

Pelvic organ prolapse after childbirth: An evidence-based case report

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Abstract

Introduction/background: It is well known that pelvic floor has multiple functions. These functions range from urination, defecation, pleasure/sexuality, parturition, and stability of pelvic organs. If the pelvic floor is not functioning correctly, these functions can be impaired. These impairments can lead to issues with quality of life and activity level.

Case description: This case reports on a 32-year-old female referred by her gynecologist to physical therapy with complaints of pelvic heaviness after her first vaginal delivery. The patient was concerned that she would not be able to return to her normal active lifestyle. The patient lived in a rural area with limited access to care. The patient was seen for evaluation and three additional visits over the course of 2 months for pelvic floor strengthening as clinical findings showed a weakness in pelvic floor endurance and power as well as mild prolapse.

Outcomes: Subjective improvements were a reduction in pelvic pressure, reduced urinary leakage as well as improved ability to exercise with less fear of leakage. Objectively, the patient had improvements in pelvic floor strength as measured by the use of the PERFECT system. The mild prolapse noted on evaluation using the POP scoring system was still present.

Discussion: The patient had limitations in the amount of sessions she could attend due to her job and the nature of the rural setting, which limited progress. The patient was compliant at home, which did assist in functional improvement.

Informed Consent was given by patient to participate in this study.

Introduction

Women's health encompasses many facets of treatment diagnoses. One division being pelvic health, which consists of pelvic floor dysfunction (PFD) resulting in incontinence, constipation, pain, and/or sexual dysfunction. It is well known that pelvic floor has multiple functions. These functions range from urination, defecation, pleasure and sexuality, parturition, and stability of pelvic organs [1]. If the pelvic floor is not functioning correctly, these above mentioned functions can be impaired.

The patient in this case reflection is a 32-year-old female with otherwise unremarkable past medical history. She was referred by her gynecologist to physical therapy with complaints of pelvic heaviness after her first vaginal delivery 2 months prior. The patient was selected for this case reflection based on her pelvic floor complications following the delivery of her first baby, and her compliance with home program in achieving therapeutic benefit. The patient was also self-referred, meaning she asked her gynecologist for a pelvic physical therapy referral, it was not suggested to her.

During her evaluation the patient reported a heaviness in her pelvic area since the delivery. She did not report feeling anything abnormal at the vaginal opening, just the pressure. She denied any pelvic problems prior to the vaginal delivery. The patient reported that standing long periods of time caused an increase in pelvic pressure, resulting in symptoms most often being worse at the end of the day. The patient did report a long-standing history of constipation since childhood in which she managed with diet. She also reported a history of irritable

bowel syndrome (IBS) but notes it did not cause her much dysfunction. At times she experienced low back pain (LBP) and sacroiliac joint (SIJ) issues; however, she has a sister who is a Physical Therapist (PT) who helped her manage those issues in the past.

The patient noted she has a fitness routine that consists of running 20 + miles a week and occasional fitness high-intensity interval training (HIIT) workouts. She hasn't been able to return to these activities since she gave birth, so her current routine consisted of walking and swimming. She reported occasional leakage of urine during the breast stroke kick while swimming. The patient also stated that at times she may smell of urine slightly but didn't notice significant wetness; however due to the smell, she feared she may leak without knowing. Otherwise, no real significant urinary dysfunction was reported. She had prior knowledge of Kegel exercises [2], so she was doing those along with her fitness regimen; however, the Kegel exercises were done sporadically.

As far as voiding, she reported having the sensation to void, but often didn't produce much urine as compared to voiding prior to her vaginal delivery. Other times she had little urge, then she voided a lot. She also noted a sense of air getting stuck in the vaginal area that produced a noise. That was bothersome to her.

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Table 1. Differential diagnostics for pelvic pain**.

Adductor muscle lesions	Adenomyosis
Coccydynia	Adhesions
Femoral nerve entrapment	Dysmenorrhea
Hip labrum pathology	Endometriosis
Hip osteoarthritic changes	Leiomyoma
Lumbar disk	Intrauterine device (IUD)
Lumbar facet	Mittelschmerz
Lumbar stenosis	Ovarian pathologies
Muscular imbalance	Pelvic inflammatory conditions
Myofascial pain syndromes	Pelvic congestion syndrome
Nerve Entrapments – non operative	Post surgical hypertonus, scar tissue
Nerve Entrapment – post operative	Prolonged pelvic pain of pregnancy
Pelvic ring hypermobility	Prolapse
Pelvic floor instability, support defects	Vaginismus
Pelvic girdle muscle dysfunction	Vulvodynia
Sacroiliac joint pain	Affective
Spinal stenosis conditions	Depression
Symphysis pubis lesion	Anxiety
Thoracic disk	Trauma/Abuse
	Altered coping mechanisms
Gastrointestinal	Urologic
Cholelithiasis	Interstitial cystitis
Crohn’s disease	Chronic urinary tract infections
Chronic appendicitis	Detrusor instability
Constipation	Cystocele
Functional bowel disorders – Irritable bowel	
Inflammatory bowel conditions/ulcerative colitis	Urethral syndrome
**Adapted from Gunter	

With the symptoms provided, the patient reported her goal was to continue to be an active mom without fear of urinary leakage or pelvic discomfort and/or heaviness.

From the initial data gathered, the patient reported a heaviness and pressure in the vaginal area. She also reported some issues with voiding. These symptoms relate highly with pelvic organ prolapse (POP) as noted in the study by Barber [3].

To determine if this was in fact a POP, other medical and musculoskeletal diagnoses needed to be excluded. Things to consider in regard to differential diagnosis of pelvic pain/ pressure are shown in Table 1 [4]. Medically, the patient was young, physically fit, and reported no medical concerns other than IBS and constipation that had not been an issue in the past and that she managed with diet. From a medical standpoint, it was not likely she had any of the medical diagnoses listed in Table 1.

In terms of the musculoskeletal component of the pressure and pelvic discomfort the patient was feeling, a few diagnoses were considered. The patient had a previous history of LBP and SIJ dysfunction, both of which can cause pelvic girdle pain. Involvement of the low back (LB) and SIJ could be ruled out with special testing such as postural assessment, the active straight leg raise test, palpation, and general testing of range of motion (ROM) and strength using manual muscle testing (MMT) [5,6]. The patient also had recently started back to light exercise, which could potentially cause muscular pain/strain due to disuse during pregnancy. Muscular pain can be ruled out with movement tests such as ROM and MMT and also palpation. Muscular dysfunction/pelvic floor instability, as seen in pelvic floor dysfunction, can be tested by internal manual muscle testing as well as POP testing. POP tests can be performed to determine if there is downward descent

of either the uterus (apical prolapse), bladder (cystocele or anterior prolapse), or rectum (rectocele or posterior prolapse). Upon Valsalva, if descent is positive, prolapse can be considered [7].

Examination

The patient examination started at her initial arrival. Gait and mobility was visually inspected and there were no impairments. The patient was educated regarding the evaluation process, and she gave full consent. She filled out the Pelvic Floor Distress Inventory (PFDI) for prolapse and urinary issues as well as urinary problem survey which are proven to be a valid and reliable instrument for measuring symptom inconvenience caused by pelvic organ prolapse and the health-related quality of life (QOL) [8]. Since QOL was an issue for this patient, this was an appropriate outcome measure.

The patient had a posture screen in which pelvic asymmetry was noted. In standing, the patient had a high anterior superior iliac spine (ASIS) and iliac crest (IC) height, and a low posterior superior iliac spine (PSIS) noted on the right side. She did have normal and equal leg length. The asymmetric straight leg raise test (ASLR) was negative. The patient had reported being treated in the past for SI joint asymmetry, so the abnormal postural findings were not surprising as SIJ dysfunction is common after pregnancy [9]. Spinal motion was also noted to be normal.

The ROM of bilateral hips was normal. Strength measurements of the hips were taken according to Manual Muscle Scale are seen in Table 2.

Muscle flexibility tests confirmed mild tightness in the hamstrings and gluteal muscles bilaterally. An external examination of the vulva noted mild scarring at the perineum and decreased perineal mobility. There were no issues with sensation and there were no indications of pain with muscle palpation in the Levator Ani (LA)/Pelvic floor muscle (PFM) group.

Some studies report pelvic floor strength testing difficulty due to variability in anatomy. However, the study by Santori et al. [10] noted that transvaginal digital palpation was found to have good intra-rater concordance and moderate to good inter-rater concordance when testing the pelvic floor strength. Laycock created the Modified Oxford Grading System (Table 3) which has widely been used by physical therapists and showed a high inter-rater reliability.¹¹ The case patient was only going to be treated by one therapist, so transvaginal digital palpation was an acceptable choice.

The PERFECT [12] scoring (P representing power, E = endurance, R = repetitions, F = fast contractions, and finally ECT = every contraction

Table 2. Strength of hip using manual muscle testing.

MMT	Right Hip	Left Hip
Flexion	5/5	5/5
Adduction	4/5	4/5
Abduction	5/5	5/5

Table 3. Modified oxford grading system.

Grading	Description
0	No discernible PFM contraction
1	A very weak PFM contraction
2	A weak PFM contraction
3	A moderate PFM contraction
4	A good PFM contraction
5	A strong PFM contraction

Functional Status Measures:

	PFDI Prolapse ¹	Urinary Problem ²	PFDI Urinary ³
Intake	42	59	25
FOTO Intake ¹	--	52	--
Risk Adjusted Predictions			
Functional Change	--	9	--
Discharge Score	--	68	--
Visits	--	8	--
Duration	--	66	--

¹ Other patients with similar risk adjusted characteristics had this score at Intake

² Higher score = better function

³ Lower score = better function

Figure 1. Pelvic floor distress inventory and urinary problem survey intake scores.

timed was completed and the patient received the following: P: 3, E: 4, R: 4, F: 8, ECT: No elevation of posterior vaginal wall with contraction, appropriate co-contraction of PFM and transverse abdominal muscles and appropriate timing of PFM involuntary contraction with a cough. POP testing was performed and the patient did have mild prolapse (cystocele and rectocele) but not to the level of the introitus. She also reported heaviness in the vaginal area upon standing but no increase in prolapse while standing.

Evaluation/diagnosis

Examination results indicate that the patient is struggling from a Physical Therapy diagnosis of PFD with mild cystocele (anterior) and rectocele (posterior) prolapse as well as mild SIJ dysfunction. Although the pain was not the same pain that she had experienced in the past when she had been treated in Physical Therapy for SIJ dysfunction, the patient did present with abnormal alignment with high ASIS and IC height and a low PSIS noted on the right side. This could be a result of changes from pregnancy, or from previous issues.

According to the PFDI results noted in Figure 1, the patient had moderate self-reported pelvic floor dysfunction geared more towards prolapse than urinary problems (which was confirmed with patient report that she only had mild urinary incontinence). Perineal scarring and decreased mobility can lead to pain in the vulva; however, this patient did not report that pain was an issue in that area. In regard to the PERFECT scoring, examination results indicates the patient has weakness in the pelvic floor. The power was a 3/5 and the endurance was 4 repetitions before fatigue. According to the Modified Oxford scale (Table 3) a power of 3 indicates only moderate strength of the pelvic floor. Her POP testing revealed a mild prolapse which likely was a cause of the increase in pelvic pressure that she felt and possibly the issue with completely voiding. It was because of this increase in pressure that the patient had a fear of doing HIIT exercise and returning to running, which is her biggest complaint. Although the patient was a high-functioning patient with more mild symptoms, these symptoms were impairing her ability to function in her daily life as well as her role as a new mom.

Prognosis/plan of care

As stated, the patient is a high-functioning, active female with mild impairments in pelvic muscle strength as well as pelvic misalignment. From the history, the patient reported she was knowledgeable on the

subject of pelvic floor due to her research and was willing to participate fully in a program provided by a therapist at 100% compliance. She appeared highly motivated due to her prenatal fitness regimen and lifestyle, as well as her drive to research the diagnosis and start Kegel exercises directly after delivery of her baby. A pelvic physical therapy plan of care can vary given the type of diagnosis, the severity, the motivation of the patient as well as any comorbidities they may have [13]. This patient had great health, great motivation, no comorbidities and a willingness to be 100% compliant to a program, which gave her a good prognosis for recovery.

It was recommended to start pelvic floor therapy at 2 x/week initially for up to 6 weeks. This would allow for starting exercise, making changes to a home exercise program (HEP), ensuring compliance and correctness of exercise implementation in her HEP. It was only anticipated the patient would need to be seen for 6 weeks as that duration of time would have allowed the patient to incorporate a lot of exercises into her home routine and see changes in muscle strength and function. We had discussed she would be doing most of her program at home with HEP addition/ changes during follow up visits as needed.

The patient's plan of care included neuromuscular reduction and therapeutic exercises, such as pelvic muscle strengthening, core strengthening, biofeedback, manual therapy and self care training. These elements relate to pelvic floor dysfunction as they allow the patient to improve muscle weakness and neuromuscular control which can reduce prolapse, pain and pelvic floor stability.

Patient specific goals were as follows:

Short Term (STG) (3 weeks)

1. The patient will be independent and compliant with home exercise program in order to achieve return to fitness without reported pelvic discomfort
2. The patient will verbally report at least 25% reduction in pelvic heaviness/pressure and urinary leakage episodes

Long Term Goal (LTG) (6 weeks)

1. The patient will score at least 68% on urinary problem survey noting improved function of the pelvic floor for return to activity.
2. The patient will have pelvic muscle endurance on PERFECT test of 6-7 second holds at least 5-6 reps improving pelvic control to decrease leakage/reduce prolapse.
1. The patient will verbally report she has been able to return to light exercise routine without urinary leakage

Intervention

With the patient's knowledge level, desire to improve and willingness to participate, patient education was at the top of the priority list. A study by Essery et al. [14] confirmed that self-motivation and drive leads to adherence to therapy and home exercises, so it was essential that she was educated on her dysfunction and treatment plan and given exercises to do at home to improve her success. Since the literature also shows that higher education levels show improved knowledge, attitude towards and practice of pelvic floor exercise, it was likely she would do well given her college level education [15]. This is likely due to better communication and understanding between therapist and patient, thus leading the patient to be more compliant than one who did not fully understand. Evidence in the literature also notes that individuals with an athletic background and who remain physically active also have higher

Treatment 1

PT Interventions and CPT Codes Consisted of:	CPT Code	Modifiers	Minutes	Units
THERAPEUTIC PROC. EA 15' 97110	97110	59	8	1
BIOFEEDBACK	90911		30	1
PHY PERFOR TEST:MEASUR EA 15'	97750	59	10	1
Total Minutes: 48 Total Timed Minutes: 18 Total Untimed Minutes: 30				
Total Units: 3 Total Timed Units: 2 Total Untimed Units: 1				

Intervention Comments:

1. Discussion of current HEP progress and checked the pelvic floor internally as well as for prolapse again (noted to have small apical prolapse still) Phy performance TM x 10'
2. Biofeedback using Synergy system with internal sensor (3 sets of 5 work/10 rest/10 reps) followed by a few reps of relaxation with cues for breathing x 30 minutes
3. Instruction in elevator pelvic exercise followed by quadruped alternating Upper extremity flexion and LE extensions with core focus to improve back stability and strength x 8 minutes

Impairment Observations:

The patient still with slight prolapse noted and difficulty with hypertonicity in the pelvic floor. She has a hard time relaxing and still also has issues with endurance of the pelvic floor muscles. She is unable to hold and maintain hold without slight loss. She raises about 7-8 but is around 25-30 for resting.

Treatment 2

PT Interventions and CPT Codes Consisted of:	CPT Code	Modifiers	Minutes	Units
THERAPEUTIC PROC. EA 15' 97110	97110	59	10	1
BIOFEEDBACK	90911		30	1
SELF CARE/HM TRAIN. 15' 97535	97535			
Total Minutes: 40 Total Timed Minutes: 10 Total Untimed Minutes: 30				
Total Units: 2 Total Timed Units: 1 Total Untimed Units: 1				

Intervention Comments:

2. Biofeedback using Synergy system with internal sensor : relaxation with cues for breathing x 3 reps (60 seconds each, 3 sets of 2 work/4 rest/ 10 reps followed by 5 work/10 rest/10 reps then another resting test. Patient had the visual feedback for cues x 30 minutes
3. Reviewed current program, discussed adding the "snack" method when lifting. Patient was fearful of doing cardio but educated how to continue to engage the pelvic floor during activity. She is to relax at the end of the day as her resting tone was a bit higher today. Self care x 10 minutes

Pain In: 0/10

Impairment Observations:

Patient had noted improvement in the ability to raise during pelvic contraction from 7 to 9. She did have higher resting at end of session compared to beginning, but the first biofeedback sessions she was 24-32 average rest and today she was about 11 average rest. Patient will work on relaxation/breathing technique provided

Treatment 3

PT Interventions and CPT Codes Consisted of:	CPT Code	Modifiers	Minutes	Units
NEUROMUSCLAR RE ED. 97112	97112		30	2
SELF CARE/HM TRAIN. 15' 97535	97535		10	1
Total Minutes: 40 Total Timed Minutes: 40 Total Untimed Minutes: 0				
Total Units: 3 Total Timed Units: 3 Total Untimed Units: 0				

Intervention Comments:

1. Biofeedback using Synergy system with internal sensor : relaxation with cues for breathing x 3 reps (60 seconds each, 3 sets of 2 work/4 rest/ 10 reps followed by 5 work/10 rest/10 reps then another resting test. Patient had the visual feedback for cues x 30 minutes
2. Reviewed guided imagery and how to work on relaxation as she was more tense today. Did instruct in self massage and trigger point work to help reduce the hypertone in the pelvic floor -self care x 10 min

Impairment Observations:

Patient as a bit more hypertone today and she feels that it is because she has been working so much on her pelvic floor and she has a high stress level. She thinks so much about this and is concerned with having another baby that it makes her nervous and she has a hard time relaxing.

Figure 2: Treatment Sessions/Intervention

compliance to home exercise program [16]. Being that my patient was an athlete and still does recreational athletics, her rate of perceived compliance at home would be higher than an individual who was not active. She expressed high motivation to get better and was willing to do whatever was recommended, but if given the opportunity to do a home program that would be preferred.

Most research on pelvic floor disorders notes that adherence is essential to positive outcomes. Because the patient's physical exam and outcome measures indicated weakness, it needed to be addressed. Pelvic floor exercises need to be done correctly to be effective. After physical examination, it was indicated that the patient could contract the muscles correctly but struggled with power and endurance. This led to the decision that the patient would need to be consistent with routine exercises, which could be managed well from at home, with occasional check-ups to monitor and progress her program.

Initially, she received education on pelvic floor anatomy, pelvic floor conditions such as prolapse and incontinence, as well as exercises including Kegels and the importance of adherence to a home exercise program. Subsequently she returned after the evaluation for 3 sessions, which can be seen in Figure 2.

The first visit after evaluation started with a reviewing the HEP and adherence. Once it was established how she was progressing,

biofeedback was used. Biofeedback is noted to be an effective treatment when combined with PF therapy for motivated females [17]. The patient used pelvic floor contractions in combination with biofeedback using the Pathway MR-20 Dual Channel Surface EMG. The goal was to improve the patient's ability to feel the contraction and maintain a long hold in order to improve power and endurance.

The second visit was shifted to do biofeedback first followed by patient education and therapeutic exercise instruction to work on relaxing the pelvic floor after working on strengthening using biofeedback. This was due to the fact that the patient had experienced some issues with relaxation after starting her pelvic floor treatment. This could be due in part to starting a focused exercise program, leading to increased muscle activity. She was instructed in diaphragmatic breathing techniques, which are shown to reduce muscle pain and tension [18,19].

The patient's third and final treatment session consisted of another bout of biofeedback in combination with PFM exercises. We continued to use this method as it is effective in motivated patients, and the patient reported it helped her to contract the muscles correctly and effectively. After completion of biofeedback, the patient was educated on use of guided imagery (via use of applications on a mobile device at home) along with her current program to assist in stress reduction. She had some increases in pelvic floor activity since starting therapy as well as reported stress at home. Guided imagery is a cheap, accessible, and simple form of exercise that can promote relaxation and stress reduction.

Outcomes

The patient was only seen for a few visits in the clinic due to her schedule and ability to complete a HEP. She was seen for the initial evaluation and three treatment sessions. In the course of that time the patient did show improvements in her function both subjectively and objectively. The patient phoned after her third visit and was scheduled to see a new provider for a second opinion on her prolapse. She opted to continue with her HEP, as she felt confident with the practice, she had using biofeedback and the instruction given.

Subjective improvements were a reduction in pelvic pressure, reduced urinary leakage as well as improved ability to exercise with less fear of leakage.

Objective measurements included the use of the PERFECT system. Initially the patient scored: P: 3, E: 4, R: 4, F: 8, ECT: No elevation of posterior vaginal wall with contraction, appropriate co-contraction of PFM and transverse abdominal muscles and appropriate timing of PFM involuntary contraction with a cough. Upon completion of the 3rd visit the patient scored: P: 4 E: 7: R: 5, F: 9, ECT: elevation of posterior vaginal wall with contraction, appropriate co-contraction of PFM and transverse abdominal muscles and appropriate timing of PFM involuntary contraction with a cough.

POP testing was also performed initially which indicated and the patient did have mild prolapse (cystocele and rectocele) but not to the level of the introitus. The mild prolapse was still indicated during her last session leading her to seek out additional medical evaluation.

Further assessment of the SIJ and pelvis was not completed as the patient did not return after her third session, and she did not feel this was a primary complaint to address.

The patient completed PFDI (Prolapse and Urinary) as well as the Urinary Problem Survey using the FOTO outcome measures tool

Functional Status Measures:			
	PFDI Prolapse ³	Urinary Problem ²	PFDI Urinary ³
Intake	42	59	25
5/29/2019	17	65	13
Change Score	25	6	12
FOTO Intake ¹	--	52	--

Figure 3. Pelvic Floor Distress Inventory and Urinary Problem Survey Discharge scores.

at initial evaluation and after discharge (Figure 3). Improvements are noted in PFDI prolapse and urinary (which a lower score indicates improved function) as well as Urinary survey (where higher score indicates better function).

The goals created at initial evaluation were met with exception of LTG 1: The patient will score at least 68% on urinary problem survey noting improved function of the pelvic floor for return to activity. The patient had reported a 65% on the urinary problem survey with a goal set at 68%. She had made improvements in the short time frame and likely would have met this goal had she continued therapy.

Given reported compliance with the HEP and the achieved goals, the patient successfully was developing strength and functional gains in the pelvic floor. She was experiencing less pressure in the pelvic region, less episodes of incontinence and was slowly returning to activity including cardiovascular exercise and core/low back strengthening. Although she had hoped to return to her prenatal exercise routine, she had not by the time she opted for discharge. Her plan was to continue to progress with pelvic exercise at home and slowly add in jogging and running to tolerance as discussed, monitoring her pelvic discomfort; however, she wanted to follow up with a medical provider regarding her POP first.

Discussion and conclusion

The case patient presented for a total of 1 evaluation (including treatment) and 3 treatment sessions. As previously indicated, the patient had limitations in the amount of sessions she could attend. That limited our progress some; however, the patient was compliant at home, which did assist in her functional improvement. If given the chance to make changes, it would have been nice to see the patient for additional visits to progress into more advanced exercise routine while monitoring her progress of pelvic discomfort and incontinence as well as work on some of her SIJ issues. Although, that being said, the patient was very aware of her symptoms and felt comfortable with progressing at home.

Barriers to treatment were the distance to the clinic, busy work schedule, and a young infant to care for at home. Also, the therapist was only Per Diem in the clinic and only available three hours twice a week, which limited availability of appointments. The clinician was one of only two pelvic floor therapists within an hour drive, so availability of appointments was limited on that aspect as well.

This patient case confirms the literature that supports that patient education level improves knowledge of, attitude towards and practice of pelvic floor muscle exercises. Also, as previously stated, literature suggests higher education levels have a positive correlation to adherence to HEP's. Given the fact this patient had a college level degree and high self-drive, it was likely she would be more willing and open to pelvic treatment, which held true.

From the case, further research should be done on the area of access to women's pelvic physical therapy. This case reports on the difficulty of one patient in a rural area, with limited access, which likely is a larger issue. Another potential area for further research would be referral to women's health physical therapy following delivery of a child. This patient indicated that a referral was not suggested to her, she requested it.

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