23.1 Introduction

Posterior sagittal anorectoplasty (PSARP [3]) is the current standard surgical management for patients with imperforate anus. Despite the excellent exposure of the anatomy and the exact placement of the distal rectum within the muscle complex with this operation, postoperative fecal continence is less than ideal [4, 7]. Tsuji et al. reported a careful analysis of postoperative anorectal function, comparing posterior sagittal anorectoplasty with older, conventional operations [10]. He found that patients in both groups had a similar manometry and long-term function. Most of the patients needed bowel management. Other authors have reported similar findings [1, 9]. Increased constipation after posterior sagittal anorectoplasty compared to a more limited surgical approach has also been reported [2].

The goals of laparoscopically assisted pull-through for anorectal malformations include avoiding the dividing and weakening of the external sphincters and diminishing perirectal scarring, while allowing precise placement of the rectum through the external sphincters and the potential development of a primary procedure in the newborn, which would avoid the morbidity of a colostomy.

23.2 Operative Technique

A standard proximal sigmoid colostomy is performed in the newborn. Two to four months later, the patient is positioned transversely at the end of the operating table (Fig. 23.1). A circumferential prep is performed from the nipples down to the toes. A catheter is passed into the bladder in all cases, even if cystoscopy is required to do so. A pneumoperitoneum with pressures of 12 cm of water is established. A 4-mm trocar is placed in the anterior-axillary line just below the liver. A 5-mm port is placed through the umbilicus using an open technique. A 3 or 4-mm port is placed in the anterior-axillary line just above the anterior superior iliac spine (Fig. 23.1).

Laparoscopic rectal dissection is initiated at the peritoneal reflection. Using a hook cautery, the distal mesorectum is divided. The dissection is continued circumferentially around the rectum down to the rectourethral or rectovesical fistula. It is important to keep this dissection in the definitive plane between the longitudinal rectal muscles and surrounding tissues. Just proximal to the entrance of the fistula into the urinary tract, a loop ligature is preloaded through the 5-mm trocar in the umbilicus over a Maryland clamp placed through the right lower quadrant trocar. This clamp is placed on the fistula several millimeters proximal to the entrance of the fistula.

Fig. 23.1 The patient is positioned transversely on the operating table, a bladder catheter is placed, and the trocars are positioned in the illustrated sites (umbilical, 5 mm; right upper and lower quadrant, 4 mm)
into the urinary tract (Fig. 23.2). The fistula is divided proximal to the placement of the Maryland clamp. The loop ligature is then passed around the Maryland clamp and the fistula and snugged in place, adjacent to the urethra. A second loop can be placed on the rectal fistula proximally in a similar fashion (Fig. 23.3). The rectum is then retracted out of the pelvis. The pubococcygeus muscle can often be visualized when it is present (Fig. 23.4).

In some patients with anorectal malformations, particularly the higher lesions, the levator ani muscle is poorly developed. However, in many patients with a rectoprostatic fistula, the muscle is quite well developed and can be seen from above with the endoscope.

A transperineal dissection follows division of the rectourethral fistula. The external anal sphincters are mapped using a transcutaneous electrostimulator. The area of maximal contraction is identified and marked appropriately with sutures. A 1-cm vertical midline incision is made at the site of the maximal muscle contraction. The intersphincteric plane is gently dissected from below the bladder.

![Fig. 23.2](image1.png) After circumferential dissection of the rectum, the fistula is grasped with a Maryland clamp preloaded with a loop ligature. The fistula is then divided on the rectal side of the clamp, and the ligature is tightened around the urethral side of the clamp.

![Fig. 23.3](image2.png) A second loop ligature is used to close the fistula on the rectum.

![Fig. 23.4](image3.png) Anatomic diagram of the pull-through site in relationship to the pubococcygeus muscle.