Management of Faecal Incontinence by Pelvic Floor Muscle Exercise and Behavioral Trainning- A Case Study

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Abstract

Background: Fecal incontinence is the inability to control the release of bowel content. Also called bowel incontinence, fecal incontinence ranges from an occasional leakage of stool while passing gas to a complete loss of bowel control. However, successful management of women diagnosed with fecal incontinence dependent on a proper assessment and a tailored made plan. This case study aims to show the effectiveness of physiotherapy treatment in a 45-year-old patient diagnosed with fecal incontinence.

Methods: The patient was taught the kegel exercise and provided with a behavioral training programme. Improvement was noted at the end of the 3 month of physiotherapy treatment plan and the patient no longer had any involuntory leakage episodes.

Conclusions: The case study shows the successful outcome of physiotherapy management in a patient with fecal incontinence.

***Key Words**: fecal incontinence, kegal exercises, perineometre , monometry*

Introduction

Fecal incontinence is the inability to control the release of bowel contents. The etiology of can be subdivided into three main group. (1) Functional (2) sphincter weakness (3) sensory loss .[1, 2, 3]

The majority of patients with incontinence are women with an obstetric injury and symptoms can occur even in an elderly population who had experiencened vaginal deliveries earlier in life .[4]

Minor degrees of fecal incontinence are defined as the occasional fecal staining of underwear. Major incontinence is defined as the frequent and inadvertent voiding per anum of formed stool, and represents the most severe form of fecal incontinence. [3]

Several incontinence severity scales have been described in the last 20 years. [5, 6,]

The most popular grading scale is the park's system.[5]

However, this grading scale has the disadvantages f not taking into consideration the frequency of leakage episodes.[7]

Diagnosing the cause and assessing the severity of FI precede any treatment.[8, 9]

The physiology of defecation and continence has been traditionally studied with anorectal manometry.[10]

The prevelence of FI in other countries has been reported. A prevelence of 1 per 1000 was reported in the U.K in 1975.it is more common in women than men at a ratio 8:1 and most of the affected women have had children.[11]

Example of conditions that could be cause abnormal functioning of the anal sphincter and pelvic

floor:

- Constipation
- Prolonged labor
- Trauma over perineum
- Rectal prolapsed
- Sexually abuse
- Brain damage
- Radiation therapy in carcinoma of perineum region

In some cases of carcinoma of rectum begins when healthy cells in the rectum develop changes (mutation) in their DNA. In such cases the best treatment is chemoradiation for 5days/week, up to 5 to 7 weeks side effects of radiations are damage anal tissues, blood vessels (sensory and motor damage) and also chances of vaginal stenosis.[12, 13]

In this study the methods of management of the condition have been used with mixed success. It has focused on the use of pelvic floor contractions.

The present study was designed to report the clinical presentation of fecal incontinence as well as the efficacy of pelvic floor muscles strengthening exercise (KEGEL EXERCISE) and behavioral training on fecal incontinence.

Dr Arnold kegel also invented the perineometre which can be used to measure the improvement in strength and endurance of pelvic floor muscles. It gives an objective evaluation of the result of therapy and gives bio feedback to patients. [14]

History:

The subject for this study was a 45 year old lady who had taken chemotherapy radiation for carcinoma of large intestine , stage 1 for 5 months, in august 2020.then after 6 months gradually she had experience of abnormal leakage of stool occasionally .then the frequency of leakage had been increased day by day .she had concerned to physician at private hospital ,at Ahmedabad.from where she was diagnosed with fecal incontinence and then was referred to physiotherapy treatment at government physiotherapy department at civil hospital ,Ahmadabad.

Height: 152 cm

Weight: 80 kg

Previous medical history: not significant

Previous surgical history: not significant

Family and social history:

Family history not significant

The lady has stop to participate in any social function or even routine outdoor activities because of embarrassment.

Assessment

Instrument:

Evaluation of pelvic floor muscle strength by using PERINEOMETRE (PERITRON). This equipment included rectal electrode, lubricants, and gloves.

We can also grade the fecal incontinence according to PARKS as below.[15]

TABLE 1: GRADINGS OF FAECAL INCONTINENCE ACCORDING TO PARKS

GRADE	DESCRIPTION
Parks 1	Fully continent
Parks 2	Soiling or incontinence to gas
Parks 3	Incontinence to liquid
Parks 4	Insentience to solid stool

Method

The study was conducted in physiotherapy department of government Physiotherapy College, civil hospital, Ahmadabad, Gujrat .Study period was between December 2020 to February 2021 (3 months).

The consent in the written foam was taken from the patient .explained the whole procedure of testing by perineometer equipment as well as kegel exercises which has been done by patient for 3 months.16

The patient was instructed to maintain a diary record of frequency of incontinence per week.

Maximum contraction of pelvic floor muscles (power)in centimeter of water(cm of H2O) and maximum holding capacity of pelvic floor muscles in seconds (endurance) were assessed by perineometer before starting the treatment and after completing treatment.

Patient's position:

Patient was positioned crook lying with pillow support under her head. The patient was adequately draped to permit minimal expose. The main purpose of this test was explained to her very well and she was encouraged to be relaxed while testing

Once she understood the instructions thoroughly, 10 seconds have been given to be relaxed before testing. First of all gloves were put on and the rectal electrode were lubricated. The electrode were gently inserted into the anal canal and then patient was instructed, "on the count of three" to squeeze the pelvic floor muscles as hard as she could and hold the contraction as long as she was able to .this instruction was reinforce by the commands. The same maneuver had repeated for 5 to 7 times. In this study according to PARKS grading patient had grade 4 and according to monometry the patient had weak pelvic floor muscle .[16]

The strength of pelvic floor muscle was graded using monometry values shown below.[17, 18]

TABLE 2: A monometry classification to assess pelvic floor muscle function in women

CLASSIFICATION	MONOMETRY VALUES(cm H2O)
Very Weak	7.5-14.5
Weak	14.6-26.5
Moderate	26.6-41.5
Good	41.6-60.5
Strong	>60.6

Patient was to breathe freely during testing as well as while doing kegel exercises. [1]

Repeat this exercise for 5 to 7 times (photograph 1and 2).

FREQUENCY OF INCONTINENCE: [20]

Fecal incontinence was rates as follows in increasing order of frequency.

Almost everyday

More than (>) once in a week

Less than (<) once in a week

Once in a month

This rating scale has no unit

TREATMENT GOALS

1. To increase pelvic floor muscle strength from weak to strong.

2. To increase anorectal sphincter control with physical stress of coughing.

3. To decrease the frequency and severity of fecal incontinence.

Ø By decreasing the frequency from almost every day to either once in a week or once in a month. The initial interval between meal and defecation reported was 3 minutes (on 15 days of treatment).

Ø By increasing the time lapse between meal and defecation from 3 minutes to 60 minutes

Ø Gradually leaks of few drops or no leakage at all.

4. Timed voiding training (**BEHAVIORAL TRAINING)**

Patient had given planned schedule. The main aim was to keep patient dry by following regular interval to void. Encouraging the patient to control the urge to void by using different techniques below:

Ø Sitting or standing instead of rushing towards toilet

Ø Doing breathing exercise [21]

Ø Doing pelvic floor muscle exercise

Ø By doing interesting task to divert thoughts of voiding

Results

The patient was seen and treated from December 2020 to February 2021 and treatment duration of 3 month. At the first day of examination and treatment, the patient had week pelvic floor muscles (monometry value- 13 cm H_2O). Then kegel exercises were taught to the patient for 2 weeks.

At the end of 2 weeks of treatment, there was no significant difference in the patient's frequency and severity of incontinence .the pelvic floor muscle strength and the patient's attitude to fecal incontinence still remained unchanged. (TABLE 1)

At the end of the one month, an improvement had been seen in pelvic floor muscle strength from weak to moderate (22 cmH_2O) according to monometry values was recorded. (TABLE 2)

The severity of fecal incontinence also reduced according to PARKS grade 4 to grade 3. (Figure 2). The endurance increased from 2 second to 4 second. (TABLE 3).

At the end of two months of treatment, through the pelvic floor muscle strength from moderate to good contraction (41 cmH_2O) was recorded. And the severity also decreased from grade 3 to grade 2 according to PARKS grading.The endurance also has been found that from 4 second to 6 second.

At the end of the 3 months I observed significant increasing in perineometer power of post kegel exercise treatment in comparison to pretreatment as reading in cm of water of perineometer was increased from 13 cmH_2O to 61 cmH_2O .(TABLE 4)

Endurance time was increased from 2 seconds pretreatment to 8 seconds post treatment. It was statistically significant. After 3 month of study, significant improvement has been observed in power and endurance of pelvic floor muscle.

TABLE 1: FREQUANCY OF INCONTINENCE OF THE PATIENT

Duration Of Treatment	Frequency Of In Continence
one month	>once a week
two month	<once a month
three month	once a month

TABLE 2: PATIENTS PELVIC FLOOR MUSCLE STRENGTH ACCORDING TO MONOMETRY AND PARKS GRADING

DURATION OF TREATMENT	MONOMETRY VALUE	PARK GRADINGS
one month	22cmh2o (moderate contraction)	grade 3
two month	41 cmh2o (good contraction)	grade 2
three month	61 cmh2o (strong contraction)	grade 1

TABLE 3: ENDURANCE OF PELVIC FLOOR MUSCLE

Duration Of Treatment	Endurance (Second)
one month	4 second
two month	6 second
three month	8 second

TABLE 4 : PRE AND POST TREATMENT COMPARISION

	PERINEOMETER POWER	ENCURANCE
pre treatment	13 cmh2o	2 second
post treatment	61 cmh2o	8 second

Discussion

The result of this study revealed the effect of pelvic floor muscle strengthening exercise and behavioral training in the management of fecal incontinence .this is consistent with the results of other previous studies.[22, 23] All of reported the efficacy of physiotherapy management in fecal incontinence.

Perineometer equipment was used in this study in place of the very popular vaginal cones, which are commonly strengthening of pelvic floor muscles .the rectal electrode was used because the anorectal sphincter was more affected and there was no vaginal cone of the size and volume which was required for insertion into the anus as at the time of this study.

The rating of the pelvic floor muscle strength by using rectal electrode was repeated thrice and the average of the all three readings was recorded. The increase in the strength of pelvic floor muscles brought about this kegel exercise might be due to an increase in the rate of activation of the number of activates motor motor fibers associated with pelvic floor muscle contraction ; and an increase in endurance and direct feedback that the correct muscles are contrecting.[24]

It could ,however be suggested that if the patient has no difficulty in holding rectal electrode during the exercise , the exercise can further progress to the use of only one finger.[23]

By the use of behavioral training from the first week of the treatment in this study was necessary because the patient was presented with weak pelvic floor muscle .After the one month of treatment, although the strength of pelvic floor muscles increased to moderate strength according to monometry values, the use of behavioral training was continued to normalize the reflex activity of the anorectal sphincter in addition to increasing the strength of the pelvic floor muscles.[24]

The outcome of this study has demonstrated that the effect of physiotherapy management in the form of pelvic floor muscle strengthening exercises (kegel exercise) and behavioral training in the case of fecal incontinence.

Conclusion

Use of perineometre equipment is the best option to treat case of fecal incontinence because it has visual biofeedback as well as it is giving numerical value about strength of rectal sphincter as well as pelvic floor muscles. The case report shows the successful management for 3 months in a patient who was diagnosed with fecal incontinence following kegel exercise and behavioral training. Although the results cannot generalize, this case study highlights the importance of assessment and the effectiveness of physiotherapy management in patient with fecal incontinence.

Ethical Clearance: Written Patient Consent Was Obtained Prior To Publication Of This Study.

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Conflict of Interest: Nil

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