

CLINICAL UPDATE

Advances in the Treatment of Fecal Incontinence

Novel Treatment of Fecal Incontinence with an Injectable Biocompatible Tissue Bulking Agent



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G&H What is the impact of fecal incontinence on patients?

MB Fecal incontinence is the inability to defer the urge to pass gas or stool until a socially acceptable time and place. It is estimated that fecal incontinence affects approximately 15 million individuals in the United States; however, this figure likely underestimates the true prevalence of this condition. It is estimated that approximately two thirds of the patients who suffer from fecal incontinence do not come forward, leading to this condition being labeled as “the silent affliction.” These patients may be too embarrassed to discuss their condition or may think that they can manage it on their own. At times, they may broach the subject with their physician, but unfortunately the physician may not be aware of any interventions that would offer significant help to treat the condition. Thus, many patients suffer in silence.

Fecal incontinence is associated with a significant decrease in quality of life. Individuals who suffer from this condition often curtail their activities of daily living due to fear that they may have an accident, with many individuals becoming social shut-ins. It has been shown that individuals who suffer from fecal incontinence have a worse quality of life than individuals who have other gastrointestinal issues. A fecal incontinence quality-of-life score has been developed to assess the impact of this condition across 4 categories: lifestyle, coping and behavior, depression and self-perception, and embarrassment. Patients with fecal incontinence score worse across all 4 categories than patients with other gastrointestinal disturbances.

G&H How does fecal incontinence arise?

MB Fecal continence is a complicated process resulting from a complex interplay of several factors, including sphincter anatomy, neural pathways, rectal sensation, stool consistency, transit time, and rectal compliance. The job of the rectum is to store stool. Patients with a stiff or stovepipe rectum, as seen in patients with inflammatory bowel disease or patients who have a history of pelvic radiation, are unable to do this.

An intact neural pathway with a functioning pudendal nerve is also important for maintaining fecal continence. The pudendal nerve is a mixed nerve that contributes to both the internal and external anal sphincter function. The internal anal sphincter is an involuntary smooth muscle that is responsible for approximately 75% of the resting tone. The external anal sphincter is a voluntary striated muscle that provides the remaining 25% of sphincter strength.

The causes of fecal incontinence are myriad but can frequently be traced to either obstetrical or surgical trauma. Obstetrical trauma occurs with vaginal delivery in women who have third-degree or fourth-degree tears or when a forceps-assisted or vacuum-assisted delivery is required. These procedures can have a tremendously negative impact on the sphincter muscles. Surgical trauma can also lead to fecal incontinence. Lateral internal sphincterotomy, which is often used as a treatment for anal fissures, is by definition an incision of the internal anal sphincter. Too great of an incision of the internal sphincter can lead to fecal leaking and staining. Fistula surgery can be another cause of fecal incontinence. Anal fistulae traverse the sphincter mecha-

nism. If a primary fistulotomy is performed for a fistula that crosses a significant portion of the sphincter complex, patients may suffer from fecal incontinence.

G&H How is fecal incontinence diagnosed?

MB When a patient reporting fecal incontinence presents to his or her physician, a thorough history and physical examination should be conducted. In the vast majority of patients, the etiology of the patient's fecal incontinence can be deduced from his or her history. Intake questionnaires focused on bowel habits can be extremely helpful, as can assessments such as the Cleveland Clinic Florida fecal incontinence score. Typically, the physical examination confirms the patient's history.

Other tests can also be used to supplement the diagnosis of fecal incontinence, although they are not mandatory. Anorectal manometry, endoanal sonography, and pudendal nerve testing are useful tests, if they are available.

G&H How has fecal incontinence historically been managed?

MB First-line treatment of fecal incontinence is typically a combination of diet and bowel habit manipulation. Changes in foods, fiber, and biofeedback are all incorporated into patient management. Although I have had mixed results using biofeedback, it is often relied upon by other physicians. Pelvic floor physical therapy can be incorporated to help patients regain control of their anal sphincter muscles.

In addition, stool softeners, antidiarrheal agents, and antimotility agents can all be used. Patients can also be counseled on how to adjust their lifestyle to empty or evacuate their rectum with a glycerin suppository or an enema before they leave the house.

If these dietary and lifestyle changes do not improve a patient's fecal incontinence, historically the next step would be surgery—but only if the patients were surgical candidates. Not all patients with fecal incontinence have a surgically correctable cause of their incontinence. The most widely used surgical procedure is sphincteroplasty, although it is becoming less common. This procedure works well initially, but results have been shown to deteriorate over time. At least 2 published studies have shown that over 10 years of follow-up, patients who underwent a sphincteroplasty for treatment of fecal incontinence had results that were good initially but then significantly regressed over time.

There are also other less commonly performed surgical procedures for treating fecal incontinence. An antegrade colonic enema is primarily used for bowel retraining and constipation, but it is occasionally performed in patients with fecal incontinence. The radiofrequency procedure

Secca has been available for several years, but it is associated with several potential complications. Historically, when all else failed, patients have been offered the treatment of last resort: colostomy. While we usually try to avoid this procedure, a well-placed colostomy can improve the quality of life of a patient who is floridly incontinent. Finally, sacral nerve stimulation was recently approved for the treatment of fecal incontinence. Although it is less invasive and is associated with lower complication rates than some of the other surgical options for treatment of fecal incontinence, it requires 2 trips to the operating room, and we are still gaining experience with this treatment modality.

G&H Could you discuss the use of dextranomer microspheres in stabilized hyaluronic acid for treatment of fecal incontinence?

MB The US Food and Drug Administration (FDA) recently approved dextranomer microspheres in stabilized hyaluronic acid—referred to as nasha dx (Solesta, Salix)—for treatment of fecal incontinence when conservative therapy has failed. Nasha dx, which is considered a medical device by the FDA, is a biocompatible injectable gel consisting of dextranomer microspheres suspended in stabilized hyaluronic acid. This treatment, which consists of 4 injections, is performed in a doctor's office or hospital outpatient setting and is not technically challenging. The agent is injected through a side-viewing anoscope (which provides a view of the anal canal and distal rectum) into the submucosal layer of the anal canal in 4 quadrants.

G&H What have studies reported about the use of this agent in patients with fecal incontinence?

MB A recent multicenter, double-blind investigational device exemption (IDE) study, in which I was one of the investigators, randomized 206 patients 2:1 to receive nasha dx (N=136) or sham (N=70) injections. Patients were between the ages of 18 years and 75 years. Inclusion criteria included symptoms of fecal incontinence for at least 12 months, with more than 4 episodes within the 14 days prior to study enrollment. Patients also had to have a Cleveland Clinic Florida incontinence score of at least 10. Furthermore, patients had to have failed conservative measures prior to enrollment. Baseline characteristics were well matched between the nasha dx and sham arms in terms of sex, race, mean age, and history of fecal incontinence. Patients were also well matched with respect to the severity of their disease state, with the 2 arms having a similar median number of fecal incontinence episodes, median Cleveland Clinic Florida fecal incontinence scores, and baseline fecal incontinence quality-of-life scores for lifestyle, coping and behavior, depression and self-perception, and embarrassment.

The primary endpoint of the study was met at 6 months, with 52% of patients in the nasha dx group achieving a reduction of at least 50% in the number of fecal incontinence episodes, compared to 31% of patients in the sham group. These responses were durable at 12 months, with 69.1% of patients in the nasha dx group achieving a reduction of at least 50% in the number of fecal incontinence episodes. According to an unpublished analysis of a follow-up study, these responses remained durable over 3 years.

Patients treated with nasha dx demonstrated a significant decrease in the number of fecal incontinence episodes over a 2-week period (from 15.0 at baseline to 6.2 at 12 months; $P < .0001$). Nasha dx–treated patients also experienced an improvement in the mean number of fecal incontinence–free days at 12 months (from 4.4 at baseline to 7.9 at 12 months; $P < .0001$). Patients treated with nasha dx showed improvements in their quality of life across all 4 categories.

The results of this IDE study are comparable to other studies that have been conducted with nasha dx, including open-label and proof-of-concept studies. In fact, 24-month follow-up data from the proof-of-concept study also showed consistently high response rates (up to 65%).

G&H What adverse events have been reported with this treatment?

MB Overall, very few adverse effects have been associated with nasha dx treatment. In the IDE study, the overwhelming majority of reported adverse events were mild or moderate and self-limited. Proctalgia was reported in 14% of nasha dx–treated patients and 3% of sham-treated patients. This adverse event generally consisted of a mild aching, usually within 24 hours of the injections, and was treated with acetaminophen or a nonsteroidal anti-inflammatory agent. Injection site bleeding occurred in 5% and 17% of nasha dx–treated and sham-treated patients, respectively, as was expected with the use of a 21-gauge needle. Although rectal hemorrhage was reported (7% and 1%, respectively), it was very limited and was expected with the insertion of needles into the anal canal.

Three serious adverse events were reported, representing a total of 1.3% of all adverse events related to nasha dx. One event was *Escherichia coli* bacteremia, and the other 2 events were minor abscesses that were deemed to be related to nasha dx injection. All of these patients recovered uneventfully.

G&H Are there any contraindications to the use of nasha dx?

MB Contraindications include any ongoing active inflammatory process in the anorectal area, the presence of a rectocele, and an existing artificial anal implant. Additionally, patients who are immunocompromised are not candidates for nasha dx treatment. Radiation treatment is considered to be a contraindication, primarily because nasha dx has not yet been studied in these patients; future studies will likely address the safety of nasha dx in patients undergoing radiotherapy. Additionally, allergy to hyaluronic acid is a contraindication.

G&H How costly is nasha dx?

MB As this agent was only recently approved by the FDA, Current Procedural Terminology codes and details on cost and insurance reimbursement are still being worked out.

G&H How many treatment sessions are typically needed?

MB The IDE study offered patients 2 treatments 1 month apart, and most patients opted for a second treatment. Patients who had a good response to treatment were still experiencing these results 36 months later.

G&H Should this treatment be used concomitantly with other treatments?

MB Absolutely. Patients should continue all conservative measures (such as dietary and lifestyle modifications) that they were using prior to nasha dx treatment.

Suggested Reading

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