Fecal Incontinence

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A 74-year old woman with a medical history of hypertension, diabetes, and urinary incontinence comes for an annual exam. She feels well, has no physical complaints, and has been healthy since her last visit. She reports her urinary incontinence has improved, but mentions that she sometimes has "accidents" with stool. Her obstetrical history is significant for 3 vaginal deliveries, one with a 3rd degree tear. She had no difficulties with fecal control when she was younger. She reluctantly admits this has been going on for many years but she has been too embarrassed to talk about it. When asked how often this happens, she says often enough that she has adjusted her lifestyle. She tries to stay home as much as she can, has her friends come to her, and avoids going any place where a bathroom is not readily accessible.

Introduction

Fecal incontinence affects an estimated 2-20% of the general population, and up to 50% of the elderly and institutionalized population.[1] Patients with incontinence tend to suffer in silence; they often do not seek help because of embarrassment and stigma. They often become confined to their homes because they are afraid of having an "accident". Although this is not a life-threatening condition, the psychological, emotional, and social impact can be devastating.

Background & Anal Physiology

Normal bowel control involves the coordinated interaction among multiple different neuronal pathways and the pelvic and perineal musculature. Normal defecation is started by distention of the rectum which stimulates pressure receptors located on the puborectalis and pelvic floor muscles. This stimulates the **rectoanal inhibitory reflex** (**RAIR**) which causes relaxation of the internal anal sphincter. Defecation occurs unless there is voluntary contraction of the external anal sphincter and levator ani muscles.

Etiology & Differential Diagnosis

Decreased ability to control bowel movements may be related to: alterations in bowel motility; stool volume and consistency; compliance of the rectum; mental awareness; neural pathways; pelvic floor muscles; and anal sphincters. Incontinence occurs when one or more of these are altered without adequate compensation.

There are numerous etiologies of fecal incontinence, some of which may be reversible. It is important to determine all possible sources in order to offer appropriate management.[2,3]

Common causes include:

1. Medications: Many medications can alter bowel motility causing diarrhea or constipation, resulting in incontinence.
2. Obstetrical injury: Direct tear of the sphincters occur in 0.6% of deliveries, but occult injuries can be seen on ultrasound in 20-35% of all deliveries. These patients can compensate when they are younger, but as they age, continence decreases.
3. Trauma: Pelvic fractures, insertion of foreign bodies, spinal injuries, or perineal lacerations.
4. Diabetes
5. Radiation
6. Stroke/Brain tumors
7. Dementia
8. Multiple sclerosis/Muscular dystrophies/Myasthenia gravis
9. Amyloidosis

Evaluation and Work-Up

A thorough history should include:

1. Incontinence to gas, liquid, and/or solid stool
2. Frequency of stools
3. Frequency of incontinent episodes
4. Consistency of stools
5. Awareness of the incontinent events
6. Obstetrical history (episiotomies, forceps, multiparity)
7. Previous surgery (prolapse, urinary incontinence, hemorrhoids, fissure, bowel resection)
8. Sexual history (anal sex, causing dilation or injury of internal anal sphincter)
9. CNS disorders (peripheral neuropathy, back injury)
10. Chronic diseases (Diabetes, Crohn's, Ulcerative Colitis, Irritable bowel syndrome)
11. Medications

The physical exam should include a detailed inspection of the anus. The exam should seek evidence of scarring, trauma, fistulas, or prolapse. During the digital rectal exam, the patient should be asked to squeeze and relax during exam to allow assessment of squeezing and resting sphincter tone. The work-up should begin with evaluation of the rectal mucosa with a rigid or flexible procto-sigmoidoscope to look for tumors, inflammation, prolapse, hemorrhoids, or infectious coli-

tis. Once these are ruled out, a specialist can do further testing to delineate other causes of fecal incontinence.

Diagnostic Testing

Anal Manometry: A small catheter is inserted in the anus to measure the resting and squeeze pressures of the sphincters. A small balloon on the end of the catheter can test for the RAIR and compliance of the rectum.

Defecography: Radiologic imaging of the act of defecation, allowing visualization of the anorectal angle; degree of evacuation; and the presence or absence of rectal prolapse, rectoceles, enteroceles, and internal intussusception.

Ultrasound: Allows 3-dimentional visualization of the anal sphincters. This is a useful test which can demonstrate defects or scars in the anal sphincters, as well as the thickness of the perineal body.

Pudendal Nerve Latency Time: Used to evaluate nerve damage to the pelvic floor. Measures the time from the electrical stimulus of the pudendal nerve to the onset of the electrical response of the pelvic floor muscles.

Treatment

The choice of therapy depends on the cause of incontinence, any anatomical defects, and the degree of neurologic damage. Treatment should be tailored for each patient and realistic goals should be set.[1]

Initial steps should usually include dietary modification. Patients should be encouraged to keep a food and bowel movement diary, looking for connections between foods and accidents. Patients should avoid foods that cause diarrhea or accidents. All patients should be encouraged to avoid caffeine, which increases colonic motility and augments fluid secretion in the small bowel.[1]

Next, patients can increase their stool consistency and decrease stool frequency by eating more fiber, which helps bulk up stool, making it firmer and easier to control. Patients with diarrhea should consume fiber with limited water to increase stool consistency. Additionally, anti-diarrheal agents can help slow intestinal transit time, allowing for increased fluid absorption and increased stool consistency. Loperamide (Imodium) in low dose (one every other day) has been shown to increase the resting internal anal sphincter pressure and can help with minor fecal incontinence.[4]

Biofeedback, or pelvic floor physical therapy, can give the patient better information about physiologic activities that are under the control of the nervous system but not always clearly or accurately perceived by the patient. The three components of biofeedback include: exercising the external sphincter muscle, discrimination training of rectal sensation, and training synchrony of the internal and external sphincter responses during rectal distension. Beneficial effects of biofeedback can be seen in up to 75% of patients and the therapy is noninvasive. However, biofeedback requires a dedicated therapist and a competent, motivated patient for optimal outcomes.[5]

Surgical treatment can be an option for many patients who are not satisfactorily helped by medical therapy, or for whom specific indications exist. For example, patients with anterior sphincter defects and adequate residual muscle mass (usually caused by obstetrical injury) can be offered an overlapping sphincteroplasty, a low-cost operation with a relatively short hospital stay. The most commonly noted adverse reaction is pain from the perineal wound. Sphincteroplasty has an immediate post-operative 50-80% success rate for solid and liquid stool control, but deteriorates to 26-57% at 3-4 year follow-up. The declining function may be attributed to degeneration with aging, stretching of the scar, or progressive pudendal nerve deterioration. Prior to choosing surgical intervention, patients need to be aware that the resulting control will never equal the level prior to injury.[6]

Another option is an artificial anal sphincter, an implantable silicone cuff balloon filled with fluid that encircles the anus. A pump is placed in the scrotum or labia that can be deflated for defecation. This is the best option for patients with substantial sphincter injury for whom other repairs are not possible. The success rate is 49-82% but there is a removal rate of 19-38%. The intention-to-treat success rate is 53%.[7]

Sacral Nerve Stimulator is used for urinary incontinence and was found to be helpful in fecal incontinence as well. An electrode is placed through S2, S3, S4 sacral foramina to stimulate the pelvic floor muscles. Numerous studies have shown its effectiveness, and **the Federal Drug Administration (FDA)** approval for use in fecal incontinence is anticipated in the near future. Patients are first evaluated, using a temporary electrode that is left in place for 3 weeks. If incontinence has significantly improved during this period, a permanent stimulator is placed subcutaneously in the gluteal area. The mechanism of action is unclear as it not only works on the pelvic floor but also on the entire colorectum and anus. An advantage over the external anal sphincter is that this device does not have to be turned "off" to defecate. There is a 70-90% success rate with minimal morbidity although long term follow-up is not yet known. This may be a very good option in the near future.[8]

For patients who are not suitable candidates for surgery or have failed other options, a trial of daily suppositories or enemas is reasonable to clean out the lower colon and rectum to help avoid or eliminate accidents. This simple solution may allow a patient to resume activities without the fear of an accident.

A permanent stoma is an option for patients who have experience failed attempts at sphincter-preserving procedures, radiation, or who have major comorbidities. A permanent stoma can provide patients with relief from the symptoms associated with fecal incontinence. It can drastically improve quality of life if patients are accepting of a stoma. Some patients with a permanent stoma can irrigate their colostomy and have scheduled function, allowing them to wear a colostomy cap instead of an appliance. Eighty-three percent of patients with permanent colostomy report substantial improvement in lifestyle, and 84% of patients would choose to have the stoma again.

Conclusion

This 74-year old woman underwent testing and was found to have a sphincter tear. She was started on fiber supplements and experienced improved control, but continued to have ac-

cidents. She underwent a successful sphincteroplasty and has not had an accident of solid or liquid stool in the past 2 years. She is happy that she spoke with her doctor, and her life has improved greatly.

Most patients will avoid discussing fecal incontinence. It is imperative to put patients at ease to elicit open, honest communication about this under-reported condition. Asking about fecal and urinary incontinence routinely as part of the annual review of systems is strongly encouraged. A careful and thoughtful history is the important first step in the evaluation of fecal incontinence. The key to helping patients lies in eliciting the symptoms and educating patients that fecal incontinence is treatable, that diagnostic tests exist, and that treatment strategies (other than a permanent stoma) are available.

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Discussion of product not labeled for use under discussion or investigational:

Sacral nerve stimulator

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