RECTAL PROLAPSE
EXPERIENCE WITH THE ELASTIC LIGATURE
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So many procedures for the treatment of rectal prolapse have been advanced that it was thought worthwhile to report our very satisfactory experience in three cases treated by the very old and simple method of elastic ligature, recently rediscovered by Mont Reid and further reported upon by Owen Wangensteen. Weinlechner, in 1883, was the first one to use an elastic ligature, though Copeland, Howship, Busche and Greenag had employed the same principle using different material such as silk, catgut, etc.

Weinlechner's first case was in a child of eight months. It was an operation of necessity as the prolapsed rectum had been torn in attempting to replace it. The method employed was simply the occlusion of the blood supply to the prolapsed portion of the rectum by means of an elastic ligature tied over a stiff rubber tube introduced into the rectum. The rectum healed satisfactorily after four weeks. In 1886 he reports three similar cases treated in the same way with good results. Following this, use was made of the method by von Albert, Allingham, Blandin, Hofmokl, Kleebarg, Marchal and Mikulicz.

Bakes, in 1900, reports three cases; two were very satisfactory but the third died of peritonitis. At autopsy the cause for the peritonitis was found in a perforation at the site of the elastic ligature. He advances two reasons in explanation of this catastrophe. First, the elastic ligature was apparently drawn too tightly so that it cut through before firm serosal adhesions had formed, and secondly, before ligation undue traction was placed on the prolapse by means of a bullet forceps. This is the only mortality which was found recorded in the literature.

Kleebarg, in 1879, employed a similar method but simply used the elastic ligature as a means of hemostasis until he had amputated the prolapse and sutured the contiguous margins. Matas in discussing Reid's paper, in 1933, described a case in which he had used a similar procedure with success in 1894. Amputation of the prolapse was popularized by Mikulicz and, in 1889, he reports seven successful amputations without a mortality. However, Lenormant, in 1907, states that the danger of peritonitis is at least 10 per cent.

With the advent of antiseptic surgery, this method fell into disuse, though one case is reported by von Serafini in 1906. Bauer, in 1912, in a very comprehensive and excellent paper on the treatment of prolapse, stated that the cause for discontinuance of this method was the severe pain after the application of the ligature, retention of urine and difficulty in expelling gas.

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Since its rediscovery by Reid in 1925, four cases have been reported by him and one by Wangensteen with good end-results and without any of the above mentioned unpleasant symptoms. This has also been our experience in the following three cases:

**Case 1.**—G. O., male, age 40, was admitted to the University Hospital in December, 1933. For some time prior to October, 1933, he had been constipated. One day he noticed a protrusion of his rectum which he replaced. This recurred at the next bowel movement, and at each succeeding one, so that he was unable to obtain a satisfactory evacuation. This difficulty increased up until the time of admission. His rectum would prolapse without the slightest amount of straining.

On examination a prolapse of about five inches of the rectum was seen. There was no etiologic explanation for its occurrence. In every other way he appeared to be in the best of health. Operation was decided upon and because of the absence of any etiologic factor it was thought better to perform a laparotomy. At the same time the possibility of performing a Moschowitz operation—obliteration of the culdesac of Douglas—was kept in mind. The depth of the culdesac would have made this operative procedure exceedingly difficult, so that removal of the prolapse by means of an elastic ligature was decided upon.

With the peritoneal cavity opened, we were also able to be absolutely certain that no loop of small intestine was contained in the prolapse. At operation, the rectum and sigmoid appeared to be perfectly normal. The prolapse readily recurred even under an inhalation anesthetic. With the hand in the abdomen, traction was made on the prolapse until all the redundancy of the sigmoid had been taken up. The small intestines were then packed out of the pelvis. In order to be certain not to injure the urethra a sound was introduced into the bladder. A firm rubber tube about three-quarters inch in diameter was inserted into the rectum for a distance of eight inches. A heavy rubber band was placed near the mucocutaneous junction, tightly encircling the prolapse. The prolapsed rectum rapidly became cyanotic and the next day was gangrenous. Thirteen days after operation, following an attempt to remove the slough, the patient had a profuse hemorrhage which stopped spontaneously. Three days later he expelled both the tube and the slough. At time of discharge, 22 days after operation, rectal examination revealed a normal rectum with slight relaxation of anal sphincter.

**Follow Up.**—He was not seen again until four months later when, much to our chagrin, he returned with a stricture which admitted only the tip of the index finger. This was gradually dilated. Due to failure of complete cooperation on the part of the family physician, the stricture recurred two months later. It was again dilated and the patient kept under close observation. When last seen, one year and three months after operation, the stricture readily admitted the middle finger and the patient was quite comfortable.

**Case 2.**—R. J. B., white male, age 41, was an inmate of the Philadelphia Hospital for Mental Diseases, suffering from schizophrenia. He was admitted to the Philadelphia General Hospital May 25, 1935, with a prolapse of the rectum in which palliative treatment had failed during the preceding several weeks. In 1932 he had had a prolapse which had been treated by linear cautereization.

**Operation.**—May 28, 1935. Under gas anesthesia the patient's colon was thoroughly irrigated—and the anal sphincter stretched. A thick, stiff, rubber tube was inserted to just above the external sphincter and fixed in place with two silk sutures to the prolapsed rectum. A flexible rubber tube was then twisted about the mucocutaneous junction and fixed with two silk sutures. The prolapse was dressed with vaseline and dry gauze. Despite restraint on the night of operation, the rectal tube was found in bed with sutures
RECTORAL PROLAPSE

torn out. An elastic ligature was reapplied on May 30, 1935. On June 6, 1935, the prolapse sloughed off, following a bowel movement, leaving a clean surface.

Follow Up.—Examination one year later, April 1, 1936, revealed a normal rectum, without stricture and no evidence of recurrence.

Case 3.—H. C., female, age 45, had had a prolapse of the rectum for the past ten years. Originally the prolapse occurred only when at stool, but it gradually began to occur more often and became larger. She had a laparotomy in 1931 to correct the condition, but the operation was a failure.

Physical Examination revealed an obese woman, apparently well except for a prolapse of the rectum, when straining. The prolapse did not include the entire thickness of the rectal wall but apparently only involved the mucosa. On straining the mucosa covering the anterior wall of the rectum appeared at the anus and gradually prolapsed until the entire circumference of the bowel was involved.

Operation February 19, 1936. Under gas anesthesia, a large rubber tube was placed in the rectum and the prolapsed mucous membrane pulled down as far as possible; it was then strangulated by a heavy rubber band. The mucous membrane was prevented from retracting by suturing it to the rubber tube. Ten days later the strangulated portion sloughed off, leaving a clean granulating surface.

Follow Up.—Care has been given in the Proctoscopic Clinic, which consisted of weekly dilatations. Examination four months after operation showed a completely healed rectum with a thin membrane at the site of amputation. This readily admitted middle finger. The patient had no complaints.

Discussion.—In Case 1 two complications were encountered, namely, hemorrhage and stricture. The only suggestion that might be of value in avoiding hemorrhage is the fact that it followed manipulation of the strangulated portion of the rectum. Probably hemorrhage would be a less frequent complication if separation were allowed to occur absolutely spontaneously. One should be able to prevent the formation of stricture by close follow up care as shown in the last two cases. Case 2 was an ideal test as the patient was mentally unable to extend any cooperation whatsoever. In spite of this fact there has been no recurrence and result has been entirely satisfactory.

Naturally this procedure is not recommended in all cases of rectal prolapse. Especially in children, which comprise 70 per cent of all cases, more conservative measures should be given a trial. However, in certain cases it seems as if this method were a definite addition to a surgeon's armamentarium. Irreducible prolapse with infection of the prolapsed portion is the strongest indication for its use, but as shown by the three cases reported herewith, this method can be used with advantage in prolapses which are less far advanced. The published reports show that there is no danger of recurrence whereas other operative procedures give an incidence of recurrence varying from 6 to 15 per cent. The danger of stricture is a real one, however, and must be guarded against by close follow up care in these patients. Wangensteen suggests the use of antigas serum prophylactically, which may be a worthwhile procedure.

Summary

(1) Three cases of rectal prolapse are presented treated by the strangulation method by means of an elastic ligature.

201
(2) Good end-results were obtained in all three.
(3) The danger of stricture as a complication is emphasized.

REFERENCES

1 Bakes, Jar.: Deutsche Ztschr. f. Chir., 54, 325, 1900.