

NON-MALIGNANT STRICTURES OF RECTUM.

THEIR SURGICAL TREATMENT.

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It is not the purpose of this paper to enter into the etiology or pathology of strictures, but simply to compare the different operative procedures of the past and show why the methods failed to give permanent results, and to again describe two methods of operating for rectal strictures, devised by me and published some years ago. The time is now sufficiently long since the cases were operated on to determine whether the results are permanent or not.

Some years ago, when I began teaching diseases of the rectum in the Post-Graduate Medical School, I had a large number of stricture cases sent to me. Among these cases were strictures located at all parts of the rectum, from the upper part of the anal canal to the upper rectum; some were circular bands of scar tissue, others tubular masses of cicatricial tissue. None of them were called rectal strictures unless the scar tissue involved all the layers of the rectal walls, and in the case of many of them, located at the point where the levator ani muscles encircle and embrace the rectum, the scar tissue extended far beyond the rectal walls. I was at a loss to know what to do with some of these cases where they gave a history of having undergone one or more surgical operations by prominent surgeons, with but temporary relief. Most of them gave a history of having used rectal bougies persistently for months, or years. At first the bougies had been used by the surgeon; finally the patient was instructed how to use the instrument. Some of them had worn a rectal bougie every night while in bed for months, but only got temporary relief of their constipation, but not even temporary relief from tenesmus and mucopurulent bloody discharges resulting from the ulceration at and above the seat of stricture. Gradual dilatation by bougies is a very old method, dating back as far as we have a history of surgery; but there is no authenticated record of its ever having been a means of cure in a true cicatricial stricture, while it has a record of producing an enormous death-rate from perforating the bowel or increasing the ulcerations and prolonging the septic absorption until the patient succumbs to amyloid visceral changes. We have every reason to believe that if the unpublished cases of accidents from rectal bougies were published, the results would be so appalling that the bougie treatment would be justly banished for all time, and its use classed as malpractice. The reason gradual dilatation fails to permanently relieve is that while there is for a time absorption of the scar tissue at the surface contact of the bougie or the inner surface of the ring, at the same time the peripheral surface of the scar tissue is excessively irritated and if the peripheral irritation and divulsion is long continued the contiguous fibrous tissue becomes hypertrophied, later to contract, and thus new scar tissue is added from time to time from the periphery.

Divulsion or forced dilatation of rectal strictures, with or without anesthesia, although a common practice of years gone by, produced such an alarming death-rate with no permanent authenticated results that it seems unnecessary to speak of the method at this age of common-sense and advanced surgical pathology. Yet several of my cases gave a history of having been treated by this method and suffered for weeks with pelvic cellulitis and sepsis; others suffered for months with pelvic or general peritonitis, and their history gave evi-

dence that they had very narrow escapes from death, while none of them was permanently relieved from the constriction. Any cylinder or ring that is overdilated always ruptures first at the periphery; thus forced divulsion tears the periphery first, then the intervening tissue admits pathologic germs, which are always present in the diseased rectum, direct into the perirectal connective tissue, or into the peritoneal cavity, if stricture is in upper or middle part of rectum. This method of treatment is never justifiable under any circumstances, except when the stricture is confined to a circular scar of the mucous membrane. In these cases, if the ring of cicatricial tissue is broken, a bridge of mucous tissue will sometimes form between the severed ends and thus prevent the re-formation of a stricture.

Proctotomy for the relief of stricture has been practiced by surgeons since very remote times, probably dating almost as far back as the use of the bougie. It has been described and classified under the terms of internal and complete proctotomy. Internal proctotomy consisted in making one or more incisions from within the rectum through the stricture. These incisions give but temporary relief, and the absurdity of making a wound in a septic field, with no chance for providing free drainage, has been abundantly illustrated by the enormous death-rate even in the reported cases. Except as a rare procedure for extreme emergency, where otherwise death from obstruction is imminent, this operation should be relegated to the archives of ancient history to amuse the relic hunter of prehistoric jokes. In complete proctotomy the incision made through the stricture and all the tissues including the anal canal, the sphincter muscles, and everything back to the sacrum and coccyx, giving a free drainage, and the relief from obstruction is temporarily complete. The free, open drainage makes the operation comparatively free from danger. But the wound gradually heals by granulation, and eventually this extra scar tissue is added to the previous stricture tissue, and the constriction is worse than before any operation was performed. The exceptions to this are very rare indeed. But worst of all is the almost universal fecal incontinence following this operation. Within the last few months a man brought his wife to me to see if anything could be done for her incontinence, following a complete proctotomy for the relief of a rectal stricture. The case was one of the saddest possible, the husband stating that he should get a divorce if she could not be cured. The tubular stricture and the newly-formed scar tissue, with atrophy of the sphincters, precluded any possible operative procedure that would give fecal continence.

After aseptic surgery became a fact, the surgeons were very greatly encouraged over the possibility of resecting the stricture tissue and reuniting the gut by end-to-end anastomosis, but this fond hope was blasted after the statistics of a few years' work were published. The deaths from peritonitis, from one or more or even all the sutures giving way from the tension, from peristalsis of the gut or more often by the tension caused from the gut sufficiently to draw it well down in the lower pelvis, gave a discouraging mortality. The few cases that escaped death, with rare exceptions, found after one or two years that a stricture had re-formed at the seat of anastomosis. Then we realized that the brilliant results from intestinal anastomosis of the tract above the pelvic brim could not be attained within the pelvis. Anatomical reasons make it impossible. The rectal walls contain an enormous amount of fibrous tissue, far more indeed than any other part of the intestinal tract. Be-

sides this, the rectum is buried in a bed of fibrous connective tissue, and its fibrous tissue is intimately connected with the dense fibrous fasciæ of the pelvis. What happens after end-to-end anastomosis here? First, a circular scar is left at point of union. This scar is constantly irritated by peristalsis forcing formed fecal matter through it. The old pathologic law holds good: that fibrous tissue if continuously irritated becomes hypertrophied, and then contracts. Thus the circular fibrous tissue begins the process, and the contiguous fibrous tissue takes on the same process at the point of irritation. The pathogenic process begins and continues to add more contracting tissue to the periphery. This latter contracts and every month more tissue is added, eventually to re-form a true stricture. I doubt if there are exceptions to this rule. If there are cases, they have been kept studiously away from any of the clinical exhibitions of the societies in Chicago.

More recently, Howard Kelly and others have amputated the rectum just above the stricture, inverted the cut end of the rectum by suturing, and anastomosed the proximal end of the sigmoid into the rectum below the stricture. The same reason that caused the failure of end-to-end anastomosis of the rectum will operate to make the lateral anastomosis fail. Time after time I have made a lateral anastomosis of the sigmoid into the rectum in experimental work upon dogs and in every case, after a few weeks, the anastomosis opening would be so contracted that I could not insert my finger through it. I doubt very much if any of these cases would be relieved for more than one year after lateral anastomosis.

Naturally, after the surgical operations for the relief from rectal strictures had failed to give any encouragement to the surgeons, they began falling back upon the last resort for saving life and professional reputation, and inguinal colotomy was recommended as being sure of relief from obstruction and from the danger of perforation at the seat of ulceration above the stricture.

With these discouraging reports from the literature, I determined to devise some method of curing rectal strictures that would not increase the dangers of the old operations and at the same time would leave the sphincter muscles in their normal conditions, so that I could assure my patients that they could be left with perfect continence. The former methods failed: 1, because of new fibrous tissue forming and reuniting the severed stricture bands; 2, because of incontinence; 3, because of the high death-rate; 4, because of contraction of the lateral anastomosis opening.

I devised and advocated two operations: one for strictures located at or above the junction of the levator ani muscles of the rectum, and one for that class of strictures located below the levator ani muscles. For a stricture of the first class a laparotomy is made in the median line from pubis to umbilicus with the patient in the Trendelenburg posture. The sigmoid flexure is now seized and enough of it selected to bend down over the stricture and anastomose the sigmoid with the rectum below the stricture, either by sutures or a small Murphy button. In doing this two peritoneal surfaces are brought in apposition from the point of anastomosis. The abdomen is now closed as in an ordinary laparotomy and the drainage-tube remains from forty-eight to seventy-two hours, according to conditions. The button will come away in about a week, leaving a small fistulous opening between the sigmoid and rectum below the stricture. We have now only to clamp the whole or part of the septum from time to time until the stricture is

severed. The severed ends can never unite, because a plastic operation is completed, with the sigmoid uniting the severed ends of the stricture. To do this I use a clamp forceps with a lock similar to an obstetric forceps, inserting one blade through the anus and into the sigmoid through the buttonhole and the other blade through the stricture along the rectal wall. The forceps are now locked and a rubber ring drawn over the handle so as to clamp the septum gradually for two days; then the handles are firmly compressed as an ordinary catch forceps and left to produce pressure atrophy of the septum until they completely sever it.

For that class of strictures located below the levator ani muscles, I produce a mucous fistula posterior to the stricture, so that when finally at a second operation the stricture is severed, this mucous tract lies between the severed ends of the stricture tissue, and prevents scar tissue forming to reunite them and re-form the stricture. This is done by taking a blunt-pointed aneurysmal needle threaded with heavy braided silk. The needle is pressed within the anal canal just above the internal sphincter muscle: the point of the needle is forced through the rectal wall back to the coccyx and then carried up posterior to all stricture tissue above the stricture, when the needle is again forced into the rectum. With a blunt hook passed through the stricture, the thread is now caught at the eye of the needle and drawn down. The needle is withdrawn and the suture loosely tied so as to form a seton surrounding the stricture tissue. The heavy thread gives free drainage, and none of the cases have had any symptoms of infection. This thread is left in place for three months, during which time the bowel is washed twice daily with boracic acid solution.

If the stricture is very tight I make a superficial incision on its anterior surface, just cutting the inner circle of scar and avoiding cutting the rectal wall, as a temporary relief from constipation. After three months the patient is put under anesthesia, the sutures removed and a grooved director passed along the fistulous tract. I now take a Paquelin cautery and sever the stricture down on the probe. I have performed this operation with perfect success in a number of cases. One case never returned for the second or complete operation; fortunately after three years she came to my gynecologic clinic at the Northwestern University a few weeks ago. I examined the rectum and had several of my students confirm the fact that there was no stricture. The patient said she left the suture in place until it cut its way out after many months. Some of these cases have been lost track of and may not have been cured. One case failed of a complete cure I know, as she comes to my clinic when I desire it. I am now satisfied why she was not permanently relieved. The suture was passed too near the stricture both below and above, and all the hypertrophied tissue was not included. Both these operations have been severely criticised, but I shall keep improving them until some one gives us some method that is better.

WE ARE informed that Professor Arons has been offered the chair of physics, left vacant by Roentgen's departure. The *Gazette Medicale de Paris* remarks that in this the Bavarian University is faithful to its traditions in welcoming scientists persecuted for their political opinions. In 1848 the chair of pathology was offered to the young Virchow, persecuted by the Prussian Government.