

# Primary Sphincter Repair in Anorectal Trauma

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Two patients who sustained severe anorectal trauma from "fist fornication" were treated by irrigation, colostomy, drainage, antibiotics, and primary repair of the rectum and anal sphincters without complications. Both had complete return of continence. Primary sphincter repair is advocated for these and similar anorectal injuries. [Key words: Rectal trauma; Anal sphincters; Manometry]

AS CERTAIN SEXUAL PRACTICES in our society gain popularity, the surgeon is required to deal with unusual anorectal trauma. Experience with "fist fornication," or the insertion of a fist into the rectum and colon, resultant mucosal tears, and colonic perforations have been reported.<sup>1</sup> Experiences with two patients with such injuries, which also involved extensive damage to the anal sphincter mechanisms, treated successfully by primary sphincter repair, are described.

## Report of Cases

**Patient 1:** A 22-year-old woman was raped. Her attacker forced his fist and forearm into her rectum. She presented nine hours later with rectal pain and fecal incontinence. On examination, her temperature was 100.8° F orally, and her abdomen was nontender. A large hematoma around the anus and a lateral tear extending at least through the internal sphincter were seen. After coverage with broad-spectrum antibiotics, she was taken to the operating room, where examination and sigmoidoscopy under anesthesia revealed an everted, dilated anus with two large, full-thickness rectal tears (Figs. 1 and 2). The largest involved the left posterolateral rectal wall. The rectum, internal and external sphincters, and levator sling were totally disrupted to 10 cm above the anal verge. A second rent was anterior, through the rectal wall and both sphincters. Vaginal mucosa could be seen pouting into the rectum. There was no intraperitoneal communication.

The distal colon was irrigated free of stool with catheters. Penrose drains were placed in the presacral space behind the posterior defect and brought out through stab wounds. The large internal and external sphincter and levator muscle tears and mucosa were individually repaired transanally with 2.0 Vicryl®. The anterior disruption was anatomically repaired in a similar fashion. Laparotomy was performed and retroperitoneal air without intraperitoneal communication was found. Diversion of feces was accomplished by an end sigmoid colostomy and mucous fistula. Her postoperative course was uncomplicated. Antibiotics and drains were discontinued on the eleventh

postoperative day, when rectal examination revealed minimal involuntary tone, but some voluntary tone. Kegel-type exercises were begun with improvement. After six weeks, she was fully continent for mucus. At eight weeks, manometry revealed resting sphincter pressure of 58 mmHg (normal > 45), and maximum squeeze pressure of 90 mmHg (normal > 65). Despite normal pressures, the resting tone by examination was quite lax, and she could not control 50 ml of water instilled through the mucous fistula. Exercises continued including practice with holding water instilled via the fistula. After five months, she had excellent control of mucus, good voluntary contractions, and improved continence of instilled water despite less than normal resting tone. The colostomy was then closed without complications, and she had perfect continence for stool, liquid diarrhea, and flatus.

**Patient 2:** A 30-year-old homosexual man noticed intense rectal pain and bleeding during his first episode of fist fornication. On presentation 10 hours later, he had an oral temperature of 99.5° F and no abdominal tenderness. A posterior rectal tear was seen on cursory inspection. After coverage with broad-spectrum antibiotics, he was taken to the operating room, where examination and sigmoidoscopy under anesthesia revealed an 8-cm laceration extending 5 cm inward from the anal verge. The rectal mucosa and both internal and external sphincters were disrupted with communication into a blood-filled cavity in the right ischial space. Only a small portion of the puborectalis sling was intact. The rectosigmoid was irrigated free of feces. A limited laparotomy was negative. Diversion of feces was accomplished by a sigmoid loop colostomy. The rectum and sphincters were repaired through a presacral approach. Mucosa, serosa, internal and external sphincters, and puborectalis were repaired anatomically with 2.0 and 4.0 Vicryl®. A Penrose drain was inserted into the ischiorectal cavity. Antibiotics were discontinued on the seventh postoperative day, and the drain removed on day 10. Rectal examination showed moderate resting tone, but only a fair voluntary squeeze. Exercises were begun. After eight weeks, the patient was fully continent for mucus, and had good tone and voluntary squeeze. Manometry showed a resting sphincter pressure of 65 mmHg (normal > 45) and a maximum squeeze pressure of 130 mmHg (normal > 65). The colostomy was closed three months after injury without complications. He has since been fully continent for feces and gas.

## Discussion

In a recent series of 11 male homosexuals with fisting-related rectal injuries (including rectal tears and colonic perforations), only one patient suffered extensive anorectal sphincter trauma resulting in complete anal incontinence.<sup>1</sup> Among the 112 patients sustaining rectal trauma from homosexual or autoerotic practices reported by Barone *et al.*,<sup>2</sup> only two patients had sphincter injuries. Both were partial tears of the internal and external sphincters, which were successfully repaired under local

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FIG. 1. Injuries sustained by Patient 1 (lithotomy position). Note dilated, everted anus and perineal lacerations.



FIG. 2. Closer view of Patient 1. The complete posterolateral disruption is easily seen (lithotomy position).

anesthesia without fecal diversion. The three patients with rectosigmoid perforations as a result of fist fornication had no sphincter injuries. The patterns of injury in these groups of older, more experienced homosexuals suggest that considerable prior experience with rectal sex and gradual dilatation of the anus was required before fist fornication could be performed without sphincter damage. Our two patients sustained significant and trauma due to the sudden gross dilatation of normally toned sphincters of the unwilling and the uninitiated.

Rectal disruptions may result in pelvic abscess formation; therefore, our patients were treated according to recommendations of debridement, rectal washout, presacral drainage, antibiotics, primary colonic repair, and diverting colostomy.<sup>3</sup> Experience gained from the Vietnam War suggests that removing retained feces by distal rectal washout decreases abscess formation and improves mortality and morbidity rates.<sup>4</sup> This may be accomplished by catheter irrigation from below or direct irrigation of the transected distal limb from above. Presacral drainage has been successfully used in rectal wounds since World War II. Antibiotic coverage is essential, and should be broad in spectrum, including agents active against anaerobes.

Diversion of the fecal stream was accomplished by a sigmoid colostomy. Although a divided colostomy has been recommended for more severe rectal trauma,<sup>5</sup> it is not clear whether a divided colostomy actually gives more complete diversion than a sigmoid loop. End colostomy however, gives the surgeon the opportunity to create a more perfect stoma in young patients with the most severe injuries, who are at higher risk of having a permanent stoma.

Our patients underwent primary repair of sphincter injuries. With adequate diversion, careful cleansing and drainage, and antibiotics, the chances of infection after such repairs are present, but lessened. It has been suggested that the chances of a successful, continent repair of lacerations of the perineum (from obstetric and iatrogenic injuries) are better in primary rather than secondary repairs.<sup>6</sup> Crass *et al.*<sup>7</sup> reported two cases of anal sphincter damage in 29 patients operated on for rectal trauma. One, caused by pliers, presented late (48 hours) and was not repaired due to inflammation, and required a delayed sphincteroplasty. The other, caused by a fist, was repaired without diversion only to break down postoperatively. These authors state that "fecal diversion does not appear necessary" for injuries to the sphincters without inflammation. However, the results in their two patients do not necessarily support this contention. The relatively minor sphincter injuries (internal sphincter only) reported by Barone *et al.*<sup>2</sup> can be repaired without diversion under optimal circumstances, but more complete disruptions and those with concomitant perforations should be diverted.

One can evaluate sphincter function after injury by history (ability to completely control mucus), digital examination, manometry, and ability to retain fluid infused into the rectum. Inability to sense and control spontaneous mucus per rectum bodes poorly for fecal

continence. Diminished resting tone on examination and manometry implies dysfunction of the internal sphincter. Since surgical division of considerable portions of the internal sphincters alone rarely results in incontinence, this finding is of uncertain significance. Maximum squeeze pressure is due to action of the external sphincter and has reasonable correlation with continence.<sup>8</sup> Patients in whom sphincter function is still in question may also be studied for ability to retain liquid infused into the rectum.<sup>8,9</sup> This also may serve as a training exercise, using increasing volumes of fluid.

In summary, patients suffering from complicated anorectal trauma can be treated successfully using well-described methods for rectal trauma and primary sphincter repair, even after considerable delay. They can then be followed by serial examinations and manometry and, in at least some cases, their colostomies can be closed with return of good continence. These principles should also apply to the treatment of other forms of anorectal trauma.

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