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RESEARCH ARTICLE

PELVIC FLOOR PHYSIOTHERAPY FOR DYSSYNERGIC DEFECATION/OBSTRUCTED DEFECATION SYNDROME/FECAL EVACUATION DISORDERS

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ABSTRACT

Background: Pelvic floor dyssynergia is an inability to relax the pelvic floor muscles during defecation. Successful defecation requires increased intra-abdominal pressure combined with relaxation of the pelvic floor muscles. An inability to coordinate this action often results in chronic constipation, painful bowel movements, and excessive straining. The purpose of the case report is to describe the successful pelvic floor physiotherapy treatment of a patient with long-standing constipation caused by pelvic floor dyssynergia. **Study Design:** This is a case report revealing the pelvic floor physiotherapy interventions used to treat the patient, the outcome of the treatment, and discussion and implications for current and future pelvic floor physiotherapy management of constipation caused by pelvic floor dyssynergia. **Case Description:** The patient was 38 years female complaining of chronic constipation existing since 15 years. The pelvic floor physiotherapy interventions included neuromuscular re-education using electromyographic biofeedback, tactile biofeedback, and instruction regarding coordination of abdominal muscle contraction for increased intra-abdominal pressure combined with pelvic floor muscle relaxation. **Outcomes:** The patient attended 10 pelvic floor physiotherapy sessions over a 8-week time frame followed by 2 phone consultations. At time of discharge the patient was having normal bowel movements 80% of the time, was not using laxatives or enemas, reported no pain with bowel movements, improved his Obstructed Defecation Syndrome Score by 11 points and had returned to work. Discussion: This case report discusses the pelvic floor physiotherapy management of a man with pelvic floor dyssynergia causing chronic constipation. Interventions included biofeedback therapy and muscle retraining resulting in normal defecation.

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INTRODUCTION

Defecation-related disorders such as obstructed defecation syndrome/fecal evacuation disorders/defecation dyssynergia (DD) are frequently encountered in pelvic floor physiotherapy units (PFPT). PFPT is an advanced subspecialty of physiotherapy that caters to disorders related to obstetrics, gynecology, urogynecology, urooncology, and colorectal conditions involving the pelvic floor musculature. Although there has been an immense contribution by physiotherapists from the west, (1),(2),(3),(4) this field is still in nascence in India. We started a PFPT unit at Aqua Centric private limited, Mumbai, in July 2019 with an intention to treat our patients with symptoms of incomplete evacuation, digitation, and straining to evacuate. We present our approach to the management of these patients. Patient Evaluation and Planning at Pelvic Floor Physiotherapy Unit. Patients initially undergo a comprehensive evaluation including digital rectal examination.(5) The severity of the problem is assessed on a visual analog scale (VAS) and recorded on a form. The scale provides information on the severity of symptoms such as pain and discomfort on a scale of 0–10, where 0 represents no pain or discomfort and 10 represents severe pain or discomfort.

Next, the patient is scored on the obstructive defecation syndrome (ODS) score which is a 5-item score that evaluates the frequency (never, rarely, sometimes, usually, and always) for symptoms of ODS: excessive straining, incomplete rectal evacuation, use of enemas/laxatives, vaginal/perineal digital pressure, and abdominal discomfort/pain. The form is completed before and after PFPT.(6) The next evaluation that is recorded is the constipation scoring system (CSS) score.

This provides baseline pre- and post-PPFT information on frequency of bowel movements, duration of constipation, painful evacuation, incomplete evacuation, abdominal pain, type of assistance required, time spent in lavatory, and unsuccessful attempts for evacuation in 24 h (7). A treatment plan is recorded in the Subjective, Objective, Assessment, Plan (SOAP) format. This includes:

Subjective: VAS, ODS, CSS scores.

Objective: Comprehensive pelvic floor physiotherapy evaluation includes external and internal examination.

Assessment: Interpretation of the findings and setting the treatment goals.

Plan: Plan protocol based treatment schedule, i.e., 1 h session of pelvic floor physiotherapy with or without JOGO digital therapeutic electromyography (EMG) biofeedback device using a rectal probe, patient education, bowel diary, therapeutic exercises, and home exercise program once a week for 8 weeks. Pelvic floor physiotherapy is individualized after detailed assessment of pelvic floor muscle spasm, trigger point, muscle weakness, and prolapse by observing mobility of pelvic joints, spasm/tightness/weakness of pelvic floor muscles (PFM), and transvaginal/transrectal examination.

Based on the PFPT evaluation, DD is categorized as:

Typical DD

Spasm or hypertonicity of PFM

Weakness or hypotonicity of PFM

Combination of hyper and hypotonicity. Protocol for Typical Defecation Dyssynergia. This includes toilet training posture, diet, maintenance of bowel diary, advice on medication, workouts including regular walk. Toilet training posture: After ensuring the absence of any orthopedic issue, patients are advised to use an Indian squatting toilet, when available, or to place a foot stool in front of the western closet. These alterations ensure an effective contraction of the lower abdominal muscles (transverse abdominis), widening of the anorectal angle, straightening of the rectum, and relaxation of the puborectalis muscle thereby enabling the rectum to evacuate completely with minimal pain and little or no extraordinary effort. Diet, maintenance of bowel diary and workout: A diet chart is provided that ensures a high fiber, low fat, and low carbohydrate diet. Patients are asked to maintain a bowel diary. Baseline 3-day diet recall and problems related to bowel movement are noted in a pretested pro forma. Aerobic exercise in the form of brisk walking is advised

Medication: Patients are prescribed osmotic laxatives and/or a combination with prokinetic agents. Stimulant laxatives is introduced in those with an associated slow transit constipation. Therapeutic Exercises: Structured exercise program includes (Figure 1):(8),(9) a Relaxation exercises: Diaphragmatic, lower costal, apical breathing exercises

Total body relaxation (Savasana): Lower abdominal breathing exercises in crook lying position with bulging out/stretching/relaxation of PFM. b Filler Exercises: Lower abdominal breathing exercises, pelvic rocking exercises, and low back pressing exercises. c Stretch Exercises: This involves external stretching along with internal stretching/bulging out/relaxation of PFM, i.e., stretching of hamstrings/calf muscles, gluteus maximus, hip adductors, hip abductors, and piriformis. Stretching postures. Modified Malasana: squatting on ones back with bulging out/stretching/relaxation of PFM in supine position

Bhujangasana: Stretching of the abdominal muscles with pelvic floor relaxation in prone position.

Balasana: Child pose. Bilateral adductor stretching in sitting with pelvic floor relaxation. Side stretching of the lateral lumbar flexors in sitting posture. Iliopsoas stretching in standing position with bulging out/stretching/relaxation of PFM

Malasana: Frog squat position with pelvic floor stretching.

Biofeedback protocol: Biofeedback therapy is added to improve pelvic floor relaxation. This involves downward pelvic floor relaxation training using the JOGO device (JOGO EMG Digital Therapeutic Device, USA, www.jogohealth.com) (Figure 1). In this system, the rectal probe is connected to a shimmer which is further connected to a Samsung tablet through the wireless blue tooth.



Figure 1. Jogo Biofeedback equipment (www.jogohealth.com)

Patients are trained to relax the puborectalis and external anal sphincter for expulsion of rectal contents. A proper response is demonstrated through visual and auditory feedback. There are several biofeedback models that are available which includes Myomed 632 by Enraf Nonius (Netherland Product) and Pathway CTS2000 and Pathway CTS 1500 Pelvic Floor Muscle Rehab Systems by Prometheus (an American product). Compared to these other available systems, Jogo system is portable with facilities for EMG and biofeedback with virtual reality facility and minimal overall treatment duration. The raw data of EMG are transformed as a graphical presentation. Protocol for Combined Hyper and Hypotonicity of Pelvic Floor Muscles. This includes biofeedback for pelvic floor relaxation exercises for hypertonicity and strengthening alongside pelvic floor stretch exercises for hypotonicity.

Case study: Ms D, aged 32 years, with a body mass index of 35.5 kg/m², presented with a history of incomplete evacuation and digitation for over 15 years was referred for PFPT. On evaluation, hemogram, liver biochemistry, serum calcium, and thyroid function tests were normal. Short length colonoscopy reported the presence of internal hemorrhoids. Sitz marker study suggested a slow transit constipation with pelvic floor DD. Ano rectal manometry (ARM) confirmed a diagnosis of Type IV pelvic floor dyssynergia and a megarectum. However, adult Hirschsprung's disease was also considered as a differential. Dynamic/functional magnetic resonance imaging confirmed ARM diagnosis of DD (anismus), and in addition revealed a weak pelvic floor with moderate posterior compartment descent on maximum strain.

Working diagnosis: Slow Transit Constipation with type IV DD/megarectum was diagnosed. The patient was started on prucalopride 1 mg twice a day in combination with polyethylene glycol 3350 (2 scoops with water three times a day) ensuring patient was passing motion with ease at least once a day.

Pelvic Floor Physiotherapy Evaluation

Subjective: On VAS, she had a score of 10 out 10. The ODS score was 15 out of 20 and CSS 14 out of 30. Based on her diary records, she was clearing her bowels once in 3–4 days.

Objective: Transrectal examination of PFM confirmed the presence of predominant hypertonicity and less of hypotonicity.

The patient underwent Jogo EMG Biofeedback therapy. The EMG readings (Figure 2)a and (Figure 2)b are first calibrated with time in Figure 3: (a) Baseline Jogo electromyography Biofeedback note weak abdominal muscles: TrA (red) 3 mV and pelvic floor tightness: PR (blue) 45 mV. Post Jogo electromyography Biofeedback therapy: Note an increase in strength of abdominal muscles: TrA (red) (48 mV) and relaxation of pelvic floor: PR (blue) (9–10 mV)



seconds in the X-axis and neuromuscular recruitment potential in millivolts in Y axis. The bar diagram in blue indicates recruitment of PFM (puborectalis-PR) and the red, the recruitment of transverse abdominis musculature (TrA). In our patient, baseline PR was 45 mV (representing pelvic floor tightness) and TrA 3 mV (representing abdominal weakness), indicating difficulty in normal bowel evacuation. After 8 sessions of Jogo EMG Biofeedback, she showed a significant response to treatment with decrease in PR voltage to 9–10 mV (representing pelvic floor relaxation) and increase in TrA voltage to 48 mV (representing the increase in abdominal muscles strength)

Table 1. Visual analog scale, obstructive defecation syndrome and constipation scoring system scores before and after Jogo EMG biofeedback

	Before JOGO	After JOGO
VAS scale	10/10	1/10
ODS scale	15/20	9/20
CSS scale	14/30	10/30

VAS: Visual Analog Scale, ODS: Obstructive defecation syndrome, CSS: Constipation scoring system

In our preliminary experience with PFPT, we followed up 31 patients with confirmed DD (Table 1), as per ARM protocol of categorization, for 6 months. Referrals for PFPT were straining to evacuate, obstructive symptoms during act of defecation and at times resorting to digital evacuation. Six patients (20%) had a Bristol stool form type 1 and 2. Twenty of 31 patients required laxatives. We observed a post intervention improvement in both symptoms and objective assessment parameters, i.e., ODS, CSS, and VAS.

There was also statistically significant improvement in anorectal pain/discomfort after PFPT. On a subjective grading system, 14 patients (47%) were very satisfied; 14 (47%) reported satisfactory relief and 3 (6%) had no appreciable improvement. The most preferred intervention which relieved the symptoms was pelvic floor stretch exercise in lying position in 80%. One-fifth of cases (20%) preferred posture specific (dynamic stretching) pelvic floor stretch exercise in sitting and standing position especially frog squatting (Malasana position).

Based on these observations, we propose to lay stress on a personalized approach to preferred exercise by the patients and thereby alleviate their troublesome symptoms.

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Conflicts of interest

There are no conflicts of interest.

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