24.1 Swenson’s Procedure

Once the diagnosis of Hirschsprung’s disease (HD) has been confirmed by rectal biopsy examination, the infant should be prepared for laparotomy. Biopsies for frozen sections are taken to determine the level of transition and a colostomy is placed just proximal to the transition zone.

If the newborn has enterocolitis complicating HD, he will require correction of dehydration and electrolyte imbalance by infusion of appropriate fluids. Thomas et al. [1] have demonstrated a relationship to Clostridium difficile and its toxin in about 30% of patients with enterocolitis in HD and suggested treating these patients with vancomycin during acute episodes. It is essential to decompress the bowel as early as possible in these babies. Deflation of the intestine may be carried out initially by rectal irrigations and when the baby is clinically stable a colostomy could be performed.

Traditionally, a definitive pull-through operation for HD has been performed when the infant is 6 to 12 months old. This approach evolved during the 1950s when major operations on neonates were considered unsafe and neonatal HD was associated with a high mortality [2, 3]. Advances in neonatal anesthesia, monitoring and surgical care together with parenteral nutrition and effective antibiotics have allowed primary prolonged reparative procedures to be undertaken safely in the neonate. In recent years, the vast majority of cases of HD are diagnosed in the neonatal period. Many centers are now performing a one-stage pull-through operation in the newborn with minimal morbidity and encouraging results [4–7].

A number of different operations have been described for the treatment of HD. The three most commonly used are the rectosigmoidectomy developed by Swenson, the retrorectal transanal approach developed by Duhamel and the endorectal procedure developed by Soave. The basic principle in all these procedures is to bring the ganglionic bowel down to the anus. Long-term results of any of these operations are very satisfactory if they are performed correctly.

24.1.1 Primary Swenson’s Pull-Through Operation

Many surgeons have reported good results with primary neonatal pull-through operation for HD. The author like many others prefers Swenson’s pull-through operation in the neonatal period because of its simplicity and lack of complications. We have not used diversionary colostomy for usual cases.

Once the diagnosis of HD is confirmed, the neonate is started on total parenteral nutrition 2 to 3 days prior to operation. Rectal irrigations are carried out twice a day for 3 days before surgery. Intravenous gentamicin and metronidazole are started on the morning of operation.
men. The pelvis is allowed to drop back over the lower end of the table and legs are strapped over sandbags. A Foley catheter is inserted in the bladder.

We prefer a Pfannenstiel incision when performing a Swenson’s pull-through operation in the neonate (Fig. 24.1a). Some surgeons use a left paramedian incision. A Denis Browne retractor is applied and the urinary bladder is lifted forward out of the abdomen by stay sutures. Extramucosal biopsies are taken at intervals along the antimesenteric border and assessed by frozen section to determine the level of ganglionated bowel. The sigmoid colon is mobilized by dividing the sigmoid vessels and retaining the marginal vessels. It may be necessary to mobilize the splenic flexure to obtain adequate length. The proximal level of resection above the ganglionated level previously determined by frozen section is selected and the bowel is divided between intestinal clamps or staples (Fig. 24.1b).

The peritoneum is divided around its lateral and anterior reflection from the rectum exposing the muscle coat of the rectum. At this point, the bowel is divided at the rectosigmoid junction and removed (Fig. 24.1c). Dissection extends around the rectum keeping very close to the bowel wall. It is essential to maintain the dissection close to the muscular wall in order to prevent damage to the pelvic splanchnic innervation. All vessels are electrocoagulated under direct vision. A sufficient tension-free length is obtained by dividing the inferior mesenteric pedicle, carefully preserving the marginal vessels. Dissection is carried down to the level of external sphincter posteriorly and laterally, but does not extend as deeply anteriorly leaving around 1.5 cm of intact rectal wall abutting against the vagina or urethra. The extent of dissection can be confirmed by putting a second glove over that on the left hand and by manual palpation with a finger in the anus.

The mobilized rectum is intussuscepted through the anus by passing a curved clamp or a Babcock forceps through the anal canal, and an assistant places the closed rectal stump within the jaws of the clamp (Fig. 24.1d). The mucosal surface is cleaned with Betadine. When the dissection has been completed it should be possible to evert the anal canal completely when traction is applied on the rectum. An incision is made anteriorly through the rectal wall about 1 to 2 cm from the dentate line, extending halfway through the rectal circumference. A clamp is inserted through this incision to grasp multiple sutures placed through the cut end of the proximal colon (Fig. 24.1e). An outer layer of interrupted 4-0 Vicryl sutures are placed through this incision to grasp multiple sutures placed through the cut muscular edge of the rectum and the muscular wall of the pull-through colon (Fig. 24.1f, g). When the outer layer has been completed, the proximal bowel is opened and an inner layer of interrupted 4-0 Vicryl sutures is placed (Fig. 24.1h). When the anastomosis is completed, the sutures are cut, allowing the anastomosis to retract within the anus (Fig. 24.1i).

![Fig. 24.1](image.png)