



Pediatric Perspectives: Rectal Motility Studies and Constipation

Rita Steffen, MD

Division of Pediatrics, Cleveland Clinic Foundation, Cleveland, Ohio

(originally published in DIGEST Spring 2001 when Dr. Steffen was a Visiting Scientist at the UNC Center for Functional GI & Motility Disorders)

Constipation accounts for 10-15 percent of referrals to pediatric gastroenterologists. While the majority of children with constipation are suffering from what is often called functional withholding, others may have Hirschsprung's Disease. This is a birth defect in which nerve cells in the walls of the rectum and anal canal are missing, causing a severe form of constipation, because the muscles cannot relax to allow fecal materials to pass through. It has an incidence of one in 5,000 live births. Another subgroup has paradoxical contraction of the puborectalis muscle. These children are unaware that they are actually contracting or squeezing the external anal sphincter at the time they are straining to evacuate stool.

Motility studies of the anal canal and rectum can differentiate these causes of constipation. In parts of the country where anorectal manometry is unavailable, the rectum has to be biopsied (small pieces of the rectal walls are taken) to look for nerve cells. This often needs to be repeated if done with suction rectal biopsy, because not enough of the deeper layers of the rectal wall are obtained. Rectal motility tests can also assess the function of these muscles, both the internal and external anal sphincters, without the need for rectal biopsy. This allows for only children with abnormal sphincteric reflexes to need to be biopsied. This functional study reduces the number of invasive procedures, the risk of anesthesia, and bleeding from rectal biopsy.

When combined with surface electromyography, rectal motility testing can provide a comprehensive assessment of the level of sensation (the ability to feel when there is fecal material in the rectum) and whether squeeze and strain maneuvers are abnormal. The technology also provides a way to train the patient through biofeedback to squeeze or relax the muscles of the abdominal and pelvic floor muscles to achieve continence and effective defecation.

The most common reason for performing rectal motility studies in children is to rule out Hirschsprung's Disease. The procedure is also helpful in assessing patients with spinal cord disorders and other causes of fecal incontinence. Surgeons often take anal pressure measurements before and after surgery as an operative measure of the function of the muscles and capacity of the rectum. Children who are born with imperforate anus (also called congenital atresia), which involves a missing or closed off segment of bowel, may be referred for assessment before undergoing surgical corrections.



Most physicians often consider Hirschsprung's Disease to be a neonatal problem, presenting with an obstructive severe constipation pattern clinically and on x-ray examination in the newborn period. However, if a very short segment of the rectum is involved, the defect may not be identified until the child is older. Rectal motility testing can also identify older patients with the disease. Even patients in their teenage years with chronic constipation should be screened for limited Hirschsprung's, since ganglion cells may be present above the internal sphincter. In this case, the cells would be present and the diagnosis of Hirschsprung's would be determined by rectal motility testing, according to Dr. Robert Petras, a bowel pathologist at the Cleveland Clinic in Florida. Surgery is the treatment when Hirschsprung's or imperforate anus has been diagnosed.

Resection of the involved segment is done and normal bowel from this area is pulled down to create a new rectum and anal canal. With Hirschsprung's Disease, if the area of involved bowel is relatively short, it may be possible to cut into the muscle of the bowel to shape it without taking out a section of the bowel. There are often residual problems after this surgery is done and recent interest and work is examining the function of the other parts of the gastrointestinal tract in patients with Hirschsprung's Disease.

