

SIGMOID SURGERY FROM THE INTRA-ABDOMINAL AND INTRAPELVIC STANDPOINT.

Presented to the Section on Obstetrics and Diseases of Women, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY J. G. CARPENTER, M.D.

STANFORD, KY.

Diseases of the sigmoid have remained in practical obscurity, and the sigmoid per se, so far as the rectal specialist and general surgeon are concerned, have been a terra incognita. November, 1885, the sigmoid cavity was first exposed with the light of research, and scientific truths observed in the living subject narrated and made a part of historic discovery by the writer. The pathologist only knew diseases of the sigmoid as concerns malignant growths or benign neoplasms, or a possible sigmoid stricture, ulceration or fecal impaction, and what is now shown by Carpenter's sigmoidoscopy as a sigmoiditis with or without ulceration, was in the recent past supposed to be a proctitis or a colitis, the pathologist only dealing with diseases of the sigmoid as a postmortem observation. Now, with sigmoidoscopy (Carpenter's) we are also able to not only explore the rectum in its entirety, illumine the sigmoid cavity, and with ocular inspection diagnose polypus or stricture of sigmoid; diminution of its lumen from encroachment of a tumor by pressure, or even a fecal impaction of sigmoid cavity, as well as the local inflammations peculiar to it. It is surprising how little is known about sigmoidoscopy, or sigmoid surgery from the intra-abdominal standpoint. Even our recent text-books in surgery, gynecology, and on diseases of the rectum and anus, do not mention sigmoidoscopy or sigmoid surgery from the intra-abdominal side, and he who advances must read the journals. It is surprising how long it takes rectal and general surgeons to learn scientific truths about the anus and sigmoid when plainly told how to do so by the country doctor.

Divulsion of the anus for disease is considered by general and rectal surgeons as a muscle operation, when in truth it is primarily a stretching of the nerves, and secondarily a muscle operation. Rectal surgeons must learn that divulsion of the sphincters, besides its parietic and therapeutic effects on the lower end of the rectum and anus, causing rest, making the anus patulous and allaying irritability, curing pathologic lesions and doing massage, has another function, viz., nerve-stretching of the fourth sacral and inferior hemorrhoidal nerves, thereby cutting off connection between the spinal cord, the levator and sphincters, and placing at rest the bladder, rectum, vagina and perineum. It is to be hoped that rectal surgeons will be able to see and learn this great truth and give the author due credit for the discovery. The writer was informed about a year ago that a Louisville surgeon, in trying to illuminate the rectum and sigmoid cavity, punched a hole with what is called Kelly's sigmoidoscope into the sigmoid and entered the peritoneal cavity, and had to do immediate abdominal section to sew up the hole. Had this surgeon used Carpenter's sigmoidoscopy, which is simplicity itself, full of reason and common sense, that hole would have never been punched. He who knows how to do sigmoidoscopy does not need Kelly's superfluous and dangerous outfit, and he who has to use Kelly's ways should never attempt sigmoidoscopy.

A prominent rectal specialist operated upon an aged gentleman about 60 or 65 years for internal hemorrhoids, and said, "Mr. ———, you will be well in three weeks." At the end of this time the patient was a corpse from cancer of upper rectum and sigmoid aggravated by operation on the piles. Had the rectal specialist used Carpenter's position and sigmoidoscopy before operation he would have been a wiser surgeon, and with more reputation, and not a sadder one now, and his prognosis would have been in keeping with his pathologic knowledge and true condition of his patient. There is a vast difference between aseptic palliative surgery with bad prognosis, and complete life-saving surgery with favorable prognosis given, even in rectal surgery.

Volvulus of the sigmoid is often difficult to diagnose, especially if patient has been batted with opium, and even now it is so common for practitioners to give opium to ease pain and conceal prominent surgical symptoms that otherwise would be highly indicative of surgical interference. The symptoms of volvulus of sigmoid are former constipation, difficult to relieve, attended with distention and tenderness of abdomen or alternating with diarrhea, or following free purgation, severe exercise, indigestible food in large amounts; age of patient as a rule about 20 years; more often in the male than female; palpation may outline the volvulus; vomiting is often a prominent symptom, accumulation of fluid in abdominal cavity at a late stage of the strangulation, failure of bowels to act from purgatives or rectal enemata, or inflation with air; inspection with Carpenter's sigmoidoscopy. Rectal enemata, even with patient in the Carpenter posture, will generally return if the hydrostatic pressure from the rectal side of volvulus does not distend and cure it. By sounding, air inflation or hydrostatic pressure the sigmoid may become lacerated on its perineal side, torn, and leakage into peritoneal cavity result, with infection of the comma bacillus communis and other micro-organisms and toxins, and rapidly produce septic peritonitis. As delay and much taxis are highly unfavorable and dangerous to the welfare of patient, and the integrity of bowel in a strangulated hernia, so are palpation and rectal instrumentation with procrastination dangerous to life and integrity of bowel in volvulus of sigmoid. With early prognosis; early diagnosis; quick, early life-saving surgery; short anesthesia, with minimum of shock; under thorough asepsis, and before structural diseases have occurred, in skillful hands the patient's life ought to be saved.

Diagnosis made of an intra-abdominal lesion demanding surgery. Open abdomen in the median line if necessary, tap bowel with hollow needle or do enterotomy to let out gas or contents, with patient on left side; a short mesentery or intestinal adhesions, a constricting band or diverticulum or structural changes in bowel may greatly complicate withdrawal of the loops of intestine. The bowel may not only be highly inflamed with linear tears of the serosa, but with gangrene at and beyond where the two flexures of bowel have been twisted on each other, and demand a section. If bowel is healthy, return it to its normal position and stitch upper end of sigmoid to left side of abdomen, that portion of bowel opposite the mesentery, or as Senn states, shorten the mesentery, establishing a fold parallel to the axis of the gut. If the flexure is gangrenous in spots, they must be resected, if gangrenous in its entirety, resect the whole flexure

and unite bowel end to end by suture. (Senn entero-anastomosis, Murphy button, or do artificial anus.) If the time is short, and anesthesia is making rapid inroads on the vitality of patient, do the latter operation, as it is attended with less shock, done with more haste and suits more cases; then later on do the radical operation.

Stricture of the sigmoid from various causes demands similar life-saving surgery, according to the surgical demands and structural changes that have taken place in the bowel. If a foreign body becomes lodged in the sigmoid and removal per anum is impossible, an abdominal section with enterotomy must be done for its removal.

In malignant disease of the sigmoid we may be able to resect the growth, as Price, Senn, Bull and Hamilton have done, do an anastomosis or an artificial anus, the surgeon deciding on the condition of patient at time of operation and kind of intestinal surgery suited to each case, and his ability to do quick, life-saving surgery.

That the sigmoid becomes seriously involved in intrapelvic disease, there is not an iota of doubt; that it has not been written upon by prominent gynecologists and authors of prominent text-books is surprising, to say the least. Dr. Joseph Price for years has demonstrated in his surgical clinics the lesions of the sigmoid, complicating surgical gynecology, and volumes might be written on surgical complications he has presented from time to time. Those who know Dr. Price best know he does pelvic and abdominal surgery without the Trendelenburg posture, but he has the *tactus eruditus* to a higher degree, and can see more with his fingers through a two-inch abdominal incision and discern more intrapelvic pathology than many surgeons can see with their eyes through a six or twelve-inch incision and patient in the Trendelenburg position. How common is it for the sigmoid to complicate tubal and ovarian disease. The Fallopian tube, through leakage or infection in salpingitis, hemato- and hydro- and pyosalpinx, or ruptured tube in ectopic pregnancy, causes a local peritonitis of the left pelvis with a sigmoiditis serosa and adhesions to ovary, tube, uterus and bladder, or an ovaritis per se may cause adhesion to the sigmoid and become imbedded in the broad ligament, the tube being in part or in total nested with the ovary and sigmoid, or there may exist an ovarian or broad ligament cyst, fibroid or dermoid, and adherent to the sigmoid. Again, a pus-tube may be adherent to sigmoid on the left, bladder in front, uterus to right, intestines above and broad ligament below, or an ovarian abscess, or multiple abscesses with pus-tube may complicate the sigmoid wall and the abscesses encapsulated in the pelvis by the sigmoid, bladder, uterus, broad ligament and intestines and omentum above, or these abscesses may from time to time, through pressure, attenuation and maceration of the sigmoid wall, perforate the latter as well as the vagina, uterus, bladder, or peritoneal cavity, and leak or discharge and drain into the sigmoid cavity, and patient's life be saved by drainage and evacuation per sigmoid, rectum and anus. How often in doing intrapelvic surgery do we find complications of sigmoid, that is, by surgeons, especially Price's students, who have been taught to do thorough, clean, life-saving surgery and to deal surgically with surgical complications, as does Dr. Joseph Price. Often has the writer seen Dr. Price curette the sigmoid wall, removing pyogenic debris down to the

mucosa, healthy tissue, then repair this or these weak places by approximating serosa to serosa with the Lembert or continuous suture. Again, he has seen this illustrious surgeon curette a sigmoid ulcer through a perforated sigmoid wall or excise necrotic spots with the longitudinal axis of the bowel and again repair the bowel with serosa to serosa, taking the Lembert stitch through the serosa and muscularis of sigmoid wall with the finest silk thread and needle. The great reason why some abdominal surgeons have had great mortality following their work is that the needle and thread used to repair intestinal lesions has been too large, more like that of a darning-needle and thread. Again, these surgeons have been afraid to hunt for and find sigmoid lacerations and other intestinal complications, and if found could not sew them. Every physician who contemplates doing surgery should serve an apprenticeship in sewing with some good tailor or seamstress and have a skillful needle and scissors technic that comes only by practice, study and observation. And every graduate should be examined specially on this, and the repair of gut lesions, before receiving his diploma. The writer was raised on a large blue-grass plantation in Kentucky, and his mother used to make him take sewing and tailoring lessons when a young boy to keep him out of mischief and employed, so he was taught hemming, back-stitching, basting, darning, patching, tucking, quilting and embroidery, and his mother's sewing lessons taught him in childhood have been the greatest blessing to him in doing surgery. The most delicate, refined and gentle sewing to be done is sewing the intestine for pathologic lesions, and in plastic surgery one reason why intestinal suturing is so successful in skillful hands, viz., in inflammatory and traumatic lesions is, that if proper approximation of serosa to serosa is done, adhesive inflammation or agglutination of the serosa begins at once, and continues until definitive healing has been done in a few days, then with fine needle and sutures there is no leakage. Furthermore, the writer has been with Dr. Price and seen exsection or resection of sigmoid for stricture or malignant disease or benign neoplasm, and anastomosis with the Murphy button, or intestinal suturing or making an artificial anus when the strength of patient, the anesthesia, and the duration of operation would not permit of a surgical procedure of greater magnitude.

The writer had the pleasure of seeing Prof. Nicholas Senn do some of his wonderful surgery in entero-anastomosis and inguinal colotomy for malignant disease of rectum. The best surgeons always try to do life-saving and not "*ideal surgery*," for the latter is *fatal surgery*, and should be done only in the dead house where the amateur surgeons should begin to operate. It is a great thing to know just how much surgery the patient needs, how much can be borne with safety, and one had better do incomplete life-saving and again operate at another time for complete life-saving surgery rather than do the "*ideal*" and lose patient during or after operation. The writer has seen the sigmoid, ovary and tube, and appendix vermiformis adherent in one mass, the appendix stretching across the pelvis to sigmoid; also the uterus retroverted upon the tubes and ovaries in Douglas' pouch and sigmoid, bladder, tubes and ovaries internally adhered, so that it required the gentlest touch and manipulation and caution to find a point of cleavage and proper separation of the diseased organs without perforation. Furthermore, the essayist has

seen in his own and Dr. Price's of Philadelphia, uterine fibroids and dermoids attached intimately to the sigmoid as well as to the transverse and ascending colon and appendix vermiformis, omentum and mesentery; ovarian abscesses opening through the lower sigmoid and upper rectum with subsequent healing and contraction of the fistulous ulcers and scars has produced stricture of the bowel at these points. The writer had the good fortune or misfortune to operate for appendicitis and organic stricture of sigmoid at the same anesthesia. The sigmoid was extra long and the stricture relieved by the Murphy button anastomosis. The appendix vermiformis was dilated size of thumb at its cecal end, inflamed and filled with soft feces and appendoliths, and required immediate appendisectomy.

In conclusion, the essayist must state that all surgeons who do prompt, life-saving surgery must camp upon the domains of pathology in abdomen and pelvis and do life-saving surgery, and will meet sigmoid and other intestinal adhesions that must be promptly separated, and there must of necessity be more or less serious intestinal lacerations that must be surgically repaired with as much precision, judgment and gentleness as a stab or gunshot wound of the stomach or intestine, and he who can skillfully and successfully repair these traumatisms will save more lives than he who does dashing surgery and neglects these intestinal lesions, trusting to nature. To repair these lacerations it takes time, patience and perseverance, strong will-power and fortitude.

The essayist cannot close without expressing the most sincere and profound thanks to Drs. Price, Senn and Murphy for the valuable lessons learned through them in surgery and surgical pathology.

THE TREATMENT OF SEPTIC PERITONITIS BY IRRIGATION.

Presented in the Section of Obstetrics and Diseases of Women, at the Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY T. J. MAXWELL, M.D.

KEOKUK, IOWA.

Septic peritonitis has been, and is now, to the surgeon, the practitioner of general medicine, as well as the obstetrician, a "word of fear." Forty years ago we groped in darkness as to its cause, and now we are about as helpless in its presence as to a curative remedy, as when the fathers practiced blood-letting with a free hand and gave cathartics in heroic doses, or, on the other hand, administered opium to narcotism, keeping the patient in this condition until the disease exhausted the patient or the patient wore out the disease. We are no longer in the dark as to the cause of septic peritonitis, and have made vast strides in the way of prevention, if not yet successful in the cure of the disease when fully formed. We have adopted the consensus of opinion of the best-informed pathologists, that practically all cases of peritonitis are caused by infection, though they do not deny the possibility of its idiopathic origin. It is not possible today to state positively that exposure to cold, strains, and rheumatism never directly cause peritonitis, but that they do is very doubtful.

Septic inflammation of the peritoneal sac is amenable to the general laws that govern septic infection of other tissue. The progress and termination of inflammation in this tissue are modified by its structure

and function. We need but to remind you that the peritoneum is a shut sac lined with epithelium. Underlying this membrane and connecting it with the lymphatic system are numerous lymphatic vessels, to the extent that it has been called a great lymph sac, with large capability for absorption, as well as possessing the function to secretion. The large capacity to absorb is not surprising, when we take into account the extensive surface. In all its parietal and visceral enfoldings it presents nearly as large a surface for absorption as the integument that covers the body. The older pathologists and surgeons wrote over against this organ "*nole me tangere.*" We know that this is a false accusation; in proof thereof we have not only the daily operation of surgeons, in which it is roughly handled, but the interesting experiments of Rinne, who has shown that the peritoneum will absorb large amounts of septic material if not subjected to injury, and those of Pawloki, in which non-pathogenic micro-organisms and sterile foreign bodies were introduced into the peritoneal cavity without evil results. Much depends, in all cases, on the general susceptibility of the individual to infection and on the vital resistance of the peritoneum itself. Where the susceptibility is great and the resistance feeble, death follows, and where the opposite conditions exist life is saved.

Another factor that plays a large part in determining the result is the character of the infection, and the culture media in which it may find a ready soil to grow. "The characteristic of primary lesions is the development of hyperemia of the membrane, with formation of more or less copious glairy exudate, which, if it is in any quantity, rapidly becomes organized and produces adhesions," which bind the coils of intestines together, attaching them firmly to adjacent organs. The character of this exudate varies greatly with the severity of the inflammation and its provoking causes. While the plastic element is practically a constant factor in its make-up, its general character may be purely plastic, serous, or purulent, and in very infectious cases, sanious. The purely plastic variety occurs in localized areas as a rule, and follows any simple aseptic injury to the peritoneum, in fact, is nature's response to injury, with the express purpose of repair. It conserves the life by walling off and limiting the spread of septic inflammation, resulting in a circumscribed abscess, as seen in many cases of appendicitis. It occurs after all surgical operations, and rapidly unites opposing peritoneal surfaces, covering up and encapsulating, as it were, intra-peritoneal sutures. The infective bacteria or their ptomaines have a peptonizing or solvent power over tissue. So, in infective peritonitis, we have this plastic exudate changed, modified, liquified: no longer endowed with adhesive power of gluing together opposing surfaces. On the other hand, the exudate may be largely serous, sanious or purulent, owing to the nature of the infecting microbes—whether they be pus-producing or not.

A purulent peritonitis is also very distinctly a septic peritonitis, but clinically and pathologically we are forced to recognize the fact that, either through a difference in vital resistance or in the virulence of infection, the same classes of micro-organisms produce in one case what we call septic peritonitis, and in the other the purulent form.

Inflammatory processes not only differ in their exudates, but present different morbid processes, for the septic peritonitis is invariably widespread, involving the entire peritoneum, while the purulent form is