tissue which is completely surrounded by the serous coat of the intestine. In the mesentery several enlarged nodes having the same characteristics as the primary tumor are found.

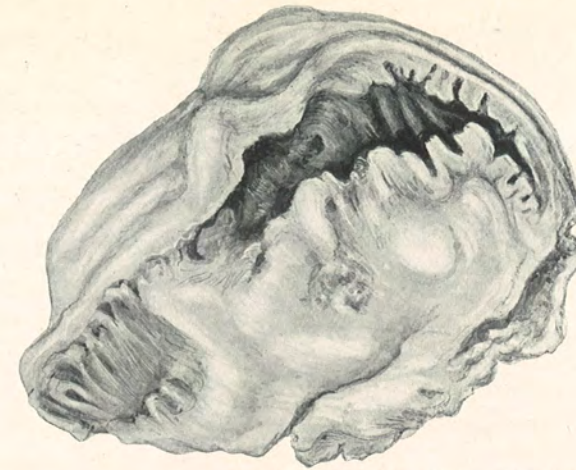
Microscopic examination shows a very cellular formation composed of small, round, deeply staining cells, having a fairly uniform appearance. The stroma is composed of thin fibrils which ramify between the tumor cells, which extend to the mucosa and infiltrate and destroy the intestinal glands. The structure of the muscular coats of the intestine is completely obliterated by the cellular infiltration. The tumor contains very minute areas of necrosis and is fairly well supplied with new blood-vessels. The lymph-nodes removed from the mesentery show a similar involvement.

*Diagnosis.*—Lymphosarcoma.

Female, aged fifty-seven, was admitted to the University Hospital complaining of pain in the abdomen. Her past medical history is unimportant. One sister died of cancer of the stomach. Her present illness began one month before her admittance, when she was suddenly seized with agonizing pain in the abdomen. The pain was localized to the region of the umbilicus; the attacks were accompanied by vomiting. The attack lasted twenty-nine hours. The patient recovered and was well for a period of three weeks, when the pain again returned. The pain has been persistent, is constantly localized to the region of the umbilicus; the bowels are regular; there has been some distention of the abdomen. On examination a mass the size of a grape fruit is palpable in the lower and middle portion of the abdomen. The upper limit of the tumor is about one inch below the umbilicus. The mass is smooth, round and slightly movable. Red blood cells 3,710,000, polynuclears 70, white blood cells 20,000, lymphocytes 23, hæmoglobin 60, monoleucocytes, 3, transitionals 4, eosin 0.

*Operation.*—On opening the abdomen a mass was found in the mesentery, in the midline; the surrounding coils of intestine were attached to it by adhesions. The coil of ileum which surrounded the tumor and the mesentery were excised and a lateral anastomosis formed. A supravaginal hysterectomy was performed for a large subserous fibroid tumor. Recovery; no evidence of recurrence three months after operation.

FIG. 1.



Lymphosarcoma of intestine showing partial occlusion of the lumen.

FIG. 2.



Myxosarcoma of mesentery.



*Pathological Examination.*—The specimen consists of a tumor which is surrounded by a loop of small intestine, which measures 80 cm. in length. The tumor, which measures 8 cm. in diameter, is situated near the base of the mesentery and is attached to the intestine for a distance of a few centimetres only. The wall of the intestine appears normal and is not compressed by the tumor mass. On cross section the tumor is soft in consistency, the cut surface for the most part is white and contains numerous reddish areas and small points of necrosis.

On microscopic examination the growth for the most part is composed of tissue containing large stellate cells. The connective tissue in these areas is of very loose texture, and contains within its meshes a homogeneous substance taking a faint blue stain. Large numbers of blood-vessels with thin walls are present. A considerable amount of free blood is found in the fibrous tissue. In addition to the stellate cells mentioned, there are many areas in which large numbers of cells are closely packed together, the cells being spindle in type, some are large, some small and many being arranged around the blood-vessels. Minute areas of necrosis are encountered, and in these situations leucocytes are found between the tumor cells. Many nonstriated muscle fibres are seen in the more superficial portions of the tumor.

*Diagnosis.*—Myxosarcoma of mesentery.

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DR. JOHN H. JOPSON remarked that in 1901, Dr. C. Y. White and he reported a case of sarcoma of the large intestine in a child of four years. They collected, as Dr. Speese had mentioned, 22 cases of sarcoma of the large intestine above the rectum, all that they could find in the literature at that time, and they excluded all cases in which there was not a reasonable certainty that the process was primary in the large bowel. Shortly before this Libman had collected 59 cases of sarcoma of the small intestine, and the difference in the number of cases in his series and in theirs represents fairly accurately the comparative percentage of frequency of sarcoma in these two portions of the intestine.

In the rectum sarcoma is more frequently met with than in either the large bowel or the small intestine, but its symptoms do not differ materially from carcinoma of the rectum; whereas, in the remainder of the large intestine, namely, the cæcum and colon, the symptoms are so strikingly different from carcinoma that the difference has been emphasized by all observers. This is due especially to the absence of obstruction in cases of sarcoma, an observation that is also true of sarcomata of the small bowel.

Dilatation of the affected region, either as a fusiform or sacculated dilatation, is the rule, although in some cases the bowel is converted by infiltration into a thick-walled tube. This dilatation has been explained by the early infiltration and paralysis of the muscular fibres. In only one of the 22 cases which they studied was complete obstruction present. In this case the tumor was of the spindle-cell type and situated in the descending colon, causing almost complete stenosis with impaction of the opening by a small fecal mass. In one other case of a round-cell sarcoma of the sigmoid flexure incomplete obstruction was present.

The lymph follicles in the mucosa or submucosa seemed to be the usual starting point in these cases, and from this region the tumor involved the other coats; the muscular offering the greatest, and the subserous coat, the least resistance. The serosa itself was rarely perforated. Dr. Speese mentioned the possibility of sarcoma developing in the subserous coat.

Their cases were almost equally divided as to sex. They ranged in age from 2 to 60. The first decade contained the greatest

number, and the fourth decade the next greatest. There were only three cases over forty years of age. The duration in cases not operated upon varied widely; probably four to six months was the average after the tumor was detected. The mortality in cases operated upon has shown a great improvement since they collected their cases. At that time the mortality was 50 per cent. Of the cases recovering, one died of a quick recurrence. The other four were living at the time they were reported.

With our present familiarity with operative technic and the early performance of operation in abdominal tumors the mortality is no doubt at the present time very much below this figure.

DR. JOHN H. GIBBON said that he had never seen a sarcoma of the small intestine but was interested especially in the question of resection in this condition. As surgeons realize the importance of the small intestine as a digestive organ their respect for the stomach decreases. One may get along very well without a stomach, but it is difficult without the first portion of the small intestine. One may take out only a small amount, two or three feet, of small intestine, and the patient will suffer greatly from inability to digest his food. He had seen this even where he had only taken out 18 inches two or three feet away from the beginning of the jejunum. The diarrhoea will keep up for months and the patient will go down to a shadow. Most of his cases had been in tuberculous individuals. Two years ago in a case with an enormous lipoma producing intestinal obstruction he did a resection in order to remove the growth which at first he thought to be an inoperable retroperitoneal sarcoma; in this case it was necessary to resect a large amount of small intestine in order to remove the tumor, and he found himself within three inches of the jejunum, with just enough bowel to make an anastomosis, and he had removed 9½ feet of small intestine. This man for a short time had little disturbance, but for 18 months he was very sick; had diarrhoea, could not digest his food, everything gave him pain, he passed his food undigested, lost weight, and only in the last six months has the remaining portion of his intestine taken on the function of the resected portion, so that he is now getting better.

#### DEPOSIT OF METALLIC SILVER IN BODY TISSUES.

DR. ADDINELL HEWSON gave a preliminary notice of the fact that he had been able to deposit metallic silver in the glomerule of the kidney in cadavers. The process by which this was attained



was by injecting into the aorta a 2 per cent. solution of nitrate of silver and a 5 per cent. solution of formaldehyde in distilled water. Immediately following this mixture, a 2 per cent. solution of ammonia in distilled water was injected and the deposit of silver could be seen increasing in the papillary layer of the skin, giving the subject a mottled appearance.

Dr. Hewson reported that at a subsequent meeting he would show specimens of this work with the various tissues, but desired to give formal notice of the fact that he had succeeded in making a deposit of metallic silver in the tissues.

## MEETING HELD ON FEBRUARY 2, IN CONJUNCTION WITH THE GENITO-URINARY SOCIETY

DR. JOHN H. GIBBON, President, in the Chair

### OBSERVATIONS ON THE PATHOLOGY, DIAGNOSIS AND TREATMENT OF SEMINAL VESICULITIS

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THE motives responsible for the presentation of this contribution are two-fold. First, we desire to impress, as forcibly as may be, the medical profession at large with a fact—our solemn conviction—namely, that two small organs, the seminal vesicles, too often disregarded and neglected, if not forgotten, have not received the consideration which is their due as foci of infection, and in the near future will be their demand especially at the hands of neurologists, orthopædists and internists. We refer to a vast array of conditions with a symptom-complex too little understood, as acute and chronic synovitis and arthritis, of an infectious or toxic nature, so-called articular and even muscular rheumatism, rheumatoid arthritis, arthritis deformans, gout, hypertrophic arthritis, chronic bladder disturbances, recurrent epididymitis, impotency, renal and cardiac complications, digestive disturbances and an ensemble of mental and nervous manifestations almost incredible of belief. Obviously, it is not inferred that in the above-mentioned diseases, the vesiculæ seminales are always concerned, but we believe that the medical profession in general would be amazed if not embarrassed to learn how frequently in certain infective, cryptogenic, nervous and arthritic conditions, the depot of infection will be found to be a chronic seminal vesiculitis. Fuller<sup>1</sup> states that "tuberculous joint, arthritis deformans, gout, chronic inflammatory rheumatism, progressive mus-

<sup>1</sup> Fuller: "Seminal vesiculotomy," *Jour. A. M. A.*, November 30, 1912, p. 1961.