



IMPACT OF PELVIC FLOOR MUSCLE TRAINING ON POST OPERATIVE THIRD-DEGREE PELVIC ORGAN PROLAPSE MANAGEMENT: A CASE REPORT

Physiotherapy

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ABSTRACT

Pelvic organ prolapse is one of the common conditions in women with reproductive age group. In the developing countries pelvic organ prolapse poses as a common problem of the women population. We present a case of 21-year-old female with third degree uterine prolapse operated with laparoscopic sling procedure. The patient evaluation revealed weakness of pelvic floor muscles and urinary incontinence. She underwent three-weeks of structured and comprehensive Pelvic Floor Muscle Training (PFMT) in the department of Community Physiotherapy. The PFMT protocol included patient education primarily motivating the patient to adhere to the exercises. She was prescribed with relaxation technique, core muscle training and pelvic floor muscle strengthening exercises. There was a significant improvement in the pelvic floor muscle strength after three weeks of therapy and there was a significant improvement in the urinary incontinence. Presentation of this case clearly demonstrates the importance of pelvic floor muscle training in improving the strength of the pelvic floor muscles and controlling the urinary incontinence thereby improving quality of life.

KEYWORDS

Pelvic Organ Prolapse, Uterine prolapse, Pelvic Floor Muscle Training, Urinary incontinence, Quality of Life

INTRODUCTION:

In developing countries pelvic organ prolapse poses as a common problem of the women population. Pelvic Organ Prolapse (POP) is often accompanied by prolapse of vagina along with prolapse of bladder or rectum or both¹. Rectocele is the prolapse of rectum forwards against the lower part of the posterior wall of the vagina almost always accompanied by injury to the perineal body and consequent loss of the support.

In India, more than 1 million of women suffer from genital prolapse and majority of them falls under the reproductive age group. The incidence of pelvic organ prolapse is curtailed to the females belonging to poor economic background². Studies have shown a stronger correlation between the age of marriage and age of uterine prolapse³.

Operative procedures are the only useful interventions for a third-degree pelvic organ prolapse. Many surgeries have been introduced over the years for uterine prolapse repair. In the advent of newer technology, laparoscopic uterine sling suspension proves to be a novelty. Useful in uterine prolapse management, not only provides uterine support but also aids in uterine conservation, a necessity for many women in the reproductive age⁴.

Pelvic organ prolapse can either be caused by or lead to pelvic floor dysfunction. Pelvic Floor Muscle Training (PFMT) has a positive impact on the women suffering from mild to moderate POP. Women are often advised by gynecologists and other health professionals to practice pelvic floor muscle exercises⁵. To the best of our knowledge, the effect of individualized PFMT is understudied and has limited scope of practice due to ignorance and lack of proper awareness. Hence, the following case study provided us with the necessary inputs on the individualized PFMT in third degree uterine prolapse with rectocele.

Case Presentation:

A 21-year-old, female was referred to the department of Community Physiotherapy, MGM Institute of Physiotherapy, Aurangabad on her first postoperative day after Laparoscopic Sling Surgery under general anesthesia for uterine descent third degree prolapse. She presented with the chief complaint of dribbling of urine and pain in the lower abdomen. The patient was a diagnosed case of third-degree uterine descent with minimal rectocele with mild anemia with an obstetric score of L₂P₂FTND.

The patient complained with dribbling of urine immediately after her operation. She complained of reliving herself during various activities such as sneezing, coughing, turning in bed or even sitting. The patient complained her pain was sudden in onset, confined to the lower abdomen. The patient referred that the pain was dull aching, non-radiating.

Physical Examination:

The patient was examined in sitting posture. The postural examination revealed slouched posture with protracted shoulders. Due to pain in the lower abdomen the patient's posture was guarded. Local examination suggested findings of pallor.

Pelvic Floor Examination

Pelvic floor examination was carried out using vaginal palpation method. It was carried out to evaluate the strength and quality of the pelvic floor muscle contractions.

The patient was placed in lithotomy position and with latex gloves in hand; the therapist palpated the vagina by inserting the second and third fingers into the vagina of the patient. The quality of the pelvic floor muscles was evaluated by placing the fingers slightly abducted (i.e., 5 and 8 o'clock position) and palpating the lateral vaginal walls. Strength evaluation was carried out by encouraging the patient to squeeze against the resistance provided by the therapists' fingers, which resulted in both cranial and anterior forces. The instruction provided was "squeeze and lift my fingers as strongly as you can."

The strength of the pelvic floor muscle was assessed by Modified Oxford Scale by Laycock. The grades for strength on Day-01 are mentioned in Table-01.

The patient complained of urinary continence with periodical changing of the sanitary pads in a day (2-3 times in a day based on her strenuous activity)

Investigation:

Patient's blood group was 'O' positive. Her blood investigations of hematological and biochemical values were in normal range. The preoperative ultrasound findings revealed that the patient had low lying uterocervical angle. The endometrium was central, measuring 4.6mm. the uterus was anteverted with the dimensions of 84 x 40 x 43mm. there were no otherwise significant abnormalities present.

Diagnosis:

Based on the subjective and objective examination the patient was diagnosed as pelvic floor muscle weakness and urinary continence.

Interventions:

The patient was treated for a period of three weeks postoperatively – first one week at the in-patient ward of the hospital and next two weeks in the physiotherapy out-patient department. This was followed up by regular weekly follow-up for next three weeks in Physiotherapy OPD. The goals to be achieved for the patient were set initially for providing a comprehensive rehabilitation. The goals were to educate the patient properly about the condition and importance of PFMT exercises, prevent the reoccurrence of the condition, increase the pelvic floor muscle strength, to reduce pain, improve the posture and thus overall improve the quality of life of the patient.

WEEK 1

Patient education: The patient was counselled about the importance of PFPT, which is a feasible therapeutic choice and physiotherapist may help her to set treatment targets to overcome the bothersome prolapse symptoms. The benefits of PFPT were also included in the education. A general relaxation technique was given to the patient in a comfortable lying position. She was asked to voluntarily contract the distal musculature in her hands or feet for 5-7 seconds, then relax those muscles for 20-30 seconds.

Pelvic floor Exercises: The patient was instructed with the pelvic floor exercises and was advised to hold and relax her pelvic floor muscles with 10-15 repetitions.

Isometrics: Lower Stomach to Spine: The patient was instructed to lie flat on her back with her feet on the floor and legs bent at a 60-degree angle. It was made sure that the spine was in a neutral spot. The patient was asked to draw her lower stomach to the spine while maintaining that location (30-40 percent effort only), keeping for 5 seconds while breathing normally. Rep 10-15 times.

Bed Side Mobility: Following surgery, we began with bedside sitting mobility exercises as tolerated by the patient. We initiated with dynamic quads in a high position while sitting on the edge of the bed. Repeated for 10-15 times on either side. The patient was then eventually progressed to standing as tolerated, followed by marching on the spot to retain functional physical activity and prevent worsening effects post-surgery. She was also instructed to perform heel slides in supine lying with repetitions of 10-15 times.

WEEK 2 – (Physiotherapy OPD)

POSTURAL CORRECTIONS EXERCISES: The patient presented with a flexed posture due to post-operative pain. She was instructed with tactile and verbal cues to 'sit tall', 'stand tall' and 'walk tall'. Whenever possible she was instructed to assume the corrected posture.

Scapular Retraction Exercises: The patient was made to sit on the edge of the bed and assume a straight posture. Then she was instructed to keep the shoulders at 90 degrees of abduction and flexion with elbows flexed. She was then instructed to bring her both shoulder blades close to each other as much as possible. This exercise was performed for 10 repetitions, twice daily.

PELVIC FLOOR MUSCLE TRAINING: The patient has been acquainted with the contract relax method of pelvic floor muscle training. In the subsequent days we aimed to further increase the strength of the pelvic floor musculature by incorporating various positions. Thus, the patient was instructed to perform the similar technique in sitting and standing positions.

Sitting: The patient was made to sit on a chair with feet apart on the ground and the thighs entirely supported by the base of the chair, with arms on the thighs. She was asked to relax her entire body emphasizing on her shoulders, abdominals and gluteal, and concentrate on her breathing pattern. For the initial days the patient was made to sit in a forward flexed posture and asked to perform the contract relax method. **Standing:** The patient was first subjected to supported standing and thus perform the contract relax exercises. As she got comfortable the patient was independently standing and performing contract relax method for pelvic floor muscle training.

During the start of the week the patient was first instructed to contract

all the three openings: vaginal, urethral and anal; as quickly and tightly as possible. As the time progressed, with proper instructions the patient was made to contract the previous openings with decreasing speeds. Isolated contractions were encouraged.

Further the patient was asked to consider her pelvic floor to be similar to an elevator, currently on the ground floor. With appropriate instructions the patient had to imagine closing the doors and taking this elevator up all the floors. Considerations were made to ensure proper contraction by asking the patient to cough while moving the pelvic floor from basement up to all the floors and was asked to 'hold on' the muscles during coughing.

These exercises were repeated for a minimum of 8-12 groups of contractions, each of which consisted of 1 contraction held for as long as possible followed by 3 to 4 short ones. The patient was encouraged to perform the regime for three times daily while performing all her activities of daily living.

'Knack' technique- The knack technique is used to support the pelvic health of an individual. The technique involves contracting the pelvic floor muscles while performing activities which increase intraabdominal pressure such as lifting heavy weights, sneezing, coughing etc. This technique was taught to the patient considering her occupation involving a lot of strenuous activities which tend to increase intraabdominal pressure.

MOBILITY EXERCISES: During the second week post-surgery the patient was encouraged to perform ambulatory mobility exercises. She was asked first to perform warm up exercises, prior to ambulation. The patient was instructed to restrain from any breath holding while walking and concentrate on her breathing pattern. Two landmarks were made to determine the distance she needed to cover daily. We also encouraged the patient to perform pelvic floor muscle training exercises during ambulation. The patient was asked to report any signs of dizziness, discomfort or dyspnoea during ambulation. This session ended by asking the patient to perform thoracic mobility and diaphragmatic breathing exercises to cool her down. Ambulation was encouraged thrice daily.

Ambulation was proceeded by stair climbing activity. Stair climbing was also performed similar to walking, preceding with and warm up and followed by a cool down session.

CORE STRENGTHENING EXERCISES: Pelvic floor strengthening provides an ongoing organ support to the pelvic floor during normal as well as strenuous conditions. The musculature surrounding the pelvic muscles also contribute to maintain the pelvic floor support. Hence strengthening of core muscles is important in adjunct to the pelvic floor muscle training.

During the second week of management, we taught the patient the following core strengthening exercises.

1. Isometrics with leg movements: While maintaining the position for isometrics of abdominal muscles, slowly lift your one foot off the floor keeping your knee bent and return. Maintain the hips at level do not drop as you lift your foot up. Breathe in while lifting your foot up and breathe out while putting your foot down.
2. Abdominal controlled curls: While maintaining the position for isometrics, place your hands by the side slowly curl up while lifting your shoulder. While lowering down your shoulders, keep your stomach drawn in. breathe in while you curl up and out as you lower.
3. Bridging: While maintaining the position for isometrics, slowly push down through your feet and lift your bottom right up so your trunk is straight, shoulders, hips and knees in line. Hold the lift up for 10 seconds while squeezing your buttocks together. Breathe in while you lift and out as you lower.

All these exercises were repeated for 10-15 repetitions. The patient was always instructed to avoid breath holding.

WEEK 3:

PROGRESSION OF PELVIC FLOOR MUSCLE: As the patient got acquired to the pelvic floor muscle training in sitting and standing position, we progressed training pelvic floor in various positions like quadruped, squatting, single leg bridging, superman position.

CORE STRENGTHENING: In the third week of management, we progressed the core strengthening exercises. The following exercises were taught to the patient:

Single leg bridging: The patient was instructed to lie down in crook lying position while keeping one leg straight down. Then patient was instructed to raise the leg up and slowly lift the bottom up while isometrically contracting the pelvic floor muscle. The same was instructed to be repeated on the contralateral side. The exercise was repeated 10 times on each side.

Plank: Forearm plank which is held in a push-up-like position, with the body's weight borne on forearms, elbows, and toes was explained to patient by demonstration by the therapist. Patient was encouraged to hold the position for 10 seconds in the beginning later extended to 15 seconds.

The extended plank which adds substantial difficulty to the standard plank exercise was introduced. To perform the extended plank, the patient was instructed to begin in the push-up position and then extends the arms or hands as far forward as possible. The position was held for 10 seconds initially further progressed to 15 seconds.

The planks were repeated for 3-5 repetitions for 10-15 seconds. The patient was advised not to hold breathe while performing any of the exercises.

HOME PROGRAM:

After 1-2 weeks light household activity was recommenced. Activity levels were gradually increased so that slightly heavier tasks are undertaken by 4 weeks.

Outcome measures:

There was a significant difference in the outcomes for patient's pelvic floor examination and pain. Modified Oxford Scale by Laycock was used to measure the pelvic floor muscle strength and endurance periodically. There was a significant increase in the strength of the pelvic floor muscle from day – 01 to end of sixth week. The grading scores are mentioned in table – 01. Further, there was a significant improvement in the urinary continence condition and the patient can able to control her urine at the end of day 06 with no use of sanitary pads.

Table – 01

Modified Oxford Scale for assessing the strength of PFM		Patients Grading	
Grading	Description	Week	Grades
0	Lack of muscle response	Day – 01	0
1	Flicker of non-sustained contraction	Day – 07	0
2	Presence of low intensity, but sustained contraction	Day – 14 (Week-2)	1
3	Moderate contraction, felt like increase in intra vaginal pressure, which compresses the finger of the examiner with small cranial elevation of the vaginal wall	Day - 28 (Week – 04)	3
4	Satisfactory contraction, compressing the fingers of the finger with elevation of vaginal wall towards the pubic symphysis	Day – 42 (Week – 06)	4
5	Strong contraction, firm compression of the examiners fingers with positive movement towards the pubic symphysis		

DISCUSSION:

This case study demonstrates the physical therapy management of the patient who had undergone Laparoscopic sling surgery for third degree uterine descent, exhibiting pelvic floor muscle weakness postoperatively. In this case study along with the strength and endurance of the pelvic floor musculature, the quality of life of the patient was compromised. The patient showed significant increase in the strength and endurance of the pelvic floor muscles after significant pelvic floor muscle training. Literature suggests that PFMT proves to be an important support for women undergoing treatment for urinary incontinence. In a study by Zaccardi et. Al for examining the effect of pelvic floor re-education intervention on comfort and stress urinary incontinence in women opting for surgical correction, comfort scores

increased over time for the patients suggesting that the quality of life improved in patients undergoing PFMT after surgery for urinary dysfunction⁶.

In the case study, great importance was given on providing the patient with the proper education regarding the pelvic floor musculature and the 'knack' technique. In a randomised control trial by Roberta Leopoldino de Andrade et. Al 1 month education program of 'knack' and instructions given on how to perform it proved to increase the knowledge in women regarding the pelvic floor muscles, dysfunction and the options of treatment⁷.

Core strength training programme was also an integral part of the treatment protocol in this case study. In a prospective randomised controlled trial by B. Zachovajeviene et. Al, they found a moderate correlation between pelvic floor muscle strength and endurance and abdominal muscle training⁸. Thus, including abdominal muscle training in conjunction with pelvic floor muscle straining was helpful for our patient.

CONCLUSION:

Thus, in our current case report, by including the pelvic floor muscle education training, PFMT and core strengthening helped decrease the pelvic floor muscle weakness postoperatively. This benefitted the patient by decreasing her urinary incontinence and thus improving her overall quality of life. Despite, the difficulty in evaluating PFM function, measuring PFM strength and endurance are essential to the clinical evaluation of women with Pelvic Floor Dysfunction in order to direct management, Vaginal palpation and modified oxford scale is inexpensive and can be used widely in clinical practice to evaluate the strength, endurance of pelvic floor muscles and PFMT prognosis.

Patient Perspective:

The patient shared her perspective that compared to the first day postoperatively, her complaint of dribbling of urine was reduced significantly, thus her quality of life was greatly enhanced.

Informed Consent:

Informed consent has been taken from the patient

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