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Excision of the Rectum

FOR

MALIGNANT DISEASE.

By N. SENN, M.D., of Milwaukee.

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Excision of the Rectum for Malignant Disease.

By N. SENN, M. D., of Milwaukee.

Case I.—Mrs. W. H., æt. 60, German, widow, mother of several children, was admitted into the Milwaukee Hospital, May 26, 1880. Her family history was good. For many years she had been suffering from constipation and hæmorrhoids, and for the last nine months defecation had been very painful, the passages being frequently covered with mucus and stained with blood. She had also suffered severely from occasional sharp, darting pains in the lower part of the rectum and a dull aching pain in the sacral region. The constipation frequently alternated with diarrhœa, especially after taking laxative medicines, which always had a tendency to increase the tenesmus and pain in the back. The patient was considerably emaciated and anæmic, and on the countenance was depicted the familiar anxious expression indicative of long-continued and severe suffering.

On digital examination an indurated, nodular tumor, of elliptical shape, was detected, commencing immediately above the sphincters, its upper, well-defined margin being barely within reach of the index finger. Its centre occupied the posterior wall of the rectum, the greatest measurement of the tumor corresponding to the transverse diameter of the intestine and involving about two-thirds of its circumference. The margins of the tumor were well defined and no indications of adhesions were present, the rectum being freely movable in all directions.

At the centre of the tumor an ulceration was found of the size of a quarter of a dollar. Microscopical examination of the structure of the growth revealed the presence of epithelial cancer-cells. Excision of the rectum having been decided upon, the patient was prepared for the operation by first thoroughly emptying the bowels by means of laxatives and enemata, after which it was well disinfected

by the frequent use of injections of salicylated water; the external parts were then thoroughly cleansed, shaved, and carbolized. The patient having been anæsthetized, and the bladder evacuated, she was placed in the exaggerated lithotomy position. The operation was commenced by making the posterior rectal incision (introducing the left index-finger into the rectum as a guide), entering the point of a long curved bistoury above the sphincters and carrying it downward and backward and emerging in front of the coccyx; all the intervening structures were cut with one sweep of the knife. The hemorrhage, which was quite profuse, was arrested by applying a number of cat-gut ligatures. After making this incision it was found that the rectum prolapsed very easily, greatly facilitating the access to the diseased mass. The anus was now partly circumscribed by an incision in the shape of a horse-shoe, the open extremity being directed forwards, and cutting through the loose cellular tissue behind and on the sides of the intestines; the latter were easily separated with the index-finger as far as the upper margin of the neoplasm, as was ascertained by introducing the left finger into the rectum and the right into the wound.

With blunt-pointed scissors the lateral incisions were now made a few lines from the margins of the neoplasm, and carried from the anus to the upper margin of the growth, thus incising the rectum longitudinally on either side of the recto-vaginal wall. The mass was then grasped with a vulsellum forceps and drawn downwards so that the healthy portion of the intestine corresponded to the external wound. Silk threads were passed through the healthy intestinal wall above the morbid mass and held by an assistant, so as to retain the bowel in place after excision of the growth, until it could be united by suture to the external wound. The transverse incision was made with the scissors, and all hemorrhage arrested by the application of several cat-gut ligatures and irrigation with cold salicylated water. A large drainage tube, reaching from the upper limits of the pelvic wound to the exterior was placed along the posterior median incision, and the intestine united to the skin by numerous antiseptic silk ligatures. The posterior rectal incision was united by means of a number of deep silver wires and a few superficial silk sutures, only a small opening being left posteriorly for the drainage tube.

After another thorough irrigation of the rectum and the wound, a compress of antiseptic gauze was placed over the wound and retained with a T bandage. Although the hemorrhage was very profuse, the prompt ligation of all bleeding vessels at every step of the operation, and the diligent use of the hæmostatic forceps, succeeded in preventing serious loss of blood; and although the patient became very feeble from the moderate loss of blood and prolonged anæsthesia (the operation having lasted 1½ hours), she rallied promptly on the application of external heat and the use of alcoholic stimulants. Opium was prescribed to control the pain and arrest peristaltic action. The compress was removed every four hours and injections were made through the drainage tube.

Without following the history of the case from day to day, I may state that the temperature at no time exceeded 100 degrees. All of the intestinal sutures cut through at the end of the third day, the posterior median incision also failing to unite and the sutures were consequently removed to facilitate drainage; the parts were then left in the same condition as immediately after the excision, the resected extremity of the bowel having receded fully four inches. A moderate amount of healthy suppuration took place; granulations began to fill the immense cavity, and during the process of cicatrization the rectum was drawn nearer to the external wound, so that after six weeks only a small granulating surface remained at a point previously occupied by the sphincter muscles. The patient was now discharged from the hospital, and I learned subsequently that this lesion healed in a short time and that she remains well up to the present, seven months after the operation. She has good control over the bowel, suffering no inconvenience except when the bowels become loose, when it is necessary to attend promptly to the "call of nature."

Remarks.—The disease in this case affected the posterior wall of the intestine, the favorite location of rectal cancer. The patient had been suffering for many years from hæmorrhoids, an affection which, in many cases, appears to be antecedent to rectal cancer, and may possibly hold an ætiological relation to the latter. In regard to this point, Billroth says that hæmorrhoidal dilatation was noted in a number of his cases, but that it was not a constant factor. All present were impressed with the advantages accruing

from the posterior rectal incision. It exposed the parts fully during the operation, and subsequently afforded complete drainage. The hemorrhage, although profuse and troublesome, was controlled by using the hæmostatic forceps, and ligating the vessels as they were severed. Carbolic acid was not used as an antiseptic, as I was apprehensive that its employment in this locality, and to the extent necessary, might lead to troublesome, if not fatal intoxication. The liberal and thorough use of salicylated water, and the antiseptic compress were effective in preventing putrefaction and infection, and thus favored rapid granulation and cicatrization. The intestinal sutures did not hold the parts in apposition until union could take place, having cut their way through the intestinal margin in from two to three days. Billroth appears to have had the same unfavorable experience with such sutures. He says: "To draw the rectum down and unite it to the integument interferes with free drainage; I therefore do not recommend it. The advantage derived from such a course is very slight, as primary union hardly ever takes place, but the sutures cut through the tissues on the third day, and the rectum retracts." A healthy strip of the rectum, corresponding to the recto-vaginal wall, was left to prevent, if possible, serious stenosis of the rectum. The preparation of the patient, and the details of the operation, as well as the after-treatment adopted in this case, were in accordance with the teachings of Volkmann.

Case II.—Carl K. æt. 57, German, farmer by occupation, was admitted into the Milwaukee Hospital, November 2, 1880. His family history presented nothing unfavorable, none of his relatives having suffered from any constitutional disease. He had always enjoyed good health, but had for many years been subject to a hæmorrhoidal affection, which, however, caused little uneasiness if the bowels were kept regular. Since February last, he has been suffering great pain on defecation, and had a great deal of difficulty in procuring regular evacuations. The suffering gradually increased, and the sensation of obstruction in the lower part of the rectum became more acute. He noticed also, that the passages from the bowels became smaller and flattened. During the last two months the pain during defecation was intense, and his general health began to fail, so that for some time past, he has been unable to follow his occupation. At the

time of admission he presented a peculiar, anxious countenance, was anæmic and somewhat emaciated. He remarked that he could endure the suffering no longer, and that he was willing to risk his life in an attempt to even obtain relief. On making a rectal examination I discovered a firm, sharply defined tumor, commencing just within the anus and extending upwards for three inches; it occupied more than two-thirds of the circumference of the intestine, involving more of the left than the right side. It commenced to the right of the median line, anteriorly, and terminated at a point below, where the anterior half of the right side of the rectum joins with the posterior half, leaving a narrow strip of healthy tissue between. Posteriorly and to the left, the tumor was freely moveable with the rectum, showing that the neoplasm was limited to the intestinal wall; anteriorly it was immoveable on account of the firm attachments of the rectum to the urethra, prostate gland, and base of the bladder. As the symptoms of obstruction, and, with it, the suffering had been rapidly growing worse, excision seemed to be the only means that would afford temporary, if not permanent relief. The dangers and chances attending it were fully explained to the patient, and without hesitation he decided in favor of an operation. He was prepared for it with the same care as in the preceding case. The incisions were made in a similar manner; the dissection between the anterior rectal wall and the bladder proved very difficult and tedious, the membranous portion of the urethra, the prostate gland and neck of the bladder, being fully brought into view by it, a sound in the bladder serving as a guide during this stage of the operation. The rectum could not be brought down, consequently the transverse section was attempted with a wire écraseur, after the example of Mr. Cripps, but the wire broke before the division was completed. The tissues were then cut through with scissors just below the groove made by the wire. The vessels had been sufficiently compressed to render this step bloodless. Two drainage tubes were introduced after all hemorrhage had been arrested, one along the floor of the posterior median incision, and the other beneath the urethra and bladder; the space between them was filled up with antiseptic gauze.

After the wound had been again thoroughly cleansed by

injection of salicylated water through the drainage-tubes, an antiseptic compress was applied which was retained by means of a T bandage. The same after-treatment was adopted as in the former case; in the evening the dressing was changed, and the patient felt comfortable.

November 4th.—Visited the patient in the morning, and ascertained that, after the last visit in the evening, hemorrhage occurred, the loss of blood amounting to, perhaps, one pint, when it ceased spontaneously. I found him very pale and restless. Pulse, 120; temperature, 102½ degrees; urine scanty. The dressing and drainage-tubes were removed, and the rectum freely washed out with salicylated water to clear it thoroughly from the small coagula which had remained in the wound and intestine since the previous evening. I prescribed Quin. sulph. gr. v., Opii pulv. gr. i., to be taken every four hours.

November 5th.—Pulse 108; temperature 101 degrees. Patient has frequent desires to pass water, and complains of great pain during the act. No chill. Has slept but little. Prescribed stimulants in addition to the powders.

November 6th.—Pulse 100; temperature 100¼ degrees. During the night he has had a severe chill, which was followed by intense pain in the abdomen. Tympanites and frequent, uncontrollable vomiting. Ordered warm fomentations and turpentine applied externally, with hypodermic injections of Morphia. Although one-quarter grain doses of the latter were given every few hours, it was found inefficient to control the pain. Ice and brandy were given to arrest the vomiting and sustain the heart's action, but they proved of no avail. The pulse became smaller and increased in frequency; a profuse, clammy perspiration made its appearance, the extremities became cold, the face cyanotic, the respiration more rapid and superficial, and he died the following morning, with symptoms of exhaustion.

Remarks.—The unfavorable termination of this case may be attributed to two causes, first, the proximity of the disease to the bladder and the peritoneum; second, the occurrence of secondary hemorrhage. The peritoneum was not injured during the operation, but it was undoubtedly exposed to the secretions of the wound. In all probability, the hemorrhage took place from that portion of the bowel

which had been constricted by the wire of the écraseur, and afterward severed with the scissors. To my mind, the loss of blood was not sufficient to compromise life, but the small coagula which remained in the wound during the night and underwent decomposition, may have been a source of infection, the depleted condition of the blood-vessels, being favorable to the absorption of septic materals. The patient was suffering from septic infection the day after the operation, and died from septic peritonitis three days subsequently.

The practical lesson to be learned from this case is, to guard carefully against hemorrhage during and after operation, and not to permit any blood to remain in the rectum or wound for a sufficient length of time to undergo decomposition. In case I should again perform a similar operation, I should make the transverse section of the intestine with a chain écraseur, or with the galvano-caustic wire.

There is probably no other disease in surgical nosology which produces such intense, and long-continued pain before it destroys life than cancer of the rectum. The suffering incident to advanced carcinomatous stenosis of the lower portion of the intestinal tract is beyond description, and no class of patients meet death more gladly and willingly, as their only friend, than those suffering from this terrible malady.

While ancient surgeons attacked cancers affecting external organs with the knife and caustics, in a manner that displayed a considerable degree of knowledge and courage, they made no attempt to bestow upon the unfortunate patients suffering from cancer of the rectum the only means of cure or palliation—the operative removal of the diseased parts. All the old authors enumerate the rectum among the organs which are beyond the reach of the knife or caustics when affected by this disease. Even Bell remained faithful to this doctrine. Speaking of excisions of cancers, he says: "This operation ought never to be advised, where the diseased parts are so situated as to prevent them from being totally removed, as is the case in cancer of the uterus, of the liver, rectum, and some other parts." (Bell's Surgery, vol. II., page 393.)

The hesitation on the part of the older surgeons to con-

fer the blessings of operative treatment upon patients suffering from cancerous disease of the rectum, we can only explain by assuming that, during their time the knowledge of anatomy was very imperfect, pathology was unknown, and the instruments crude and illy adapted for performing such a difficult and delicate operation.

The first well authenticated operation of excision of the rectum was performed by Faget, in 1739.* In this case the rectum had become separated from the neighboring parts by two abscesses in the recto-ischiadic fossa. Faget removed a section, an inch and one-half in length, consisting of the entire circumference of the rectum. The case progressed favorably, defecation proceeding with the new anus as comfortably as in the natural state of the parts. According to the assertions of Velpeau, Beclard was the first one to teach publicly, (1822,) that for the purpose of removing cancerous indurations, the lower portion of the rectum should be extirpated. Four years later, Lisfranc performed the first operation for malignant disease of the rectum. He made many careful dissections to show that the lower portion of the bowel could be excised without opening the peritoneal cavity. He gave the distance from the anus to the peritoneum in the male as 108 mm., and in the female as 162 mm. A few years later, Blandin studied the same subject, and arrived at opposite conclusions. He found that in the female the peritoneum is only 41 mm. distant from the anus, and in the male 81 mm., while, in the fœtus and in small children, it descends much lower, so that in them no recto-vaginal, or recto-vesical wall is found. Among nine operations performed by Lisfranc, previous to 1831, five terminated in recovery, in one instance the result was doubtful, and three cases ended fatally. The cause of death in two cases was purulent effusion into the pelvis, and phlebitis; the body of the third subject was not examined.

In Germany Lisfranc found an enthusiastic follower in Dieffenbach, who, it is said, operated over thirty times. It is reasonable to suppose that the pupils of these eminent surgeons and popular teachers readily adopted the operation and soon carried it to extremes, which could not fail in being productive of disastrous consequences which dragged

* Walshe on Cancer, Boston, 1844, page 277.

it from the sphere of propriety and usefulness into disgrace and abandonment. For years the operation remained in disrepute among surgeons until it became revived by Volkmann and Nussbaum, in Gernany, Kocher, in Switzerland, and Cripps, in England. These men, and many others, have improved the methods of operation, and have elevated the procedure to a scientific and legitimate one—a blessing to suffering humanity, and a triumph to the art and science of surgery. Although the operation is endorsed by many of the ablest surgeons, it has still its opponents, among them men of distinction and eminence. For the purpose of ascertaining the voice of the profession, pro and con., I will briefly quote from a few authorities. Mr. H. Smith * disposes of this subject briefly in the following words: "Some surgeons were, a few years since, in the habit of performing excision of the lower part of the rectum when affected with cancer, but this proceeding must be looked upon as both barbarous and unscientific, and it is now happily excluded from the catalogue of surgical operations." Professor Gross † looks upon the operation simply as a palliative measure, the temporary benefit to be derived from it hardly justifying the exposure of the patient to the dangers incident to its performance. He says: "Excision promises no benefit in this disease, save temporary relief from pain and fæcal obstruction. When the anus is involved, the operation must, of course, include the sphincter muscles, thereby depriving the patient of the power of controlling his passages, and the same result would be sure to follow the excision of a portion of the rectum, to say nothing, in the latter case, of the immediate risk of life from hemorrhage, peritonitis, and phlebitis."

Erichsen‡ condemns the operation in the following, by no means flattering, terms: "The recommendation to excise the cancerous mass, as made by Lisfranc and other French surgeons, is contrary to every principle of good surgery, as it is impossible to extirpate the whole of the disease without either laying open the peritoneal cavity, or destroying the patient by the profuse hemorrhage which could scarcely be arrested."

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* Holmes' System of Surgery, Vol. IV., page 858.
† System of Surgery, Phila., 1864, Vol. II., page 301.
‡ The Science and Art of Surgery, Phila., 1869, page 1,007.

Hamilton* discountenances excision when the disease is located above the sphincters, and doubts the veracity of the accounts of cases which have been reported as cured. He says: "Epithelioma and scirrhus occurring above the sphincters are not, in my judgment, curable by any surgical operation. Cures have been reported after the removal of large portions of the rectum for both epithelioma and scirrhus, but not upon reliable authority."

Against this formidable array of opponents to the operation, I will record the opinions of a few eminent surgeons who favor it. The opposition to the operative treatment of cancer of the rectum comes mostly from England and America. German and French surgeons, as a rule, look upon it as a legitimate and scientific procedure.

Volkmann,† who has done more than any other surgeon towards rendering the operation free from danger, by the application of antiseptic precautions during and after its performance, makes the following statement: "To the capital operations in which, for the last few years, I have been successful in reducing materially the former mortality, by the gradual improvement of the methods of operation, and especially by adopting a better treatment of wounds, I may add more particularly the operative removal of malignant growths of the rectum, and extirpation of the rectum. Although at present I am not prepared to prove my assertions with figures, yet I can state that formerly I lost a relatively large percentage of those operated upon, while now it is seldom that one dies from the operation, notwithstanding that at present I give the operation a wider range of application than before, and I am not even afraid of an accident or unavoidable opening into the peritoneal cavity during its performance. During the first few years of my service as a clinical teacher, I lost every case where this accident occurred unintentionally; during the last five years all such cases recovered, without exception. The most important part of the treatment consists in the careful and effective drainage of the wound, combined with an equally careful primary disinfection, followed by frequent antiseptic irrigation."

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* The Principles and Practice of Surgery, N. Y., 1878, page 776.

† Sammlung clinischer Vorträge, Chirurgie, Vol. II., page 1,112.

Esmarch,* who has made the treatment of cancer a careful study for a number of years, is in favor of the operation, as may be seen from the following language: "In the treatment of cancer of the rectum the same principles are to be observed as when the disease affects other parts of the body. Extirpation must be practiced as early as possible, and the more of the adjacent healthy tissue is removed with the growth, the greater is the probability that a relapse will not take place at all, or at least after a long period of immunity. The prognosis is the most favorable when the disease affects the anus, or the lowest portion of the rectum."

Koenig† makes the following common-sense remarks in speaking of the treatment of malignant diseases of the rectum: "There is absolutely no reason why neoplasms of the rectum should be treated differently from those in other parts of the body; on the contrary, cancer of the rectum, which is the cause of such excruciating pain in patients suffering from this disease, calls more emphatically for an operation. We must mention this particularly, inasmuch as distinguished surgeons, especially in England, are opposed to an operation. If we can only operate in healthy tissue, we succeed not infrequently in keeping these poor, tortured patients for many years free from pain. And, although the unfavorable anatomical relations of the parts render a relapse probable, an operation affords palliation, for a time at least."

Nussbaum,‡ whose opinion in anything pertaining to operative surgery must always be considered as authoritative, is an enthusiastic advocate of the operation, as may be learned from the introductory remarks to the report of his remarkable case of excision of the rectum, part of the urethra, entire prostate gland, and neck of the bladder for malignant disease. "In the month of August, 1863, I reported in this journal four cases, which demonstrate that the removal of a carcinomatous rectum is a beneficial operation, calculated to prolong life, and to afford comfort to the patient. These cases proved that an operation on the

*Neubildungen des Mastdarms. Billroth und Pitha, Handbuch der allg. u. speciellen Chir., vol. ii., p. 186.

†Lehrbuch der speciellen Chirurgie, Berlin, 1879, vol. ii., p. 301.

‡Separat Abzug des aerztlichen Intelligenzblattes, No. 44.

rectum may be undertaken even when the bladder of the male, or the vagina of the female are, to a greater or less extent, involved by the cancer. On that occasion I could have mentioned cases of operation for cancer of the rectum where patients were almost moribund, and yet recovered after the operation, and lived for months and years subsequently, happy and contented until at last an ugly relapse produced the former complaints and dangers, and which were no longer amenable to the operative treatment. I have repeatedly removed pieces of the male bladder of the size of a silver dollar, with the diseased mass, and the wound healed completely, like that after lithotomy, without leaving a urinary fistula, and the relapses appeared very late, because rectal cancer, if removed by incision through healthy tissue, returns much later than many other cancers."

Dr. John B. Roberts* closes an excellent paper on rectal cancer, as follows: "The success attending the operations has not been invariable, but enough so, I think, to show that in selected cases the operation can be done with a reasonable hope of alleviating the distress of the patient, and making life endurable. It should be done in the earliest stages of the disease."

Dr. Chas. B. Kelsey, of New York, says:† "In a small number of selected cases a cure is perhaps possible, as with cancer of feeble malignancy in other parts of the body, e. g., epithelioma of the lip. At all events, the disease may be removed and its return delayed for many years. This fact, we believe, may be accepted as proved by a sufficient number of carefully examined cases, from which the chances of error in diagnosis and subsequent history have been eliminated."

As such a great diversity of opinion prevails among surgeons in regard to the propriety and utility of excision of the rectum for malignant disease, it may be well to inquire what have been the results after this operation, in saving life and diminishing suffering.

Five out of nine cases operated upon by Lisfranc recovered. Dieffenbach claimed that a large proportion of the thirty cases of his own, recovered and remained com-

*Surgery in the Pennsylvania Hospital, Phila., 1880.

†American Journal Med. Sciences, Oct., 1880.

fortable for a number of years. Billroth examined a woman fifty-one years of age who had been operated upon by Schuh four years previously, and was unable to find a sign of relapse, although the cancer had reached high up in the intestine, and embraced its entire circumference. Billroth* himself extirpated the rectum thirty-three times—thirty-two times for cancer, once for melanotic sarcoma. Of this number twenty survived the operation; the majority of them, however, died within one or two years after the operation from a return of the disease. Thirteen of the patients died in consequence of the operation, a mortality of 39.3 per cent. Death was attributable in every instance to retro-peritoneal phlegmonous inflammation, which in most cases assumed an acute septic character, proving fatal from the fourth to the eighth day.

Volkmann has had three permanent cures among his cases of rectum extirpation, and a number of cases where the disease returned after a long time. This occurred in one case after six years, once after five years, and once after three years. One of his patients died after eight years, without a local return of the disease, from cancer of the liver. One of his patients remained well after eleven years from the time the rectum was extirpated, having in the meantime submitted twice to the removal of cancerous nodules in the neighborhood of the newly constructed anus.

Kocher† reports ten cases of excision of the rectum, of which eight survived the operation, and two died from septic periproctitis and secondary peritonitis eight days after the operation. Four cases were under observation, respectively, for three and a half, four and three-quarters, seven and eight years without suffering from a relapse. The remaining patients died from a return of the disease from a few months to four years after the operation.

Among the many cases of excision of the rectum reported by Nussbaum, one deserves special mention. The patient had been suffering from cancer of the rectum for a long time, and his strength had been greatly reduced by frequent copious hemorrhages. He had often passed blood with the urine, and for sixteen days had no passage from the bowels, owing to cancerous constriction in lower portion

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* Chirurg. Klinik, Berlin, 1879, p. 260.

† Deutsche Zeitschrift für Chirurgie, vol. xii, p. 159.

of the gut. On forcing the index finger through the stricture, blood escaped freely through the urethra, showing that a communication existed between the rectum and urethra. A careful examination with the catheter revealed the fact that a part of the urethra, the entire prostate glands, the neck of the bladder and nearly four inches of the rectum were affected with the neoplasm. As all other means adopted to afford relief entirely failed, an operation was relucantly performed at the patient's urgent request. The anus was circumscribed by two semilunar incisions; the dissection continued upwards along the sides of the bowel to a distance of four inches, when healthy tissue was reached. After the affected portion of the urethra, the prostate gland and neck of the bladder were cut away from the healthy tissues, the healthy bowel was drawn downwards to the external wound, and the diseased part separated with the knife. At this step of the operation a large quantity of fæces escaped. The intestine was sutured to the skin by means of ten interrupted sutures, and the remaining wound closed with four sutures, after the introduction of a gum elastic catheter along the intestine, through the perineum, into the bladder. The bleeding was profuse, but was controlled by four ligatures and ice-water. The patient, almost moribund after the operation, rallied on administration of stimulants. During the first few days active febrile action took place, with a temperature of 40° C., and a pulse of from 130 to 140. Sensations of chilliness were followed by well marked chills. The catheter could no longer be tolerated, and several sutures were removed from the perineal wound to favor drainage. From this time improvement commenced to take place. On the fifth day secondary hemorrhage occurred, which was arrested by means of a charpie tampon in the rectum. The intestine united with the wound, except at a point in front where the sutures tore through. At this place the urine entered the rectum and escaped through the newly made anus. The wound healed rapidly, and during the process of healing a valve-like closure was effected between the bladder and rectum, so that the urine escaped every twenty to thirty minutes into the rectum, but the contents of the latter were prevented from entering the bladder. This arrangement afforded great comfort and convenience to the patient. He recovered sufficiently to be able to follow his occupation as a black-

smith, and enjoyed life for three years, when he succumbed to a local relapse of the disease. This case would certainly tend to show that an operation may be indicated and prove beneficial even in cases which would seem to be beyond the reach of surgery.

Of five cases operated upon by Prof. Schoenborn,* four recovered and one died. In the fatal case the peritoneal cavity was opened, and the wound closed by sutures. On post-mortem examination no evidences of peritonitis were apparent. In one case that recovered, a woman 73 years of age, the peritoneal cavity was also opened, and had to be closed with seven sutures. She recovered completely from the operation, and died three and a half years later from senile marasmus.

Cripps, of the Great Northern Hospital, has excised the rectum five times without fatal result, and has assisted at thirteen more operations, of which two of the patients died from the direct results of the operation, one from peritonitis, and one from collapse, making a total of eighteen operations with two deaths. According to Agnew,† this operation has been performed ten times in this country, of which number two were done by Bushe, one by Mott, one by March, one by Bridden, three by Lewis, one by J. R. Wood, and one by Agnew. Of these cases three were successful, one died seven months after the operation with what was said to be consumption, one lived sixteen months after the operation, in one the termination is not known, and four died as the direct result of the operation. To this number may be added the cases of Byron‡ and Post,§ both of which terminated favorably, and the two of my own, making a total of 14 cases with six deaths.

Dr. Kelsey‖ has recently published an analysis of 140 cases of excision of the rectum for malignant disease, of which number 22 died, death being attributable directly to the surgical interference. The causes of death were: peri-

* Deutsche Zeitshcrift für Chirurgie, vol. xiii., Heft 5 und 6.

† Principles and Practice of Surgery, Phila., 1878, vol. 1, p. 435.

‡ Annals of the Anatom. and Surg. Society, May, 1880.

§ The N. Y. Med. Record, July 31, 1880.

‖ N. Y. Med. Journal, Dec. 1880.

tonitis, 10; pelvic cellulitis and phlebitis, 4; septicæmia, 3; exhaustion, 3; hemorrhage, 1; erysipelas, 1.

Six of the cases remained permanently cured after a period of at least ten years. In twenty-four cases life was prolonged from one to six years without a return of the disease. In thirty-five cases where the fact of recidivation is mentioned, there was a local return in nine within three months, in nine within six months, in eleven within one year, in four within a year and one-half, and in three within two years.

Considering all cases collectively, the results obtained by the operation must certainly be regarded as satisfactory, both as a curative and especially as a palliative measure, comparing favorably with any other operation for cancer, if we exclude epithelioma of the lip. If we take into account the hopeless condition of patients suffering from rectal cancer and the excruciating pain attending its progress, we are justified in our efforts to procure alleviation at almost any risk. Cancer of the rectum in the great majority of cases belongs to the epithelial variety; hence, if excised early and thoroughly in exceptional cases does not return, or at least only after a long period of immunity from physical pain and mental distress. It may be laid down as a rule that excision should be practised as soon as a diagnosis of cancer can be made, and that it is admissible, unless contra-indicated by serious complications, as long as the neoplasm is limited to the walls of the intestine and the upper margin remains within reach of the index-finger. In most instances it will be found advisable to remove the sphincter ani muscles with the diseased mass, as observation has shown that the so called sphincter *tertius* presents complete fæcal incontinence. It is my firm conviction that where death follows surgical interference it is attributable, in the majority of cases, to septic infection, hence every precaution should be taken—*before, during, and after the operation*—to guard against this occurrence by securing free drainage and preventing putrefaction of the products of the wound by the employment of safe and reliable antiseptics.