



Surgical Treatment of Fecal Incontinence

By: Ann C. Lowry, M.D., F.A.C.S., Division of Colon and Rectal Surgery, University of Minnesota Medical School

Fecal incontinence is a miserable, embarrassing problem which can severely limit a patient's social life. Treatment modalities include dietary and bowel management programs, drug therapy, biofeedback and surgery. Surgery may be necessary to correct an underlying problem causing the incontinence or to repair an injured or poorly functioning sphincter. Rectal cancer, rectal prolapse and inflammatory bowel disease all can cause fecal incontinence and may require surgery to correct.

When is surgery useful and what options are available?

Surgery is most useful for patients who have sustained an injury to the anal sphincter. The anal sphincter is a circular muscle which holds the anal canal closed. If the injury disrupts the circle, even well functioning muscle cannot completely close the anal canal. This type of injury occurs most frequently during childbirth but may also happen during rectal operations or from external trauma. The appropriate operations to correct the sphincter injury include primary sphincter repair, sphincteroplasty and various encirclement procedures. The choice depends upon the extent of the sphincter injury and the presence or absence of injury to the nerves.

Primary sphincter repair

If the injury is recognized immediately, primary repair is indicated when the damage is not extensive and the patient is stable. Obstetrical injuries generally qualify and should be repaired at the time of delivery. Repair involves reapproximating the divided ends of the sphincter muscle. Repair should be delayed if there has been extensive injury to the surrounding tissue or the patient is medically unstable. Accidents or other forms of trauma are the most common cause of that situation. A temporary colostomy is performed and repairs undertaken approximately three months later.

Sphincteroplasty

Sphincteroplasty is performed when sphincter damage was not initially repaired or a primary repair failed. If the patient has a definite sphincter defect and 50% of the sphincter muscle is preserved, she is a candidate for sphincteroplasty. It is also important that patients undergo EMG testing of the nerves supplying the sphincter before surgery. The success rate of this operation is low if the nerves are not functioning well.

The operation begins with identification of the disrupted ends of sphincter muscle. The ends are then overlapped to reconstitute the circumferential nature of the sphincter. A temporary colostomy is not usually necessary. The patient is hospitalized for 2-4 days postoperatively for pain control and bowel rest. Care at home may include baths, stool softeners or enemas. Complications are unusual but include infection, temporary difficulty urinating and bleeding. The main problem after surgery is pain which can be controlled with medication. Continence for solid and liquid stool is restored in approximately 80% of patients. Continence of gas occurs in about 50% of patients. Increasing age, associated nerve damage, postoperative infection and prior attempts at repair correlate with poor outcomes. Biofeedback may help patients with a good surgical repair but less than satisfactory control.

Many patients with fecal incontinence have an anatomically intact sphincter which functions poorly. The postanal repair was devised to aid those patients. Candidates include patients with incontinence found to be secondary to dysfunction of the nerves to the sphincter or with unsatisfactory results after sphincteroplasty. Patients with nerve dysfunction from prolonged labor or a rectal prolapse are typical candidates. The goal of the procedure is to tighten and lengthen the anal canal. Working posteriorly all layers of the sphincter muscle are essentially "reefed." Early results found that continence was

restored in approximately 80% of patients. More recently, other authors have reported less satisfactory results so the operation is not commonly done in the United States.

Encirclement procedure

Patients with more extensive damage to their sphincter muscles or severe nerve dysfunction traditionally had two options. One is a permanent colostomy, which relieves the symptoms well but many patients wish to avoid. The other is an encirclement procedure. In performing an encirclement procedure the surgeon attempts to replace the sphincter muscle by wrapping something around the anal canal. In the original operations wire was placed around the anal canal as a passive mechanical barrier. Silastic cord has now replaced the wire. However, the results of this type of procedure are poor and complications are frequent, particularly infection related to placing a foreign body in a contaminated area.

To improve the results, interest developed in using muscles from elsewhere in the body to wrap around the anal canal. Two primary reasons exist for this interest. Muscle theoretically would provide a more active barrier to the passage of stool. In addition, since muscle is not a foreign body, the risk of infection is reduced. The gracilis muscle from the inner thigh is the muscle most frequently used for anal encirclement. The muscle is detached from its position in the thigh and the end is snugly wrapped around the anal canal. By pulling his thigh in, the patient tightens his anal canal. The operation is fairly extensive and results have been quite variable so it has not gained wide popularity. Part of the problem is that the tight closure of the anal canal requires conscious effort whereas the normal sphincter maintains closure without conscious effort. Only a few muscles in the body are capable of prolonged contraction without fatigue.

In other settings it has been shown that chronic electrical stimulation of skeletal muscle converts that muscle to a more fatigue resistance type. This concept has been applied to the gracilis muscle wrap, by attaching an implantable stimulator to the wrapped muscle. With a training program of electrical stimulation, the muscle undergoes conversion when successful. The muscle is able to keep the anus closed without conscious effort. Although this operation is still experimental, successful results have been reported.

Artificial anal sphincter

Another area of investigation involves the development of an artificial anal sphincter based on the successful results with an artificial urinary sphincter. The device consists of an inflatable cuff, control pump and a pressure regulating balloon. The inflatable cuff is placed around the anus, the control pump implanted in the scrotum or labia and the balloon in the abdomen. A full cuff provides continence while deflating the cuff with the pump allows defecation. The cuff automatically refills. Early results are promising, although infection remains a significant problem.

Colostomy

For patients with persistent incontinence despite appropriate medical and surgical therapy, a colostomy provides relief of the debilitating symptoms. Using the left colon to fashion the colostomy is preferable if technically possible. The stool is more likely to be formed and evacuation less frequent.

Summary

Many modalities of treatment are available to patients with fecal incontinence. Surgery is not the answer for all patients with incontinence but for appropriately selected patients it can restore their continence. Until recently patients with localized injury to their sphincter or a remediable underlying disorder have had the best results. The exciting work on the stimulated gracilis muscle wrap and the artificial sphincter now offers hope for potential surgical correction for patients with extensive nerve or sphincter injury.

Opinions expressed are an author's own and not necessarily those of the International Foundation for Functional Gastrointestinal Disorders (IFFGD). IFFGD does not guarantee or endorse any product in this publication nor any claim made by an author and disclaims all liability relating thereto.

This article is in no way intended to replace the knowledge or diagnosis of your doctor. We advise seeing a physician whenever a health problem arises requiring an expert's care.

IFFGD is a nonprofit education and research organization. Our mission is to inform, assist, and support people affected by gastrointestinal disorders. For more information, or permission to reprint this article, write to IFFGD, PO Box 170864, Milwaukee, WI 53217-8076. Toll free: 888-964-2001. Visit our websites at: www.iffgd.org or www.aboutibs.org.