

Evaluation and Management of Fecal Incontinence in the Elderly

Lisa Jones* and Arnold Wald

Division of Gastroenterology and Hepatology, University of Wisconsin-Madison, Madison, WI, USA

***Corresponding Author:** Lisa Jones, Division of Gastroenterology and Hepatology, University of Wisconsin-Madison, Madison, WI, USA.

Received: January 07, 2022; **Published:** December 31, 2021

Abstract

Fecal incontinence (FI), though prevalent among community dwelling and institutionalized elderly adults, is often underreported. Diarrhea, dementia and immobility are often seen in patients with FI although most risk factors are interrelated and coexistent. FI occurs when disruptions to the anorectal structures, central or peripheral nerves and alterations to rectal compliance, capacity and changes in stool liquidity or delivery are present. Early detection is encouraged by obtaining a detailed history, physical exam, including digital rectal exam, and performing diagnostic tests in selected cases. A combination of dietary, behavioral and pharmacologic approaches is often effective in reducing episodes of FI to reduce associated complications, impairment in quality of life and clinical sequelae.

Keywords: *Fecal Incontinence; Elderly*

Epidemiology

Fecal incontinence (FI), also known as anal incontinence or accidental bowel leakage, is defined by the Rome Foundation, a non-profit organization that defines disorders of gut-brain interaction, as the uncontrolled passage of stool occurring at least twice a month for six months [1]. The requirement for episodes to be chronic (occurring for six months) and frequent is more stringent than earlier criteria. Though strict criteria is important for clinical trials, patients who experience less frequent or less chronic symptoms should not be ignored. In one study, patients who experience FI also report considerable decline in quality-of-life metrics [2].

FI is not uncommon and often underestimated. Prevalence estimates vary according to the definitions used, the populations studied and study quality. A 2009 National Health and Nutrition Examination Survey estimated the prevalence of FI in non-institutionalized US adults at 8.3% and it increases with age. It has been estimated to be 2 - 6% in 20 - 30-year-olds and 15.3% in those older than age 70 [3]. In contrast to general perceptions, men and women are similarly affected.

When institutionalized adults are studied, prevalence rates rise to greater than 50 percent [4,5]. Additionally, nursing home adults often suffer from double incontinence (both urinary and fecal) at a rate 13 times higher than the rate of isolated FI [6].

In clinical practice, underreporting by patients and under-recognition by providers is common. In an academic gastroenterology practice, a cohort of 500 patients were directly asked about symptoms of FI and was compared to their usual care through chart review. When asked, 11.6% reported FI though only 22% of these patients had ever discussed their symptoms with a health care provider. When an

equal number of charts were reviewed, the prevalence of FI was only 2.4% [7]. These findings suggest that in order to detect and treat effectively, patients must be asked directly about these symptoms.

FI impairs quality of life, functional abilities and increases rates of depression, social isolation, and anxiety [8,9]. The presence of FI in the elderly also increases the likelihood of nursing home referral by health care providers and more ominously, mortality [10,11].

The economic burden of FI is significant. The average annual direct and indirect cost per person is estimated to be greater than \$4000 per year and those with severe fecal incontinence incur the highest annual cost [12].

Risk factors

Continence is maintained by the anal sphincters, the puborectalis muscle, peripheral and central nerves and rectal capacity and compliance. Impairment of any of these can result in accidental bowel leakage.

The anal canal consists of two types of sphincters; both help to maintain continence. The internal anal sphincter (IAS) is comprised of smooth muscle, is tonically active at rest and is under involuntary control. It is the IAS that contributes most to the resting anal canal tone. The external anal sphincter (EAS) is a striated muscle that while also active at rest, is activated under voluntary control to close the anal sphincter and defer defecation. The puborectalis muscle (PRM) wraps around the rectum, keeping the anal canal in an acute configuration to prevent leakage of bowel contents. Together with the EAS, it may be contracted voluntarily to prevent leakage (Figure 1).

Dysfunctions of the anal sphincters and PRM may be due to direct trauma from vaginal deliveries or anorectal surgeries, injury to the peripheral nerves that impair contraction of the EAS and PRM or neuromuscular degenerative disorders.

Continence is also influenced by rectal sensation and cognition. When the rectum fills with stool, distention is sensed by stretch receptors which communicate with the spinal cord and the brain. When a conscious decision is made to evacuate, abdominal wall muscles contract and increased abdominal wall pressure is transmitted to the rectum. The IAS, EAS and PRM relax to facilitate evacuation. To defer evacuation, a conscious decision is made to contract the EAS and PRM to delay emptying. Any disruption along this complex pathway can facilitate incontinence.

There is some suggestion in the literature that age is a risk factor for incontinence even among patients without prior history of sphincter injury [13]. In another study, thinning of the external anal sphincter correlated with lower squeeze pressures [14]. Despite these reported changes, FI is not an inevitable consequence of aging. There must be additional dysfunctions that occur as fecal incontinence is often multifactorial. It is possible for a patient to have intact sphincter tone and pressures and still experience FI.

As an example, diarrhea is one of the strongest predictors of FI among adults, including both independent living and institutionalized elderly adults [15]. More rapid colon transit time decreases water and electrolyte absorption; with the production of liquid stool, there is often less time to get to the bathroom and leakage can occur. Management of FI often requires an identification of underlying causes of diarrhea and appropriate treatment.

Conversely, constipation resulting in fecal impaction is responsible for 20% of new onset FI among elderly institutionalized adults [16]. The hard mass of stool promotes overflow incontinence by limiting discrimination between gas, liquid, and solid stool. Seepage around the solid mass of stool gives little to no warning. If an impaction is not readily identified, overflow incontinence may be inappropriately treated with antidiarrheal medications.

The ability to walk, transfer, use the toilet independently, and dress oneself are essential in being able to access bathrooms in times of need [17]. Among institutionalized elderly patients, severe cognitive impairment and immobility are significant independent risk factors for FI. In a population of 388 elderly institutionalized patients, dementia was more common in incontinent compared with continent residents with an odds ratio of 4.3 [18]. Similarly, impairment in activities of daily living (ADLs) was associated with FI. Disorders of the

central and peripheral nervous system, certain medications and acute illness with delirium may limit mobility and decrease awareness leading to both fecal and urinary incontinence. Reduction in rectal storage capacity by surgery, bowel inflammation or radiation injury can promote urgency and incontinence by promoting rapid elevations in intrarectal pressures that overcome anal sphincter pressures.

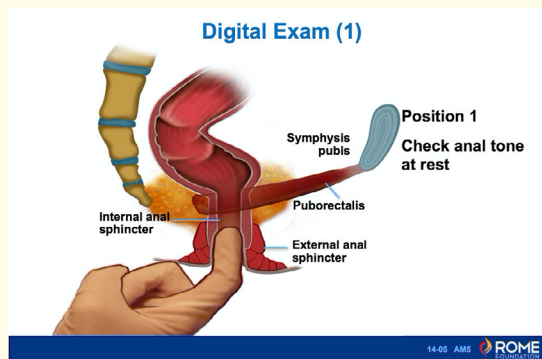
Evaluation

Early recognition is essential to reducing related morbidity and mortality; however most patients do not discuss their symptoms with care providers unless directly asked. A simple intervention is to ask each patient, irrespective of gender and age, about the existence of accidental bowel leakage. The question “Do you experience accidental bowel leakage” can be added to intake forms or asked directly during the clinical encounter.

A detailed review of all medications, as well as a medical and surgical history, helps to identify reversible causes of incontinence. Inquiry about stool consistency using the Bristol Stool Scale volume of leakage and frequency is important to identify diarrhea. It is equally important to elicit associations like timing (occurring at rest or during activity), foods, stressors, and medications [19].

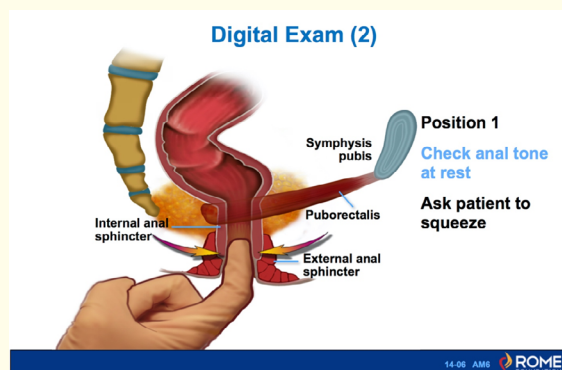
A thorough physical exam should be performed to include the digital rectal exam (DRE). DRE can identify skin-related-sequelae of leakage, fecal impaction, elicit anal reflexes, and sphincter function. The perianal region should be inspected for skin breakdown, scars, and stool. In the second phase, an anocutaneous reflex (“anal wink”) is elicited by lightly scratching the perianal skin with a cotton swab. A reflexive contraction of the EAS is expected as afferent signals are carried to the spinal cord and then back to the EAS via efferent motor signaling. The presence of an anal wink ensures that the sacral arc is intact.

During the internal portion of the exam, the finger is inserted gently into the anal canal. The presence of abundant and hard stool in the rectum may identify fecal impaction. Next, the resting tone of the anal sphincter and puborectalis muscle is assessed. The patient is then asked to squeeze so that the strength of the muscles can be estimated (Figure 1). To evaluate rectoanal coordination, the patient is asked to bear down as if to evacuate. A hand placed on the abdomen during this maneuver can assess the tension and contraction of the abdominal muscles. The muscles should become tense during evacuation. Weakness of the core muscles influences the push effort. As the patient bears down, the finger in the rectum should detect relaxation of the anal sphincters and puborectalis muscle. Paradoxical contraction of these muscles during the push effort suggests a condition known as dyssynergic defecation. When the muscles contract instead of relaxing, evacuation becomes difficult, and constipation can occur (Figure 1).



The internal portion of the digital rectal exam. The rectum is assessed to exclude fecal impaction, masses and strictures. The tone of the anal sphincter and muscles can also be assessed.

The patient is then asked to squeeze so that the strength of the muscles can be estimated. Thereafter the patient is asked to bear down. During this maneuver, the puborectalis muscle and anal sphincters relax, the finger should move down and out.



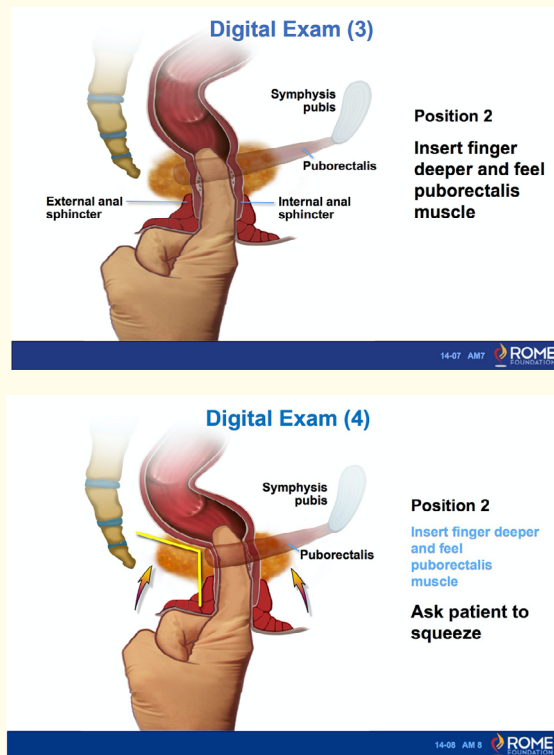


Figure 1: Assessing resting tone and squeeze.

While there is no specific testing for FI, an evaluation of causes of diarrhea is helpful. This could include testing for stool infection and inflammation using a fecal calprotectin or lactoferrin level. Colonoscopy may be considered in the appropriate patient to exclude mucosal disorders such as inflammation that may contribute to frequent emptying and loose stools.

Formal testing helps to confirm abnormalities detected on the digital rectal exam and uncover ones not previously identified. An anorectal manometry is a simple test of anorectal function. It is most helpful in evaluating the resting tone and squeeze pressures of the anal canal. This test is often limited to specialized centers and should only be performed if it is felt to influence management in patients who can participate adequately in the exam. A catheter with sensors with a balloon at the proximal end is inserted into the rectum. During the test, the patient is asked to perform maneuvers such as to squeeze and bear down as if to defecate. Thresholds for rectal sensation can be also measured by slowly distending the balloon with air. The patient is asked to note the first sensation, urge or desire to defecate, and maximum tolerance and the levels are recorded.

In some elderly patients with FI, a decrease in rectal sensitivity, the desire to defecate at higher-than-average volumes, seems to be more common than their continent counterparts [20]. An inability to tolerate stool in the rectum can lead to frequent urge sensations and reservoir incontinence.

An abdominal x-ray to detect an impaction may be useful if the suspicion for overflow incontinence remains high despite a normal digital rectal exam [21] (Figure 2).



Figure 2: An example of an abdominal xray in a patient with constipation.

Source: Heilman, James. Wikimedia Commons. 10 August 2021, [https://commons.wikimedia.org/wiki/File:Constipation\(lots\).png](https://commons.wikimedia.org/wiki/File:Constipation(lots).png).

Management

Interventions to improve incontinence are often multimodal and include adjustments in diet, toileting habits, behavior, medications, and surgical interventions.

A stool diary should be kept for 7 - 14 days to prospectively document stool consistency, leakage episodes, urgency, meal timing and diet. These data points may be helpful in identifying triggers and tracking treatment response.

As diarrhea is a major risk factor for incontinence, improvement in stool consistency is often a first, low risk intervention. If a specific cause is found, the underlying diarrheal illness is treated. If no etiology is found, antidiarrheal agents such as loperamide and diphenoxylate with atropine may help to control diarrhea. Loperamide (2 mg capsules) can be scheduled, titrated to a maximum of 8 daily, or taken prior to social engagements, meals, or outings. It is preferred to diphenoxylate because it has no effects on the central nervous system and therefore is not considered an addictive opiate nor does it require a prescription. Elimination of common dietary triggers of intestinal peristalsis such as caffeine, lactose and other non-absorbable carbohydrates are common first-line tactics.

Dietary soluble fiber such as psyllium bulks stools and increases stool water content to increase rectal distention, thereby improving sensory awareness and the urge to defecate [22]. It appears to be equally effective when compared to loperamide and is more effective than insoluble fibers such as wheat bran, barley, and carrots [23,24]. The dose of psyllium can be titrated to effect and is given once daily.

Overflow incontinence is treated by disimpaction followed by reducing exposure to constipating medications and employing a proactive laxative protocol. Mineral oil enemas can be used to soften the hard stool and promote elimination with a daily laxative regimen thereafter.

More practical management strategies may require the involvement of caretakers to reduce mobility and cognition barriers in appropriate elderly patients.

If continence pads are used, they should be comfortable, easy to use and maintain skin integrity [25].

If conservative measures fail to improve FI, biofeedback therapy may be a reasonable next step for selected patients. The response rates vary from 38-75% in limited numbers of controlled trials [26,27]. Pelvic floor retraining aims to improve muscular strength, coordination, and rectal sensation. Electromyography (EMG) sensors or an anorectal manometry catheter is placed around or inside the anal canal. Patients must be able to understand complex instructions and engage in physical therapy sessions. Patients are instructed to perform exercises while a visual or auditory representation of the muscular response is shown to provide feedback about sphincteric response.

Sacral neuromodulation is a promising therapy reserved for patients who do not respond to traditional therapies. Low dose chronic stimulation along sacral nerve roots can improve FI though the mechanism of action is unknown. Long-term studies report improvement in over 50% of patients [28]. There are associated risks to include infection. Re-intervention may be necessary due to pain at the implant site and loss of efficacy requiring lead removal. This option is available to ambulatory elderly individuals on a case-to-case basis.

Conclusion

Fecal incontinence is often the consequence of the impairment of colorectal continence mechanisms. It is prevalent although often under-reported in elderly patients and more so in institutionalized elderly patients.. A detailed history and physical exam helps to identify reversible causes of FI. Effective management strategies are often conservative and involve knowledgeable health care providers such as nursing personnel.. As the aging population continues to grow, more studies are needed to evaluate preventative and treatment strategies in this population.

Bibliography

1. Rao SS., *et al.* "Functional Anorectal Disorders". *Gastroenterology* 150 (2016): 1430-1442.
2. Whitehead WE., *et al.* "Fecal Incontinence Diagnosed by the Rome IV Criteria in the United States, Canada, and the United Kingdom". *Clinical Gastroenterology and Hepatology* 18.2 (2020): 385-391.
3. Whitehead WE., *et al.* "Pelvic Floor Disorders Network. Fecal incontinence in US adults: epidemiology and risk factors". *Gastroenterology* 137.2 (2009): 512-517.
4. Dey AN. "Characteristics of elderly nursing home residents: data from the 1995 National Nursing Home Survey". *Adv Data* 289 (1997): 1-8.
5. Ihnát P., *et al.* "Fecal incontinence among nursing home residents: Is it still a problem?" *Archives of Gerontology and Geriatrics* 65 (2016): 79-84.

6. Musa MK, et al. "The Prevalence, Incidence, and Correlates of Fecal Incontinence Among Older People Residing in Care Homes: A Systematic Review". *Journal of the American Medical Directors Association* 20.8 (2019): 956-962.
7. Alsheik EH, et al. "Fecal incontinence: prevalence, severity, and quality of life data from an outpatient gastroenterology practice". *Gastroenterology Research and Practice* (2012): 947694.
8. Brown HW, et al. "Quality of life impact in women with accidental bowel leakage". *International Journal of Clinical Practice* 66.11 (2012): 1109-1116.
9. Erekson EA, et al. "Functional disability among older women with fecal incontinence". *American Journal of Obstetrics and Gynecology* 212 (2015): 327.e1-7.
10. Jamieson HA, et al. "Fecal Incontinence Is Associated With Mortality Among Older Adults With Complex Needs: An Observational Cohort Study". *The American Journal of Gastroenterology* 112.9 (2017): 1431-1437.
11. Grover M, et al. "Survey of geriatricians on the effect of fecal incontinence on nursing home referral". *Journal of the American Geriatrics Society* 58.6 (2010): 1058-1062.
12. Xu X, et al. "Economic cost of fecal incontinence". *Diseases of the Colon and Rectum* 55.5 (2012): 586-598.
13. Fox JC, et al. "Effect of aging on anorectal and pelvic floor functions in females". *Diseases of the Colon and Rectum* 49.11 (2006): 1726-1735.
14. Lewicky-Gaupp C, et al. "Anal sphincter structure and function relationships in aging and fecal incontinence". *American Journal of Obstetrics and Gynecology* 200 (2009): 559.e1-559.e5.
15. Goode PS, et al. "Prevalence and correlates of fecal incontinence in community-dwelling older adults". *Journal of the American Geriatrics Society* 53.4 (2005): 629-635.
16. Chassagne P, et al. "Fecal incontinence in the institutionalized elderly: incidence, risk factors, and prognosis". *The American Journal of Medicine* 106.2 (1999): 185-190.
17. Saga S, et al. "Prevalence and correlates of fecal incontinence among nursing home residents: a population-based cross-sectional study". *BMC Geriatrics* 13 (2013): 87.
18. Johanson JF, et al. "Risk factors for fecal incontinence in a nursing home population". *Journal of Clinical Gastroenterology* 24.3 (1997): 156-160.
19. Heaton KW, et al. "Defecation, frequency and timing and stool form in the general population: A prospective study". *Gut* 33 (1992): 818-824.
20. Yu SW and Rao SS. "Anorectal physiology and pathophysiology in the elderly". *Clinics in Geriatric Medicine* 30.1 (2014): 95-106.
21. Wald A. "Faecal incontinence in the elderly : epidemiology and management". *Drugs Aging* 22.2 (2005): 131-139.
22. Wald A, et al. "ACG Clinical Guidelines: Management of Benign Anorectal Disorders". *The American Journal of Gastroenterology* 116.10 (2021): 1987-2008.
23. Markland AD, et al. "Loperamide Versus Psyllium Fiber for Treatment of Fecal Incontinence: The Fecal Incontinence Prescription (Rx) Management (FIRM) Randomized Clinical Trial". *Diseases of the Colon and Rectum* 58.10 (2015): 983-993.

24. Bliss DZ., *et al.* "Dietary fiber supplementation for fecal incontinence: a randomized clinical trial". *The Research in Nursing and Health* 37.5 (2014): 367-378.
25. Brown J., *et al.* "Selecting absorbent continence pads for people with dementia". *Nursing Times* 114.5 (2018): 26-29.
26. Byrne CM., *et al.* "Biofeedback for fecal incontinence: short-term outcomes of 513 consecutive patients and predictors of successful treatment". *Diseases of the Colon and Rectum* 50.4 (2007): 417-427.
27. Ozturk R., *et al.* "Long-term outcome and objective changes of anorectal function after biofeedback therapy for faecal incontinence". *Alimentary Pharmacology and Therapeutics* 20.6 (2004): 667-674.
28. Janssen PT., *et al.* "Fecal incontinence treated by sacral neuromodulation: Long-term follow-up of 325 patients". *Surgery* 161.4 (2017): 1040-1048.

Volume 4 Issue 1 January 2022

©All rights reserved by Lisa Jones and Arnold Wald.