York Mason Procedure for Repair of Postoperative Rectoprostatic Urethral Fistula

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Prasad ML, Nelson R, Hambrick E, Abcarian H. York Mason procedure for repair of postoperative rectoprostatic urethral fistula. Dis Colon Rectum 1983;26:716-720.

Rectoprostatic fistula is a rare complication after transurethral resection of the prostate or prostatectomy for benign and malignant neoplasms of the prostate. Repair of these fistulas is difficult, especially when previous treatment includes radiation therapy to the prostate. Various operative approaches have been described to close these inaccessible fistulas. Because of their location near the outlet of the pelvis, access to or exposure of these fistulas is quite limited. These fistulas can be easily exposed and repaired through the posterior wall of the rectum (transsphincteric approach). Three patients with rectoprostatic urethral fistulas were repaired successfully by using this method. [Key words: York Mason procedure; Transsphincteric approach; Fistula; Rectoprostatic urethral fistula]

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THE RECTUM can be injured during surgery for benign or malignant prostatic diseases as a result of suprapubic prostatectomy or transurethral resection of the prostate. The laceration that occurs during the transabdominal approach, if not recognized at the time of surgery, will create severe pelvic infection followed by systemic sepsis, often leading to the patient's death.[1] If the laceration is recognized during surgery, it must be repaired and sigmoid end colostomy with partial or complete closure of the distal end performed along with drainage of the pelvis.[2] The urine is diverted by a suprapubic cystostomy. Injury to the prostatic urethra may occur during rectal surgery; when this is recognized, fecal and urinary streams should be diverted. Lacerations of the rectum may heal with no residual fistula, but when the laceration is large, and the prostate or rectum has been previously radiated, healing may not be complete, resulting in rectoprostatic urethral fistula. Occasionally, a fistula may occur weeks or months after the original operation where there was no evidence of injury at surgery. This is usually due to delayed necrosis of the tissue between the rectum and prostatic urethra. In these cases, pelvic sepsis will not occur, as fibrotic tissue surrounds the fistulous tract.

These fistulas are diagnosed when urine is seen passing through the rectum. If the fistula is small, the diagnosis may be delayed and the patient will present with recurrent urinary tract infections secondary to fecaluria. The opening in the rectum can be palpated by digital examination and confirmed by anoscopy and proctoscopy. Multiple biopsies of the fistulous opening should be done to exclude carcinoma. Colonoscopy and roentgenologic studies of the colon are performed whenever colonic disease is suspected.

Once this type of fistula is recognized, initial treatment should be diversion of the stool to prevent contamination of the urine by the fecal stream. Formal repair of the fistula should be delayed for six to eight weeks to reduce local sepsis and evaluate the possibility of spontaneous healing of the fistula. If the fistula is persistent after this period of time, closure of the fistula should be undertaken. Transabdominal repair of fistulas is technically difficult, may need division of the pubic symphysis, and has poor results. The perineal approach is very difficult also, as the dissection must be carried through scarred areas. Direct repair of the divided ends of the prostatic urethra and the rectum is difficult, if not impossible. At the end of the procedure, the repaired ends of the rectum or urethra overlie each other without intervening healthy tissue, creating a high incidence of refistulization. To overcome the above difficulties, York Mason[3] described a transsphincteric approach through the posterior wall of the rectum and direct repair of the fistula with interposition of normal rectal wall between the repaired structures.

Received for publication May 12, 1983.

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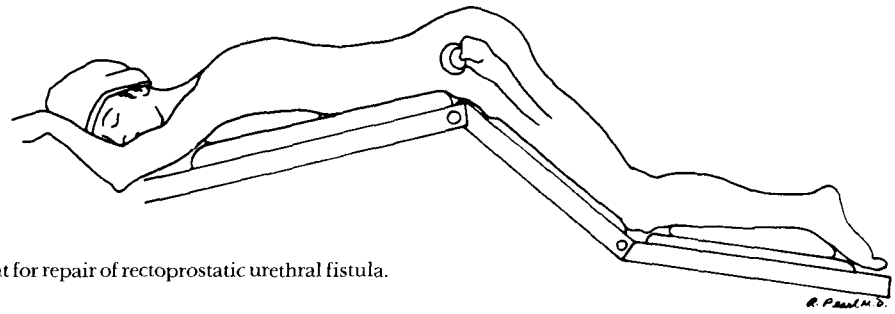

FIG. 1. Position of patient for repair of rectoprostatic urethral fistula.

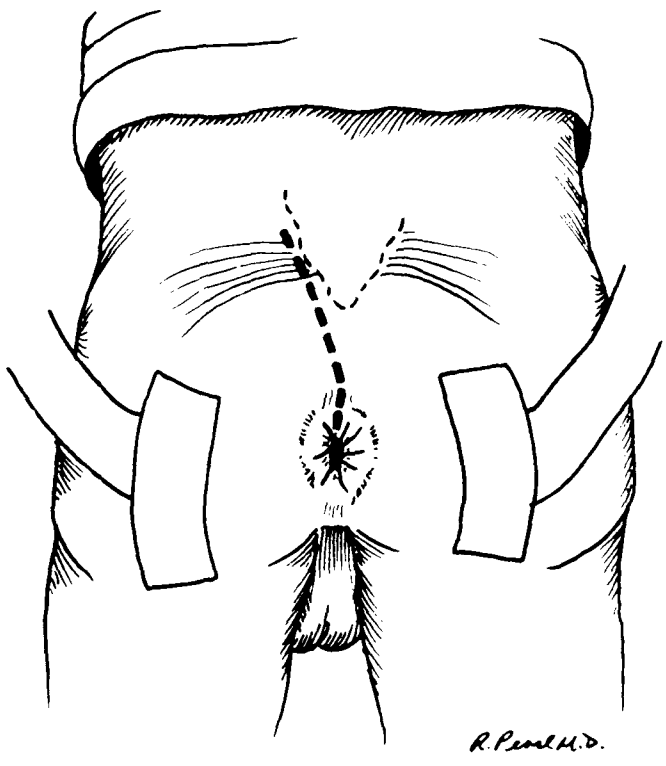

FIG. 2. Incision.

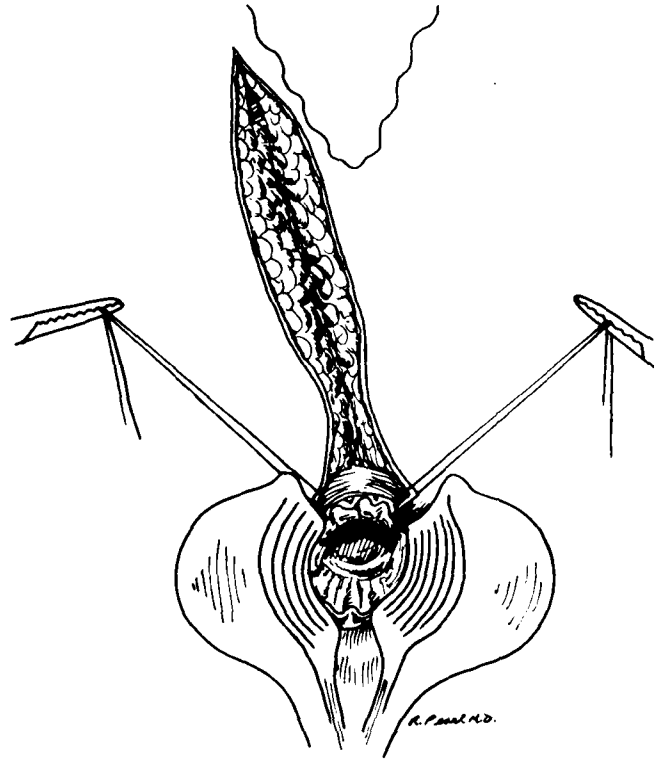

FIG. 3. Skin incision is made. Mucocutaneous junction is marked with sutures. Internal sphincter is exposed.

York Mason Procedure

Preoperative Preparation: Urinary cultures are obtained, and urinary tract infection is treated by appropriate antibiotics. Intravenous broad spectrum antibiotics are started the night before surgery and continued for five to seven days postoperatively.

Operation: The patient is operated upon under general anesthesia and in the prone position with the table flexed at the level of the hip joints (Fig. 1). The chest and abdomen are well supported so that they are free to move with respiration. The buttocks are strapped apart with adhesive tape. The incision is begun at the level of the anal margin to the left of the midline, and extended upward and laterally to the level of the mid sacrum (Fig. 2). After the skin incision is made, the rest of the dissection is done with diathermy to reduce bleeding. Injection of a dilute solution of epinephrine (1 in 200,000) into the skin and subcutaneous tissue before incision may also help decrease the amount of bleeding. The mucocutaneous junction is marked with stay sutures (Fig. 3). Each layer of sphincter muscle is tagged with suture material of a different color for ease of identification at the time of closure, as the blood-stained retracted ends of the sphincter may be difficult to identify at the end of a lengthy operation. The internal sphincter and the superficial or deep portions of the external sphincter, together with the puborectalis muscle, are tagged with sutures and divided. Next, the rectal mucosa is divided to expose the rectoprostatic urethral fistula (Fig. 4). The incision in the rectal wall is extended, if necessary. The fistula is identified in the anterior wall, and the Foley catheter can be seen at the

bottom of the fistulous opening. A dilute solution of epinephrine is injected into the tissues around the fistula to decrease the bleeding at the time of dissection. An incision is made around the fistula and its surrounding scar tissue and is deepened with a knife through the posterior wall of the prostatic urethra to excise the fistulous tract (Fig. 5A, 5B). This incision is then extended transversely in the anterior rectal wall, and full-thickness flaps of the rectal wall are mobilized cephalad or caudad (Fig. 5C). Whenever possible, the prostatic urethral opening is closed transversely, using chromic catgut sutures (Fig. 6A). The rectal flaps are sutured as "vest over pants" technique using polyglactin suture material. Thus, after closure of the fistula, the two suture lines do not overlie each other (Fig. 6B, 6C). After closing the mucosa with interrupted absorbable sutures, the sphincter muscles, identified by their color-coded suture material, are approximated using polyglactin sutures (Fig. 7). The skin is closed with subcutaneous sutures. Drains are not used routinely.

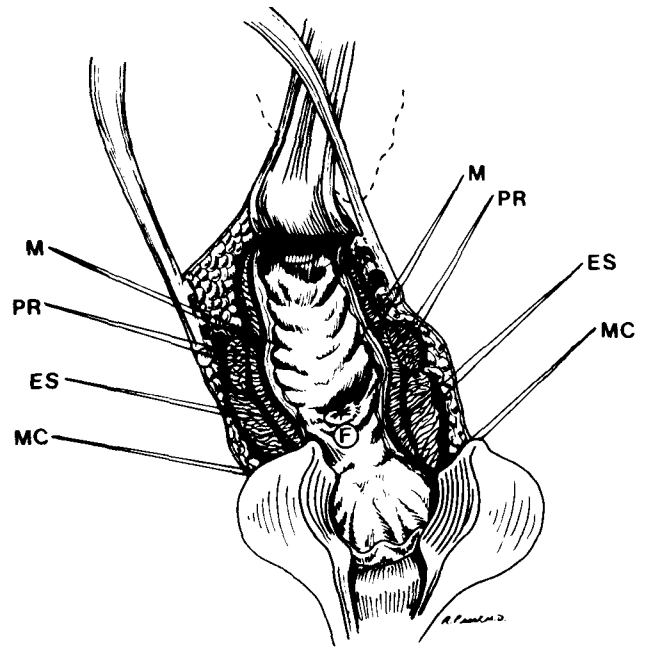

FIG. 4. Sphincter mechanism and posterior rectal wall divided exposing the fistula (F). Each sphincter muscle is tagged with color-coded sutures. (M) Mucosa, (PR) puborectalis, (ES) external sphincter, (MC) mucocutaneous junction.

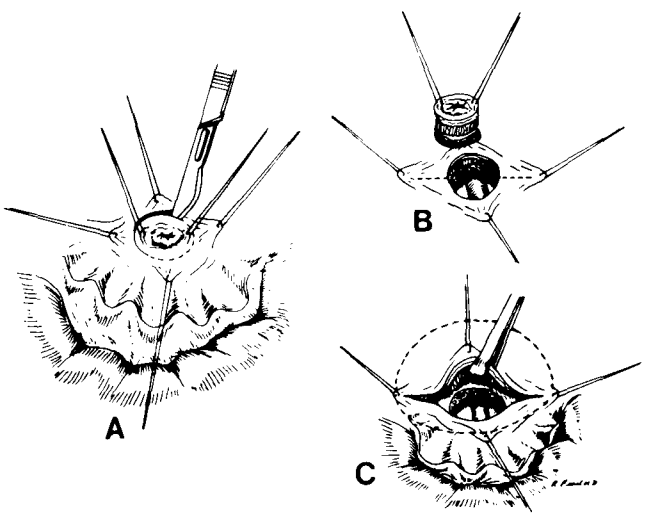

FIG. 5. Incision around fistula (A). Excised fistulous tract exposing catheter in prostatic urethra (B). Undermining of rectal wall. Dotted line represents the extent of rectal wall mobilization (C).

Patients are ambulated the day following the operation. The indwelling urethral catheter is not changed during the first two weeks postoperatively; after that time it is removed. Rectal examination and taking of rectal-temperatures are avoided. Passage of urine through the penile urethra without leakage through the rectum denotes complete healing of the fistula. The colostomy is closed six weeks after healing of the fistula.

Material and Methods

The salient clinical features of three patients operated upon for postoperative rectoprostatic urethral fistula are given in Table 1. All three were elderly patients with carcinoma of the prostate. Preoperative radiation therapy, using radon seed implants, was used in two patients. Suprapubic prostatectomy was performed at the time of operation in two patients. Rectal injuries were recognized at the time of operation in two patients and were managed by diverting colostomy, closure of the rectal injury, and drainage. The third patient developed a fistula after transurethral resection of the prostate, and rectal injury was not recognized at the time of operation. All patients had a diverting colostomy prior to definitive surgery. The delay between colostomy and repair varied from six months to three years. Suprapubic cystostomy was performed on one patient preoperatively, on another postoperatively, and repair was completed sucessfully on the third without utilizing suprapubic cystostomy.

Results

There were no operative deaths. All the fistulas healed. In two patients, primary healing occurred. In the third patient, healing of the fistula was delayed because his indwelling urethral catheter was changed on the first postoperative day to stop urinary leakage around the catheter, and the balloon of the indwelling catheter was inflated at the repaired site, causing partial disruption of the closure, which was treated by suprapubic cystostomy. This patient died of myocardial infarction six months

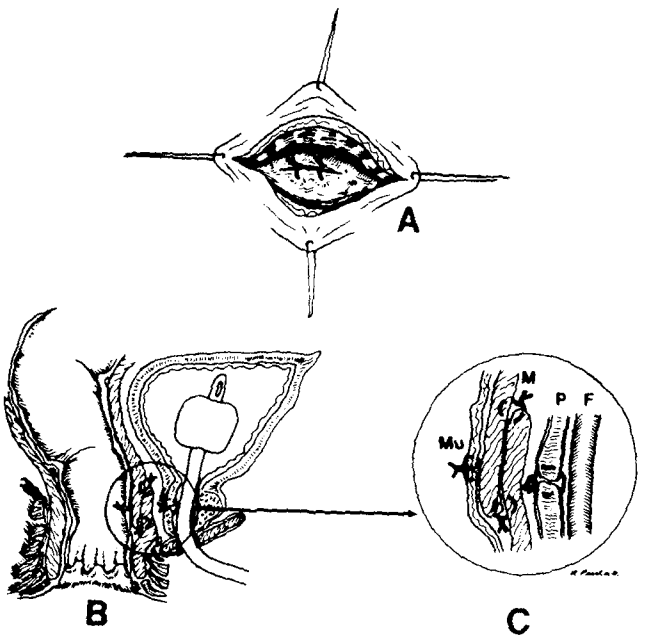

FIG. 6. Closure of prostatic urethra (A). Sagittal section showing suture line after repair of fistula (B). Magnified view of suture lines. (F) Foley catheter, (P) prostatic urethra, (M) full-thickness rectal wall flaps sutured "vest over pants" technique. Note that the suture lines do not overlie each other (C).

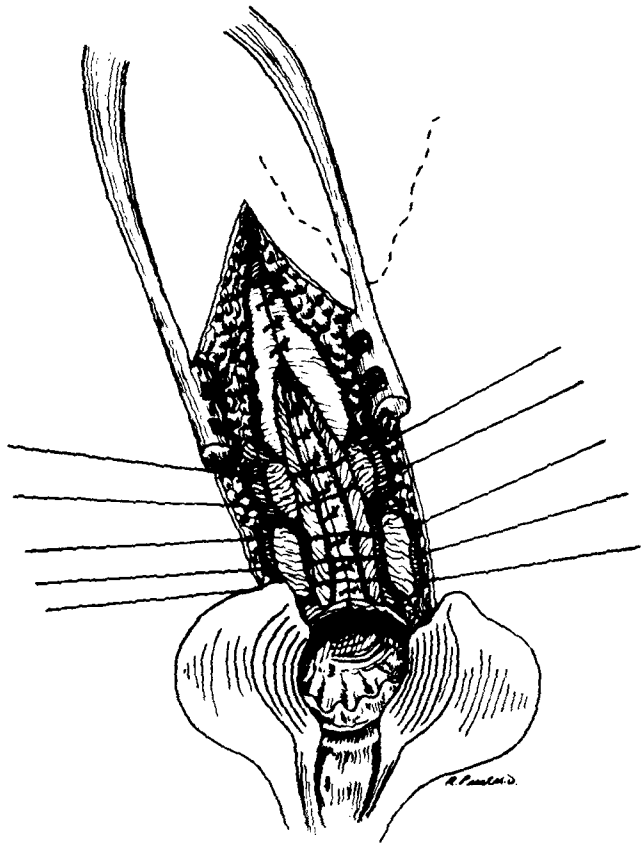

FIG. 7. Suture of rectal wall completed. Sphincter muscle being approximated.

after the procedure. His colostomy had not been closed yet, however, the fistula had healed completely. Colostomy was closed in the other two patients with no anal incontinence.

Discussion

The incidence of postoperative rectoprostatic fistula is low. Young and Davis[4] pointed out that the complications resulted from injury to the rectum during the days of "cutting the stone." This problem decreased after the invention of lateral lithotomy, but the advent of perineal prostatectomy brought back these complications. Goodwin *et al.*[5] described 15 rectourinary fistulas following perineal and retropubic prostatectomies. They reported that ten fistulas healed after repair through wide perineal incision, and spontaneous healing took place in the rest. These results have not been duplicated in the literature. Kilpatrick and Thompson[6] performed closure of six fistulas using Kraske's approach with no residual stricture or incontinence. Kilpatrick and York Mason[7] reported on the management of postoperative rectoprostatic urethral fistula. They mentioned that Kilpatrick and Thompson had operated on 13 patients with fistulas and that York Mason has used the transsphincteric approach for repair on another four patients. In the 13 cases using Kraske's approach, the complications were anal incontinence, urethral stricture, and recurrence of fistula. Anal incontinence persisted in only two cases, and in both, the

TABLE 1. *Clinical Features and Management of Three Patients with Postoperative Rectoprostatic Urethral Fistula Repaired by Transsphincteric Method*

Age	Disease	Transurethral Resection	Resection	Prostatectomy	Colostomy	Cystostomy	Duration Between Colostomy and Repair	Results of Fistula Repair
57	CA prostate	Yes (radon seed)	Yes	Yes	Yes	Yes (pre-op)	9 months	Closed
71	CA prostate	No	Yes	Yes	Yes	Yes (post-op)	6 months	Closed
57	CA prostate	Yes (radon seed)	Yes	No	Yes	No	36 months	Closed

incontinence was attributed to previous surgical procedures. Urethral stricture developed in two patients; in one patient, the fistula remained one year after the repair. On the other hand, York Mason had successfully repaired fistulas in four patients using the transsphincteric approach, with no residual incontinence.

Repair of rectoprostatic urethral fistula by this approach has not been reported in the American Medical literature, although the transsphincteric approach to rectal lesions was originally described by Bevan[8] in 1917. We had the opportunity to operate on three patients with rectoprostatic urethral fistulas. The fistulas healed postoperarively in all three patients, although healing was delayed in one patient (wide supra). In the remaining two patients in whom the colostomy was closed, there was no incontinence and these fistulas healed primarily. No wound infection or urethral strictures were seen.

Conclusions

Three patients with postoperative rectoprostatic urethral fistulas repaired by the transsphincteric method were presented. There was no surgical morbidity or mortality. All fistulas healed and there were no recurrences. The York Mason procedure is ideal for repairing postoperative rectoprostatic urethral fistulas.

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