

Biofeedback in treatment of refractory constipation and fecal incontinence

Asha Misra, PhD*, Uday C Ghoshal, MD, DNB, DM**

*Senior Technical Officer and **Associate Professor

Gastrointestinal Pathophysiology and Motility Laboratory

Department of Gastroenterology, SGPGI, Lucknow 226014

Story of a patient

A 65-year old man presented with leakage of stool and spotting of undergarments since 4-5 years. He soiled his undergarments with stool 2-3 times/day. He was using a cotton pad to prevent spotting and was in trouble to change these cotton pads every time when he went to toilet. He restricted his social and physical activities. Patient preferred to lie down on bed most of the time due to these complaints. He restricted his diet and used to avoid taking foods outside home for fear of having diarrhea and soiling clothes. Patient was depressed, even felt hesitant to express his embarrassing condition to his

doctor. After clinical evaluation, anorectal manometry, he was asked to undergo biofeedback exercise therapy. After 2-3 months of regular biofeedback, patient felt better. Soiling of clothes was reduced to 3-4 times/week from 15-20/week.

Diagnosis of causes of fecal incontinence and constipation

This is usually done by ano-rectal manometry. In this procedure, rectal wall pressure and anal sphincter pressure is measured. Balloon expulsion test is another simple but important test used for diagnosis of these conditions. During this test, a balloon is inserted in patient's

rectum; patient is asked to expel out this balloon filled with 60-ml water; this help doctor to know the ability of patients to expel the balloon, which is similar to stool.

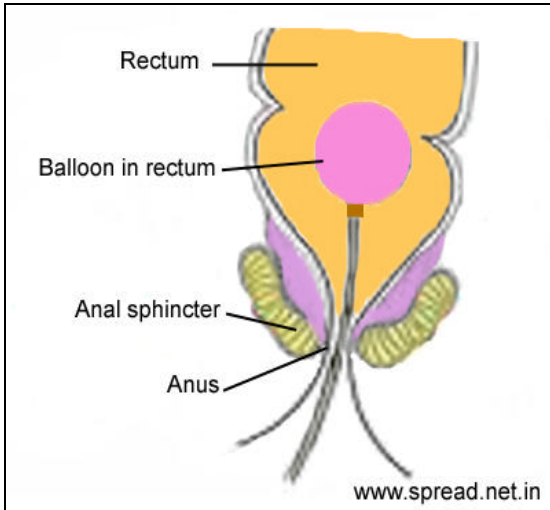


Figure1: Ano-rectal manometry.

What is Biofeedback?

The word biofeedback is combination of “Bio” and “Feedback”.

‘Bio’ means body and ‘feedback’ means learning by getting feedback about bodily activity to self educate. Biofeedback is a type of exercise training programme to educate and control biological activities.

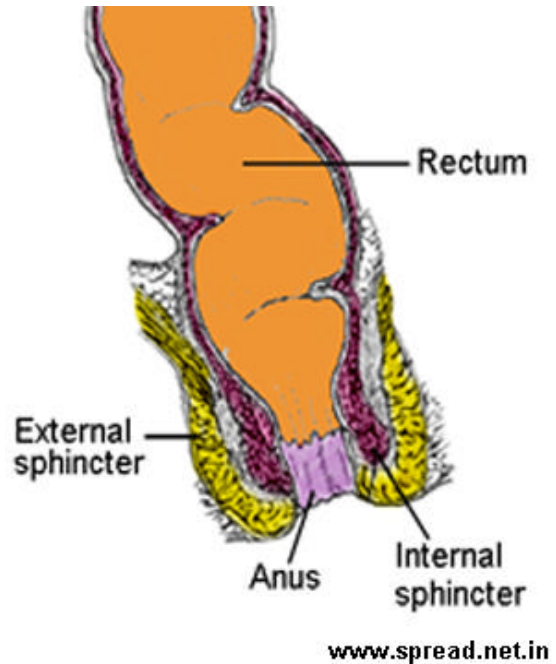


Figure2: Anatomy of rectum and anal sphincter

Rectum is muscular bag to store stool and anal sphincters are valves that help to prevent leakage of stool. Valves in anus also allow passage of stool as one wish to do so. If these valves are weakened, leakage of stool occurs, which is known as fecal incontinence; if these valves are very tight, it is difficult to pass the stool. This is associated with

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straining and much more time spent in toilet.

Healthy people can expel stool from rectum by opening the valves in anus (anal relaxation) while voluntarily increasing abdominal pressure. The purpose of biofeedback therapy in patients with constipation is to educate them how to relax the anal valves while contracting abdominal muscles; in contrast, in patients with fecal incontinence, attempt is made to increase the strength of these muscles through regularly exercising these muscles.

How Biofeedback therapy is given to patients?

The instrument used to provide biofeedback training consists of a computer with perfusion manometry system (measures pressure inside gastrointestinal tract) and a tube called rectal manometry catheter. Biofeedback training is performed using visual,

auditory and verbal feedback. Patient is asked to lie down on left lateral side.

Rectal manometry catheter is inserted in to the anus and connected with computer system. If the patient has constipation (read the chapter on constipation in www.spread.net.in) he is asked to attempt to expel stool from the rectum.

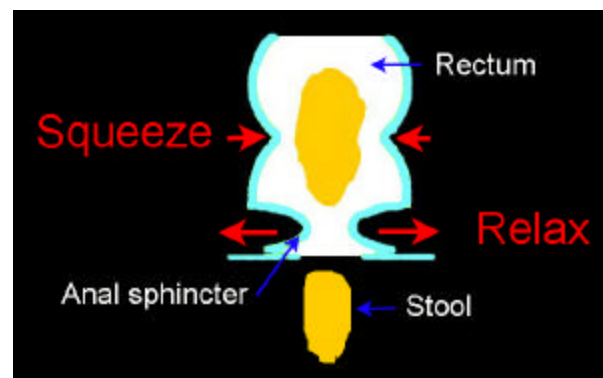


Figure3: Visual picture of biofeedback exercise for constipation patient displayed on computer screen

Patient can visualize the rectum and valve activity on computer screen (Fig. 3). This activity is associated with a beep like sound at given level of pressure. Patient is taught to contract abdominal muscles to increase intra-abdominal

pressure and simultaneously relax the valve in the anus to open it. Patient is advised to exercise with the machine at least one two times per week. Machine to perform biofeedback exercise at home is also known (Fig. 4), though not available in India. The virtual image serves as a visual clue that provides the instant feedback to the patient regarding their performance. Similarly, beep sound generated by the valve activity provides auditory feedback. The therapist or the doctor provides the verbal reinforcement.

What the patients must know?

There are a number of biological activities in the body some of which are voluntary and others are involuntary. Food intake, digestion, absorption and stool formation is very much known to everyone. But, there are many factors associated with life to alter these activities, resulting in to complains like

constipation and weakening of muscles causing fecal incontinence.

The role of biofeedback is a completely neuromuscular exercise based programme:

- i. It has nearly no adverse effect.
- ii. It is often recommended as the first line treatment in patients with fecal incontinence and constipation due to problem of muscles of evacuation.
- iii. Since biofeedback therapy works by exercising and re-training muscles, patient motivation and patience is very important. Patients must understand that it will take a long time to get results on biofeedback therapy and they must be mentally prepared for it.

During biofeedback therapy, which involves regular interaction between patients and therapist, patients frequently

admit their anxiety and stress of their daily life. The understanding between therapist and the patient significantly affect motivation of the patients and quality of therapeutic relationship.

Although explanation of the biofeedback treatment protocol is first step, the patient must participate actively in this programme.

Role of biofeedback technique for fecal incontinence (leakage of stool)

Fecal Incontinence is the inability to control gas, liquid, and/or solid stool usually due to lack of enough strength valves in the anus. It may be of two types:

- i. Leakage of stool without awareness.
- ii. Leakage of stool in spite of active effort to prevent it.

The severity of incontinence ranges from unintentional passage of small amount of

stool while passing gas or complete evacuation of large amount of stool. Not surprisingly these events cause considerable embarrassment, which in turn can lead to a loss of self-esteem, social isolation and diminish quality of life. Patients must understand that this is a health problem, which can be managed and therefore, there is no need to be shy about it.

Biofeedback therapy for fecal incontinence

- ✓ Is safe and effective.
- ✓ Improves the symptoms of incontinence.
- ✓ Restores the quality of life.
- ✓ Improves the strength of the anal valve muscle.

Therapy

In this training programme patient is asked to squeeze the anal valve muscle and to maintain it for as long as possible. Patient is asked to do it intermittently for

20-30 min. Further training is scheduled one-two times per week. Patient is also advised to practice such exercise at home either using home biofeedback machine (Fig. 4) or without aid of computer. One must understand that 3-4 months of continuous effort is required to have any improvement.

Role of biofeedback technique for constipation

Constipation is a common disorder in population, although it is not life threatening. It does reduce quality of life. When patients do not respond to usual dietary recommendations and medications (read the chapter on constipation in www.spread.net.in), biofeedback is frequently used to treat constipation, particularly when it is caused by inability to open the valves in anus while increasing abdominal pressure by tightening the muscles of abdominal wall.

Such patients often complain of symptoms like:-

1. Excessive straining
2. Finger evacuation
3. Sense of incomplete evacuation
4. Feeling of blocked defecation
5. Long time spent in toilet

Therapy:-

Biofeedback is the technique to learn, how to relax the muscles of valves in the anus and thereby, open the valve to pass out the stool. Patient is asked to relax the valve. This practice is continued for 10-20-min. intermittently. Video picture and audio sound is helpful to guide the patient. Patient is asked to come biweekly for practice and confirmation of progress. Frequent visits are helpful to motivate the patients. Counseling by the doctor and biofeedback therapist plays a major role.

Home Biofeedback machine



Figure 4: Home biofeedback system

In addition to hospital visit and exercise, practice at home daily enhances the progress. At home patients exercise without the aid of computerized feedback. However, home biofeedback machine is also available in some countries.

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