A CONTRIBUTION TO THE SURGERY OF THE RECTUM.[1]

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IN complying with the request of the President to introduce for discussion the subject of rectal surgery at this meeting of the American Surgical Association, I have understood that my task was to be rather an account of my personal work than an academic representation of the present status of this discipline as practiced at the various centres of surgical endeavor. I have caused a computation to be made of the number of cases of rectal ailments treated during the four years ending January 1, 1893, in the surgical service of Mount Sinai Hospital, New York. The facts brought out of the records by Dr. Brodhead, the house surgeon, are to serve as the substratum upon which are based the conclusions and opinions here expressed.

During the four years mentioned 557 patients suffering from rectal ailments were admitted to Mount Sinai Hospital. The largest proportion of these, 280, were classified under the diagnostic heading of hæmorrhoids. Next in frequency were cases of fistula, which, including in their number the more acute forms of ischio-rectal trouble leading to fistula, were 167. After fistula, carcinomata of the rectum, 17, were most numerous; then came 11 cases of prolapse, 6 cases of cicatricial stricture, 6 cases of chronic ulcers of the rectum, 7 cases of polypus, 1 case of multiple adenoma, 2 cases of congenital atresia of anus, and 1 of the rectum; finally, 4 cases of anal fissure.

[1] Read before the American Surgical Association, May 31, 1893.

Hæmorrhoids.

I have derived the impression, from a service extending over about thirteen years at Mount Sinai Hospital, that anal and rectal ailments are very prevalent among the Russian and Polish Jews, who make up the bulk of our patients there. And among these complaints hæmorrhoids are the most common. Of 280 cases, 14 were not subjected to any operation for various reasons. Of the 266 patients operated on, 156 were treated by the clamp and cautery, 63 by the old method of ligaturing and ablation, 47 by the method of excision and suture, simultaneously devised by Dr. F. Lange, of New York, and Whitehead, of England, and finally in 6 cases the nodes were simply incised for the evacuation of a clot.

As to the indications followed in the selection of one or another mode of procedure, the following may be said: In recently developed and moderate cases a systematic depletion of the portal circulation by saline laxatives, aided by cooling enemata and the external application of an ice-bag, were often found to be sufficient to remedy the evil. Where a prolonged prevalence of a morbid state, and frequent recrudescences of acute inflammation have brought about lasting changes in the terminal area of the hæmorrhoidal veins, an operation was deemed necessary.

Decided preference was given to the clamp and cautery method, which was always chosen in the absence of a special indication in favor of another method. Where the element of time weighs as heavily as it does in the overcrowded operating room of our hospital, the clamp and cautery have great advantages. After a thorough stretching of the sphincter, preceded by a sufficient preparation of the gut by adequate laxatives, this process has given us invariably satisfactory results. Not once was there a disagreeable complication observed, nor a faulty result noted, and the patients suffered very little inconvenience or pain. A perfect evacuation of the bowel and a thorough stretching of the sphincter are the conditions upon which mainly depends the patient's comfort. Next to this, we found of importance an early action of the intestine. Instead of constipating our patients

for five or seven days, by filling them full of opium immediately after the operation, the rule was observed to produce an evacuation on the third or, at the latest, the fourth day after the operation. This was done by administering a dose of salts early in the morning; an hour after that, an enema consisting of four ounces of sweet oil was given, to be followed in about half an hour by a large injection of soapsuds, which generally resulted in a painless and easy evacuation. After the stool the anus was washed and a narrow strip of iodoform gauze was slipped into the breach.

As to the final result, these have to be noted: To avoid the occurrence of stricture, subsequent to the use of the clamp and cautery, the former should be applied so as to stand radially to the anal aperture, and it is of importance not to embrace in the clamp more than the uppermost third of each hæmorrhoidal node. Finally, to avoid hæmorrhage, it is important to use moderate, that is, a dull, cherry-red, heat, which will effectually shut off all vessels. If the cautery is too hot the nodes are burnt off too quickly, and the eschar is not deep enough. Hence, when the clamp is taken off, and the slender thrombi are disturbed, arterial hæmorrhage is apt to set in, and will require individual ligature of the bleeding vessels. Another safeguard against hæmorrhage is the *tampon tube*, a piece of stout rubber tubing, four inches in length, wound about with a piece of iodoform gauze, well greased and then slipped into the anus, its proximal end reaching beyond the sphincter. While permitting the escape of flatus, this obturator will control oozing better than anything else, besides serving readily in the administration of the first enemata. Of course, this tube has to be plugged up after the first oil and soapwater enemata. As to the use of opiates, the general rule was this, to give the patient a small hypodermic injection of morphine for the first night, and none afterward. Of course, this rule suffered occasional exceptions, but in general was well observed. It was gratifying to see how rapidly the patients recovered their appetite, and how soon, generally on the sixth day, they were able to leave the bed. Care was taken to cause a daily stool by enema, and this, together with the

absence of the effects of opium, had a most excellent influence upon the physique and morale of our otherwise abnormally sensitive patients. The average duration of the after-treatment was three weeks.

Next in frequency were the operations by *ligature*, which was employed in sixty-three cases. Though not very pleasant to the patient, I consider the ligature of hæmorrhoids a very safe and very convenient method of treatment in the hands of the general practitioner. No special instrumentarium is needed, the pocket case furnishing all the requisites, and the procedure is, judging from our experience, also an entirely safe one. Only in one instance did a serious complication occur, when hæmorrhage set in on the second day, apparently from slipping of an unsafely applied ligature. Considerable blood was lost before the facts were ascertained, and the patient became very anæmic and restless after the expulsion of large quantities of liquid and clotted blood from the rectum. An anæsthetic had to be given to insure tolerance, when, under the guidance of a speculum, the bleeding artery was easily found and deligated. The patient made a somewhat delayed but perfectly good recovery. Another drawback of the ligature is the prolonged and severe pain felt by most patients, necessitating the steady use of opiates until the ligatures are cast off. Finally, it was noted that patients whose hæmorrhoids were ligatured almost invariably required the use of the catheter, which had to be used much longer than after the other operations. The ultimate results and the duration of the treatment were not different from those observed after the use of the clamp and cautery.

Whitehead's or Lange's operation was generally reserved for the more aggravated cases characterized by prolapse of the anal or rectal mucous membrane. A few years ago a hot and somewhat intemperate controversy took place in one of our medical journals regarding the merits of this method. A rising light on the field of rectal specialism condemned the operation off-hand, basing the condemnation upon a purely theoretical basis, not having at that time ever done this operation himself. To gain a personal knowledge of the facts bearing upon the

question I commenced to perform the operation on selected cases, and have even permitted my house surgeons to do it, so as to test the method in more and less skilled hands. In addition to the forty-seven cases operated at Mount Sinai Hospital, my personal experience, gained in the German Hospital and in private practice, embraces twenty-four other cases, that is, a total of seventy-one, an adequate number to justify a competent judgment of its merits and disadvantages.

First of all, the operation is perfectly rational and well conceived. Properly performed, it is not as rapid as that by ligature or the clamp and cautery, but it is neither very bloody nor technically difficult. Its results, if the essential points of the easy technique are faithfully adhered to, are more brilliant and rapid than those of any other known method. It is not fair to charge ill results due to imperfectly done operations to the method. As in Lange's and Whitehead's, so has this operation in my hands yielded invariably good results. Among the cases operated on by the less experienced men belonging to the house staff, two forms of failure were to be noted. First, the failure to get complete primary union, leading to the establishment of a semicircular or *circular cicatricial stricture;* and, secondly, *ectopy of the anal mucous membrane*, caused by the unnecessary removal of circumanal integument. Profuse hæmorrhage during the operation, as well as the two other shortcomings, are not inherent to the operation itself, but are purely the result of improper and unsurgical management. I shall not weary you by a description of the steps of the operation, and let it be sufficient to say that the average duration of the operation was thirty minutes, that very little pain was experienced by the patients, and that their bowels were generally moved about sixty hours after the operation in the manner described above.

Very great pains were taken in the preparation of the bowel before the operation by thorough purgation and daily enemata for at least three days. On the morning of the operation, after a large enema had cleansed the gut, an opium suppository was slipped in. To prevent soiling of the field by fæces during the operation, a large sponge, secured by a string, is

pushed high up into the rectal pouch, after which step the mucous membrane and skin of the breach are thoroughly cleansed with a sponge held by forceps, soft soap and water, and finally a sublimate irrigation. During the operation strict cleanliness must be observed to insure primary union. Three times in forty-seven cases we failed to get primary union. Either the stitches were put in with too much tension and cut through prematurely, or the wound being infected suppuration set in. In every one of these cases a circular cicatrix appeared, and was tending to the formation of stricture. In each case excision of the cicatrix and suture remedied the trouble. In one case where too much of the outer integument had been removed, we had to deal with a condition more difficult to remedy. A not inconsiderable ectopy or eversion of the anal mucous membrane took place in this case, and gave rise to ulceration and hæmorrhage. I suggested a plastic procedure, but the patient was unwilling to undergo another operation, which would confine her to bed for two weeks. Hence, I have contented myself by superficially searing the anal margin with the actual cautery, and doing this repeatedly until the mucous membrame became toughened and dry, somewhat resembling outer skin.

Altogether, we may say that the operation is indicated in cases of extensive protrusion of the anal mucous membrane, that it gives excellent results if performed properly by a person who has had a good surgical training, and who has seen the operation done properly. To an infrequent operator in general practice, who would have to operate with inadequate assistance, the operation cannot be recommended.

Ischio-rectal Fistula in Ano, and Abscess.

Of well-established cases of fistula in ano were operated 118. As regards their importance, it can be said that in extent and variety a great diversity was observed, hence the length of time needed for the cure also varied from between five days to sixty-five days, the average being eighteen days. In very extensive wounds, caused by the division of the bridge, especially where the topographical relations of the wound were simple, a very

considerable shortening of the time required for healing was accomplished by a careful excision of the pyogenic membrane of the fistula and immediate catgut suture of the wound in tiers. In twelve cases excision and suture were employed with very gratifying success. In each one of these six or eight weeks would have been required to bring about closure of the wound by granulation. The suture permitted us to heal these extensive wounds in most of the cases in two, three, in the worst ones in four weeks. All the patients were cured.

Among the forty-nine cases of ischio-rectal abscess there were some dreadful forms of destructive phlegmon of the ischio-rectal connective tissue. A considerable proportion—over one-third—occurred in diabetic subjects, and in some of the cases the process involved scrotum, perineum and the space beyond the pelvic fascia. Three of the worst and most neglected cases died: one of exhaustion, shortly after all the recesses and sinuses had been laid open by the knife; a second one of metastatic gangrene of the lung; the third patient of a gangrene of the entire scrotum and perineum. In all of the cases the tendency to the spread of the destructive process was very marked, and, I believe, was considerably accentuated by the fact that previous to the admission of the patients to the hospital the trouble had been fomented and encouraged by the prolonged use of poultices. The therapy employed was always a very energetic and comprehensive one, consisting in converting the irregular burrows into a simple and shallow, often very extensive, wound. It was gratifying to see the immediate improvement in the condition of the patients, and most notable was the circumstance that where, during the progress of an active suppuration considerable quantities of sugar (up to 10 per cent.) had been observed in the urine, this proportion of sugar was either very much diminished, or, in some cases, entirely disappeared after every thoroughgoing operation. I hardly need to say that in many of the cases belonging to this class months were required to fill up the extensive gaps caused by sloughing and subsequent incisions, the longest period of treatment noted being 124 days. In one case a secondary plastic by suture notably shortened the time of treatment.

Ulcers of Rectum, and Fissure in Ano.

Six times chronic ulcers of the rectum came under treatment. In three instances the affection was the result of operations performed months, or even more than a year, previous for hæmorrhoids, by practitioners not connected with the hospital; once the operation was by ligature, twice by the clamp and cautery. In every one of these cases the presence of the elevated, smoothly-granulating ulcer was the cause of a remarkable train of nervous symptoms involving the urinary organs. One of the patients, a very busy physician, suffered from excruciating pain at defecation, radiating to the thighs and the penis, and frequent and painful micturition. He had become a habitual morphinist, and had submitted to repeated operations, consisting of stretching the sphincter and the application of chemical caustics and the actual cautery to the ulcer, which was situated anteriorly just above the proximal margin of the sphincter and corresponding to the prostate. The size of the smooth and pale ulcer was that of a three cent piece. On excision it was found that the base of the indolent ulcer consisted of a thick cicatricial mass extending through the entire thickness of the gut. This mass was excised and the resulting rather extensive wound was united by three tiers of buried catgut sutures. From the moment of the excision all the reflex pains disappeared, and the patient ceased to use morphine. In every one of the other cases excision and suture were employed with satisfactory results.

Fissure in ano complicating hæmorrhoids was observed in eighteen cases. Four times it occurred without any complication. The treatment consisted mostly in stretching the sphincter and a shallow incision of the superficial fibres of this muscle. In three cases, however, where much cicatricial matter had been deposited about the fissure, the entire mass was excised, and once, where this excision extended to a considerable depth, the buried catgut suture was resorted to.

Cicatricial Strictures of Rectum.

Extensive and mostly intractable ulcerative proctitis was observed six times, the patient being in each case a woman. As

to the previous history, syphilis was indubitably present only in one case. Twice, however, a history of suppuration of the Bartholinian gland could be assumed. In four cases linear proctotomy, followed by gradual dilatation, brought about a moderate alleviation of the disorder. Twice where the limits of the multiple strictures and ulcers could not be reached by the finger tips, and where manipulations in the organ usually led to febrile seizures and much local pain, inguinal colotomy was successfully done and brought great relief to the embarrassed defecation. Subsequently, in one of these cases, excision of the diseased section of the rectum was practiced, with fatal termination due to collapse from acute anæmia. This case will be referred to later in speaking of colotomy and excision of rectum for cancer.

Prolapse of Anus.

Protrusion of the anal and rectal mucous membrane was treated in eleven cases, mostly of children of tender age. In these the linear application of the actual cautery, producing from four to eight longitudinal scars, which passed through the entire thickness of the rectal and anal wall, was generally followed by a cure. Once in the case of a lad, thirteen years old, repeated applications of the thermo-cautery were found unavailing. Here we had to deal with a very lax sphincter and a prolapse of the mucous lining of the breach which measured three inches. Two lozenge-shaped segments of mucous membrane and skin, five inches long and an inch wide, the widest parts corresponding to the anal margin, were excised, one anteriorly, the other posteriorly. Then the edges were united by a number of tiers of buried catgut sutures in the longitudinal direction. Defecation was brought about under the usual precautions on the third day, and the wounds healed throughout by first intention. The final result was very satisfactory.

Atresia Recti and Ani.

A new-born male child was admitted with enormous distention and vomiting, due to atresia recti. Colotomy was performed by Dr. Wyeth, when it was ascertained that the rectum

was absent, the descending colon terminating in a blind pouch. The patient died of exhaustion shortly after the operation. In another case of a male child anal atresia was successfully relieved by incision and subsequent proctoplasty. In a third case where, in a girl, anal atresia was combined with congenital recto-vaginal fistula, defecation being done through the vagina, the perineum was split open, dividing the bridge of tissue between the anus and the vagina. Then the rectal and vaginal cylinders, together with the perineum, were restored as in a laceration of the perineum.

Polypus of Rectum.

Rectal polypus was treated in seven cases, mostly children, by ligature and ablation. The eighth, a most remarkable case of *multiple adenoma of the rectum*, deserves special mention. The patient, a poorly-nourished anæmic boy of eighteen, stated on admission that he had been suffering from pain and protrusion of a tumor on defecation since about twelve years, the trouble becoming worse continually. Examination under anæsthesia showed that the rectal pouch was literally crowded full of soft, easily bleeding pedunculated masses, the upper limit of which could not be reached by the finger. The sphincter being lax, it was very easy to evert the lowermost part of the rectum, when the protruding masses appeared to be as large as a large fist. They consisted of innumerable single and lobulated tumors, which were attached by pedicles of varying thickness to the rectal wall, and so close to each other that it was difficult to find even a small patch of normal mucous surface. All of these masses which could be conveniently reached by the aid of two Sims vaginal specula were either burnt off at their base with the thermo-cautery, or where their pedicles were rather massive were first tied off and then removed. A careful microscopical examination of the neoplasms showed them to be true adenomata. The patient's wretched condition forbade a further extension of the measures directed against the neoplasms on that occasion. Under forced feeding matters improved so much that four weeks after the first operation a second, more extensive, attempt was

deemed expedient. The coccyx and lower half of the sacrum being exposed by a median incision, the former and the lower segment of the latter up to the third sacral foramen were removed. The rectum was then laid open by an incision extending just from above the sphincter to the stump of the sacrum, whereupon the organ became very accessible by means of broad retractors. The adenomata, located well up in the sacral excavation, were then removed either by ligature, or those that were attached by a broad base by the actual cautery. As a relapse was probable, the wound was left open to permit of a continuous supervision of the site of the disease, or eventually of a repetition of the treatment. This observation was carried on for two months subsequently, and a number of adenomatous nodules were again and again destroyed. Should the tendency to relapse not diminish, an extirpation of the diseased part of the gut will have to be considered, otherwise the gut will be closed by a longitudinal suture.[1]

Carcinoma of Rectum.

In seventeen cases rectal cancer was observed, and the diagnosis was in each case confirmed by microscopical examination. Five times the patients declined to submit to operative treatment of any kind, three times in the absence of stenosis, and on account of far-gone emaciation and cachexia no operative measures were thought to be advisable. In the remaining nine cases inguinal colotomy was done five times with one death. Kraske's excision of the rectum was performed three times with one death, and once the old-fashioned perineal extirpation was successfully resorted to. As previously mentioned, inguinal colotomy was done twice, and Kraske's method of extirpation of the rectum was performed once for ulcerative proctitis. The extirpation, which was exceedingly difficult and bloody, resulted in the patient's death from acute anæmia; the colotomies were successful.

In considering these methods we have at our disposal seven colotomies and five extirpations of the rectum. The

[1] Plastic closure of the longitudinal incision was done July 12, 1893.

experience gathered from this material may be summarized in these remarks: Cicatricial or neoplastic stenosis of the rectum was always considered an ample indication for the performance of colotomy, which was successful and afforded great relief in six cases. Though it was mostly found to be a comparatively easy operation, twice a serious difficulty was met with in the shape of a short or retracted mesocolon. In one case, that of a very fat old man, suffering from far-gone and high-reaching cancer, the mesentery of the sigmoid flexure was a hard, unyielding and shrunken mass of cancerous tissue. The gut was so closely attached to the pelvis that its fixation to the abdominal wall was a matter of much labor and great difficulty. The patient was suffering from a chronic bronchial catarrh, with a tenacious secretion, and had contracted the bad habit of hawking and coughing in a violent manner to clear his windpipe. Silk sutures were used, and the gut was incised on the third day after the operation, and the mucous membrane was then stitched to the skin with an additional row of sutures. On the fifth day, when success seemed assured, the distal row of sutures gave way during a fit of coughing, and small intestine prolapsed, and became soiled with feces. The patient did not notice the accident, and it was noticed only when after another access of coughing a coil of gut slipped out from under the dressings. It could not be ascertained for how long this state of affairs had existed, but the mischief proved to be irreparable. About three feet of intestine were found thoroughly smeared over with semi-liquid feces, and intensely congested. Though they were carefully cleansed and easily replaced, an intense septic peritonitis developed within a few hours and carried away the patient.

In the other case colotomy had to be done for ulcerative cicatricial stenosis in a young woman. The mesentery was found short and rigid as high up as the splenic flexure, and rather than make another incision I determined to attach the colon at the usual place as well as could be done. Here, as in the former case, the formation of a spur was out of question, but, the patient being very lean and emaciated, fixation of the gut was finally accomplished. The absence of a spur was found to be a great

drawback, as considerable quantities of feces escaped into the distal part of the rectum to regurgitate or to cause much suffering during their passage through the strictured and ulcerated bowel. Later in this case extirpation of the rectum was performed at the urgent request of the patient, and the shortness and rigidity of the mesorectum was found to be a formidable obstacle to the safe performance of the operation.

Prolapse of the intestinal mucous membrane, or rather eversion of a section of the gut, was observed once, in a case of ulcerative and strictured rectum. With a view to a future extirpation of the diseased part of the organ, colotomy was done rather high up, and in a portion of the colon having a long mesentery. In this case the colon was surrounded by an unusually massive deposit of fat, and fixation of the gut was rendered somewhat difficult because the determination of the proximal and distal portion of the colon could not be satisfactorily made. Hence it happened that the loop of intestine selected for fixation was attached with a twist, and defecation requiring more than the normal amount of intra-abdominal pressure, together with the causes mentioned before, led to a considerable prolapse. But as it was intended to close the artificial anus after the extirpation of the rectum, this inconvenience will be remedied.

Under ordinary circumstances, colotomy was done as follows: Whenever possible, the patient's bowel was prepared by a thorough purgation, then the longitudinal incision was made two inches to the inward of the left anterior superior spine, beginning two inches above Poupart's ligament. After division of the peritonæum this was attached to the skin by a few silk sutures. Then the colon was sought for and withdrawn. Whenever extirpation was considered probable, the most proximal part of the colon was attached to the abdominal wall that could be drawn to and comfortably fixed in the wound. The tension produced by this mode of fixation would also prevent prolapse. To ascertain whether the coil of gut selected is parallel with the axis of the colon or is twisted, Czerny's expedient was found very useful. If the coil is as it should be, the finger, if passed down to the posterior

pelvic wall, along the gut and its mesentery on the outside, should remain on the lateral or outer side of the mesentery; that is, the mesentery should be felt as a screen extending upward and downward and preventing the passage of the finger-tip to the inner or medial side of the gut and mesentery. If the gut is twisted the finger, slipped down from the lateral or outer side of the gut, will find its way to the inner or medial side of the mesentery. The colon is now withdrawn sufficiently to bring the mesentery of the middle of the coil to the surface, a long, well-disinfected shawl pin is passed through skin, peritonæum on one side, then through the mesentery behind the gut, then through peritonæum and skin on the other side. Finally a single circular continuous suture is run around the incision, uniting parietal peritonæum to the gut if the intestine is not to be incised immediately. Should this be deemed necessary, two superimposed peritoneal sutures will give better security against fecal infection. To prevent traction or compression of the attached coil of gut by the dressings, we have been in the habit of placing over the wound a semi-globular tea-strainer, which permitted the escape of all secretions and prevented the adhesion of the dressings to the intestine. Forty-eight hours after the operation, and after the withdrawal of the pin, the gut was opened by a transverse incision reaching nearly down to the mesentery. In the fatal case mentioned before, the use of a shawl-pin was impossible, and in a similar case it would be proper to close the first incision and to perform colotomy on the right side.

It was claimed that colotomy had the tendency to check the growth of rectal cancer, or lead to a cure of ulcerative proctitis. In none of the cases referred to here could such a thing be observed; the cancers continued to extend, and ulcerations did not yield to local treatment more readily than before operation. But, on the other hand, it cannot be denied that because the feces were diverted from the diseased parts, not only did the patients suffer much less pain, but infection was better combated by irrigations from below, and, there being less retention, the septic and febrile elements of the malady were lessened, and the operation generally resulted in an improvement of the patient's general condition.

Extirpation of rectum was performed by myself in five cases, four times for carcinoma and once for strictures caused by ulcerative proctitis. Of these five patients two died in consequence of the operation, both of acute anæmia; one suffering from carcinoma, the other from ulcerative proctitis. In both Kraske's operation was done. The first of these fatal cases concerned a very flabby, fat and anæmic person, aged forty-nine, with a high-seated circular cancer extending further than the finger could reach. The operation was very easy, and consumed only thirty minutes. The hæmorrhage was moderate, but proved to be fatal, as the woman's pulse, which had become thready and rapid toward the end of the operation, never recovered in spite of energetic stimulation. She died twelve hours after the completion of the excision.

The second fatal case was the one of a young married woman of thirty, on whom colotomy had been done several months previous to extirpation for very extensive and high-reaching ulcerative and stricturing proctitis. As mentioned before, serious difficulty was encountered in this colotomy from shortness of the mesocolon. The patient was not content with the marked improvement of her condition following colotomy, and urgently requested an extirpation, so as to get rid of her artificial anus. Though her general nutrition was vastly better than before colotomy, I earnestly dissuaded her from this serious step, fearing that she lacked strength enough to withstand the shock of extirpation, which, judging from the shrunken and brittle mesocolon found during colotomy, would in all probability turn out a very difficult and tedious process. Finally, I yielded to her entreaties, and having plainly warned her of the great risk taken, determined to excise the morbid part of the gut. The operation was very difficult, bloody and tedious. The rectum was very brittle, tearing whenever it was firmly grasped by hand or instrument, and its attachments to the sacral excavation, and, higher up, to the posterior aspect of the pelvic cavity, were very dense and vascular. The vessels, being imbedded in unyielding inflammatory material, did not retract, and their securing by clamps and ligature also met with much difficulty

on account of the brittleness of the tissues. Six inches of the gut were removed, and the stump was attached to the edge of the sacral section. Profound collapse set in immediately after ablation of the rectum, the peritoneal wound was hastily packed with iodoform gauze, and the patient having been brought to bed, forty-five minutes after the beginning of the operation, was subjected to all known forms of stimulation, including three saline infusions into her median vein. These were each time followed by an evanescent improvement of the pulse, but consciousness never returned, and the patient died twenty-four hours after she had been brought to bed. Toward the end the temperature, which had been subnormal for sixteen hours, began to rise, and just before death reached 104° F., indicating that infection of the wound had probably taken place.

The other two cases of Kraske's operation were successful. In both about six inches of the gut were removed. The patients' general condition being good, they easily overcame the entailing shock. The peritoneal wound was immediately closed by catgut sutures, and the recesses of the formidable wound having been tightly packed with strips of iodoform gauze, the rectal stump was attached to the sacral angle of the external wound by a few stout sutures. None of the operations took more than one hour's time, and the hæmostasis and management of the other details of the procedure were rendered remarkably easy where the tissues were found to be normal. The packings were removed on the fourth day after an evacuation of the bowel by a high enema. In the first of these cases, presented to the Academy of Medicine of New York about four years ago, a marked hernial tendency was noticeable in the scar for about a year after the operation, whenever the intra-abdominal pressure was increased in coughing or during defecation. This tendency, however, disappeared, and the patient was perfectly well for four years. A few weeks ago he presented himself with a local relapse, and though his general state was still very good, I declined to interfere on account of a suspicious infiltration, extending far up the prostate and neck of the bladder. Had merely colotomy been done in this case, the patient would have presumably died two or three years ago

The second successful case was that of a middle-aged, ruddy physician, hailing from the northwest. Here, also, about six inches of the rectum were excised twenty-two months ago, according to Kraske. The operation, though very bloody, was comparatively easy, and was excellently borne, and the patient was discharged cured eight weeks after it. As a portion of the sphincter was saved, a secondary plastic operation was done in October, 1891. But the nervous supply of the sphincter having been cut, this measure did not markedly improve the patient's control of the bowel. Still it is to be said that in these, as well as in other cases of rectal excision in which the sphincter had to be sacrificed, the fibres of the retracted levator ani were uniformly found to form a sort of third sphincter, offering sufficient resistance to a solid fecal column to retain it, or at least give the patient sufficient warning and time to enable him to reach a place of easement. In this case no signs of relapse are visible at the present time, and the patient's physical and mental condition is in every way far preferable to the state of despairing resignation which we observe in those on whom colotomy alone was performed.

In the case of a woman fifty years old, whose very wide pelvic aperture permitted easy access without extirpation of the sacrum, the coccyx alone being excised, four and a half inches of the rectum were removed according to the old-fashioned perineal method. She made an easy and rapid recovery, but as only five months have elapsed since the operation, no conclusion as to its lasting value can be expressed.

As to the preference of the radical operation to colotomy, where the patient's general condition permits it, there can be no serious discussion. But the cases must be carefully selected, and the determining factor should be sought rather in the general powers of resistance of the patient than in the extent of the local disease. I may be permitted to mention here that one of my patients, from whom I removed, at Mount Sinai Hospital, six inches of cancerous rectum nine years ago, and who had a relapse three months afterward, for which a second time additional two inches of the gut was removed, is perfectly well to

this day. The sphincter was saved here, and at the second operation the rectal stump was brought down to the original site of the anus, and attached there. This patient now exhibits a very effective degree of sphincteric control.

Regarding the mode of performance of extirpation of the rectum, a few remarks may not be amiss:

First.—Select only cases that, though showing other signs of illness, still possess a very good circulation; in short, whose heart and blood supply are fairly preserved. Do not omit to prepare the patient by preliminary colotomy where much fecal distress and more or less fever are due to stricture and ulceration, and pay scrupulous attention to your patient's preparatory feeding and general régime.

Second.—During the operation husband your patient's blood by careful hæmostasis. Not one drop of blood should be unnecessarily lost. Much of it must be shed unavoidably. Mass ligatures, single ligatures, temporary clamping, packing and finger pressure, in short, all the expedients practiced by the modern surgeon for saving blood in abdominal operations, should be scrupulously employed, and to their widest extent.

Third.—The most painstaking asepsis is an essential condition of success. A serious source of infection is the rectal tube itself. To avoid contamination from this source, the lower end of the diseased rectal segment should be tied off at once, as soon as enough of it has been dissected out to permit of the application of a ligature. In developing the organ from the pelvic cavity, as little force should be used as possible, as septic rectal contents may find easy egress through accidental rents long before they are discovered. The surgeon should never go too near the muscularis of the gut, and should keep outside of the circum-rectal envelope of fat. Should the gut be accidentally torn or incised, the breach, however small, should immediately be closed by tight suture. As long as the integrity of the gut is not broken irrigation will be unnecessary. But where the gut is accidentally opened, copious irrigation will become indispensable.

Both hæmostasis and asepsis will be materially assisted by

the employment of the posture recommended by Lange, of New York, which resembles Bozeman's, inasmuch as the prone patient's breach is well elevated by a proper support, consisting of one or more hard cushions. I have found that raising the breach end of the table, its legs resting on two wooden chairs, answers the purpose very admirably.

The after-treatment of the wound should be according to the open plan, by light packing, renewed every third or fourth day. A short hot sitz bath, preceding the change of dressings, will be very grateful to the patient and helpful to the surgeon.

The patients should be made to leave the bed as soon as possible, and generally long before the wound is healed. It sounds paradoxical, but it is true, that they are sooner able to walk than to sit up with comfort. If tired, they should be ordered to lie down and rest, but the sooner and the more they manage to walk about, the more rapid will be their general recovery.