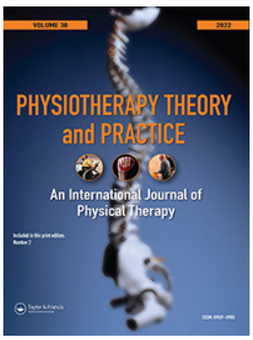

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Physiotherapeutic assessment and management of overactive bladder syndrome: a case report

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ABSTRACT

Introduction: Overactive Bladder Syndrome (OAB) has multiple treatment methods including pharmacotherapy, pelvic floor muscle training, electrostimulation, or surgery. One of the nonpharmacological treatment options is physiotherapy including pelvic floor muscle training.

Case Description: The patient was a 25 year-old woman who attended the urogynecological physiotherapy consulting room due to frequent sensations of bladder pressure. Manual inspection and ultrasound imaging was used by the physiotherapist in order to assess the function of pelvic and abominal structures. The patient reported pain symptoms during examination of several pelvic floor and abdominal muscles. The patient was judged eligible for urogynecological physiotherapeutic treatment. Manual therapy of the lumbopelvic hip complex, manual therapy per vaginum, manual therapy of the *musculus piriformis*, and therapy of the superficial back line myofascial meridian and the lateral line myofascial meridian were used. During the final session, the patient reported an improvement in relation to the symptoms presented, most notably no frequent feeling of bladder pressure.

Conclusions: Treatment of OAB is often a multistage process involving application of different therapies by a multidisciplinary team. For this patient, physiotherapy assessment and intervention were an integral part of the conservative management of OAB.

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Introduction

Overactive Bladder Syndrome (OAB) is defined as a sudden sensation of bladder pressure with increased urinary frequency and nocturia (White and Iglesia, 2016). These symptoms may be accompanied by urinary leakage (OAB wet) or may not (OAB dry). At the same time, urinary tract infections (UTIs) and other urinary system pathologies are excluded (Bø et al., 2020; Robinson and Cardozo, 2019; White and Iglesia, 2016). Overactive bladder syndrome can have a variety of causes: neurological (i.e. bladder innervation disorders), myogenic (i.e. bladder detrusor muscle dysfunction or hypersensitivity to stimuli), or idiopathic (Jankiewicz, Kulik-Rechberger, Nowakowski, and Rechberger, 2012; Rechberger, 2007; White and Iglesia, 2016). There are also guidelines that a diagnosis of OAB should be made after excluding pelvic organ prolapse (POP) as the cause of OAB symptoms. On the other hand, many specialists believe that symptomatic POP should not affect the diagnosis and treatment process of OAB (Grzybowska et al., 2021). Eapen and Radomski (2016a) reported that OAB symptoms are more frequent among the female population (12.8%) than among the male population (10.8%). This may be due to anatomical and physiological differences in the lower urinary tract as well as the underlying mechanisms (Eapen and Radomski, 2016b; Gormley, Lightner, Faraday, and Vasavada, 2015; Przydacz et al., 2020). OAB, due to its nuisance, has a significant impact on the quality of life and well-being of patients, which, in turn, translates into limitation and often exclusion from social, professional, and personal life (Gormley, Lightner, Faraday, and Vasavada, 2015; Jankiewicz, Kulik-Rechberger, Nowakowski, and Rechberger, 2012; White and Iglesia, 2016). Management of OAB includes several tiers of possible treatment. The first tier involves physical activity, change of nutritional habits, pelvic floor muscle training, bladder training with biofeedback, control of fluid intake, or electrostimulation (Gormley, Lightner, Faraday, and Vasavada, 2015; Grzybowska et al., 2021; Robinson and Cardozo, 2019; White and Iglesia, 2016). Pharmacotherapy is the second tier of OAB treatment and is based on the use of anticholinergic drugs such as

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solifenacin and mirabegron (Gormley, Lightner, Faraday, and Vasavada, 2015; Grzybowska et al., 2021; Grzybowska 2015; Robinson and Cardozo, 2019). The third tier of treatment involves botulinum toxin (BTX) injections, percutaneous tibial nerve stimulation (PTNS), or sacral nerve stimulation (SNS) (Gormley, Lightner, Faraday, and Vasavada, 2015; Grzybowska et al., 2021; Robinson and Cardozo, 2019). The other treatment option, sometimes referred to as the fourth tier, is surgery (i.e. augmentation cystoplasty or bladder drainage) (Jankiewicz, Kulik-Rechberger, Nowakowski, and Rechberger, 2012; Rechberger, 2007; White and Iglesia, 2016). This case report demonstrates that appropriate functional diagnostics and individually selected physiotherapy provided symptom relief to a patient with OAB.

Case description

History and present complaint

The patient was a 25 year-old woman who attended the UROSILESIA Urological, Gynecological and Proctological Center of Physiotherapy (Zabrze, Poland) due to frequent sensations of bladder pressure and nocturia. Before the visit, the patient had consulted a urologist, who made a diagnosis of Overactive Bladder Syndrome (ICD10: N31.8). The first symptoms began about two or three years previously with no noted cause. The patient reported the presence of previous episodes of bladder and urethra infection, although there had been no such episodes over the preceding 12 months. She reported no history of childbirth, injuries or surgeries in the pelvic or spinal area. The patient was sexually active but sexual intercourse was painful and with periodic feelings of bladder pressure The requirement for approval was waived by the ethics committee, and patient gave written informed consent for publication of the case.

Examination

During the first visit, structural and functional assessment of the pelvic floor muscles was conducted by means of both ultrasound imaging and manual inspection (i.e. palpation per vaginum). In addition, the muscles of the anterolateral abdominal wall, the gluteal muscles, and the muscles of superficial back line myofascial meridian and the lateral line myofascial meridian were assessed (Myers, 2020).

Functional (physiotherapeutic) diagnosis began with ultrasound assessment of the filling of the bladder. The examination was performed using the Mindray Z5 Digital Ultrasonic Diagnostic Imaging System (Nanshan, Shenzhen 518057, P. R. China). A convex transducer (35C50EA) was used in accordance with the methodology described by Tyloch and Wieczorek (2016). Based on the measurements of the bladder collected, its volume was estimated at 260 ml. During the examination, the patient was asked to give subjective impressions of bladder pressure on a scale of 0–10 (0 = no feeling of bladder pressure, 10 = very strong micturition urgency). She indicated a 9/10, which suggests evidence of dysfunction in perception of bladder fullness and an inaccurate sensation of filling of the bladder. The myofascial structures of the pelvic floor were then checked for the presence of any defects or pathologies. No damage or pathologies in the pelvic floor were observed. These findings, in combination with subsequent examination procedures, excluded pelvic organ prolapse as a factor causing the symptoms of frequent urge and pain during sexual intercourse.

The next step was evaluation of volitional phasic and tonic contraction of the pelvic floor muscles. Phasic activity was assessed first. The patient, with no prior instruction, was asked to perform a rapid contraction of the pelvic floor muscles, while the physiotherapist assessed the dynamics of contraction, its direction (i.e. elevation, depression, or no change), as well as the presence of possible peripheral stabilization expressed as increased muscle tension of the abdominal, gluteal, and lower extremity muscles (Arokoski, Valta, Airaksinen, and Kankaanpaa, 2001). The patient showed correct phasic contraction of the pelvic floor muscles with elevation with no apparent peripheral stabilization.

In order to assess tonic activity, the patient was asked to perform a contraction of the pelvic floor muscles and maintain it for 8 seconds. The same aspects as in phasic contraction were assessed, that is dynamics of contraction, direction, and presence of peripheral stabilization but also ability to maintain contraction. The patient demonstrated correct tonic contraction of the pelvic floor muscles with elevation without visible peripheral stabilization. Therefore, incorrect pelvic floor muscle functioning was excluded as a factor causing frequent urge and painful intercourse.

Continuing the assessment of the behavior of the structures in the pelvic area, the length and dynamic behavior of the urethra, bladder, and pelvic floor muscles were assessed using an endovaginal transducer (65EC10EA) (Nanshan, Shenzhen 518057, P. R. China). During the examination, the patient was placed on a couch in supine lying position, with the knees slightly flexed and feet in a neutral position. The endovaginal transducer was positioned at the external urethral orifice such that the transducer axis was in line

with the axis of the patient's body in the saggital plane. After application of the transducer and obtaining the relevant image, measurement of the length of the urethra, which was 2.5 cm, and its baseline shape were attained. In order to assess urethral and bladder dynamics, the patient was asked to cough to obtain an increase in intra-abdominal pressure, at which time the physiotherapist observed the activity of the urethra and bladder. During this test, the urethra and bladder demonstrated appropriate reaction (i.e. displacement toward the sacrum while coughing and displacement toward the pubic symphysis during volitional pelvic floor muscle contraction). The patient also presented appropriate reaction time of the pelvic floor muscles in terms of intra-abdominal pressure generated while coughing. At the same time, the pelvic floor muscles were activated before the increase in intra-abdominal pressure induced by coughing. Diagnostics carried out with the use of the endovaginal transducer ruled out improper behavior of the urethra and bladder, which could indicate abnormal pelvic floor muscle tension, which may be one of the factors generating urgency and pain during sexual intercourse.

Following the ultrasound imaging evaluation, the patient was assessed by means of a cough stress test (Guralnick et al., 2018). During this test, the patient remained in the same position as in the ultrasound imaging examination. The physiotherapist observed whether there was urine leakage and depression of the lesser pelvic organs during coughing. The results of the test were negative (i.e. there was no urine leakage or depression of the lesser pelvic organs). After the cough stress test, the patient was asked to empty her bladder, and then the bladder volume assessment was conducted again in order to verify normal bladder capacity. Assessment revealed no urine retention after urination in the present case. Then, the cough stress test was performed once again, and the result was again negative. Performing a cough stress test with a full bladder excluded urinary incontinence, while performing it with an empty bladder, in combination with an earlier USG examination, ruled out disturbances in the statics of the pelvic floor.

The physiotherapist next carried out per vaginum examination of the patient in the same position. The examination began with an observation of perineal area, during which the physiotherapist observed skin color and the appearance of the vaginal orifice and checked for the existence of scar tissue. There were no visible pathological changes in the perineal area or vaginal orifice. Thereafter, the bulbocavernosus reflex was tested by squeezing the clitoral glans (Previnaire, 2018), and a correct reflex response was observed suggesting proper innervation from the S2-S4 level. The physiotherapist also assessed the flexibility of and prevalence of pain in the central tendon of the perineum by means of palpation. The patient did not report any painful symptoms, and the central tendon of her perineum was flexible. In addition, the dynamic function of the central tendon of the perineum was evaluated during coughing. The patient was asked to cough and the physiotherapist observed a correct reflex response and correct timing, which is to say that the central tendon first moved upward and then downward. The perineal behavior was visually assessed, excluding possible external pathologies.

The next stage of the examination was palpation of the pelvic floor muscles per vaginum to determine occurrence of pain. During palpation, the patient was asked to report any pain and define its intensity on a NRS (Numeric Rating Scale) from 0 = no pain to 10 = worst possible pain. Muscles were examined on both sides, and results are presented in Table 1.

After this, palpation assessment of phasic and tonic contraction of selected pelvic floor muscles was performed. The physiotherapist placed the index finger in the musculus pubovaginalis area and asked the patient to perform rapid contraction of the pelvic floor muscles (i.e. phasic contraction), during which ability to contract, contraction dynamic, and contraction strength were assessed. The physiotherapist then proceeded to the musculus puboanalis area and asked the patient to perform another contraction of the pelvic floor muscles and maintain it for 8 seconds (tonic contraction). Then, the phasic activity of the *musculus pubovaginalis* and *musculus bulbospongiosus*, which close the vaginal orifice, was assessed. For this purpose, the physiotherapist widened the vaginal orifice using the index and middle finger, and the patient was then asked to perform pelvic floor muscle contraction. In every test, the patient presented correct reactions with no apparent peripheral stabilization.

Assessment examination of the lumbopelvic hip complex was then carried out with the patient lying on her back and her lower extremities fully extended. The

Table 1. Pain assessment of pelvic floor muscles during palpation.

	Pain on NRS	
Examined structure	Left side	Right side
Musculus transversus perinei superficialis	0	0
Musculus pubovaginalis	0	0
Musculus puboanalis	6	7
Musculus pubococcygeus	6	8
Musculus obturator internus	0	0
Musculus iliococcygeus	6	9
Musculus coccygeus	0	0
Canalis pudendalis seu Alcocki	0	0

physiotherapist performed palpation assessment in the anterolateral abdominal wall area using both hands. Muscle tension and pain were evaluated. During palpation, the patient reported any pain and defined its intensity using the NRS. The physiotherapist assessed the following areas with results presented in parentheses: 1) musculus rectus abdominis at the level of umbilicus on the left side (7/10) and right side (7/10); 2) musculus psoas major on the left side (0/10) and right side (5/10); musculus iliacus on the left side (0/10) and right side (8/10); 3) musculus transversus abdominis in the middle of the line connecting the anterior superior iliac spine and public symphysis on the left side (4/10) and right side (8/10); and 4) Abdominal palpation showed abnormalities in the tension of muscles generating intra-abdominal pressure, which may cause symptoms of urgency.

In the same position, the Lasèque Test was employed. This test consists in slow raising of the straightened leg until onset of pain. During the test, the physiotherapist paid particular attention to the position of the pelvis because of possible compensation and the angle between leg and rest surface at the moment when pain occurred. The test was negative on both sides as the observed angle was > 60°. The patient did not report any pain symptoms in the lumbosacral area or the lower extremities during the test (Buckup and Buckup, 2016). These findings excluded irritation of the nerve roots and compression of the sciatic nerves as the cause of the disorders reported by the patient.

Thereafter, tension of the superficial back line myofascial meridian and the lateral line myofascial meridian in supine position was assessed. In order to evaluate the superficial back line myofascial meridian, the physiotherapist raised the patient's straightened leg with simultaneous dorsiflexion of the ankle. The leg was raised until resistance was encountered, signaled by a sensation of pulling along the course of the superficial back line myofascia indicated by the patient or by apparent compensation in the form of knee flexion (Myers, 2020). In addition, the patient was asked to report any pain and define its intensity on the NRS. Along the course of the superficial back line myofascia, the patient reported pain symptoms on the left side at 6/10 and on the right side at 8/10. Examination of the lateral line myofascial meridian was performed in the same position. The physiotherapist raised the patient's straightened leg with simultaneous dorsiflexion of the ankle and abducted hip joint. The leg was abducted until resistance was encountered, signaled by a sensation of pulling along the course of the lateral line myofascial meridian indicated by the patient or by apparent compensation in the form of knee flexion (Myers, 2020). Along the course of the lateral line myofascial meridian, the patient reported pain on the left side at 7/10 and on the right side at 9/10. Examination showed the functional shortening of the muscles of the superficial back and lateral line myofascial meridians, which affects the position of the pelvis and the function of the abdominal wall, and thus the muscles of the pelvic floor.

As the final stage of physiotherapeutic assessment, the musculus piriformis was evaluated. Again, the patient remained in the same position as above. The physiotherapist, using both hands, performed musculus piriformis palpation along the course of the muscle and assessed muscle tension and pain. The patient was asked to report any pain and define its intensity on the NRS. During palpation, the patient reported pain symptoms on the left side at 9/10 and on the right side at 4/10. The test allowed us to detect increased tone of the *musculus piriformis*, which may affect the increased tone of the pelvic floor muscles.

Physiotherapy Diagnosis and Prognosis

The physiotherapeutic evaluation showed an unreasonable sensation of the bladder fullness with 260 ml of filling and increased tension in the pelvic floor muscles, abdominal wall muscles, *musculus piriformis*, the muscles of the superficial back, and lateral line myofascial meridians. The prognosis to return to symptom-free life was more difficult to predict because of the nature and complexity of OAB syndrome. However, significant morphological changes and symptoms relief among patients with urinary incontinence after pelvic floor muscle training were observed in the literature after at least 3 months of regular exercising (Braekken, Majida, Engh, and Bo; 2010; Lightner, Gomelsky, Souter, and Vasavada, 2019).

Intervention

Based on the physiotherapeutic evaluation, the patient was judged eligible for urogynecological physiotherapeutic treatment. Manual therapy of the lumbopelvic hip complex, manual therapy per vaginum, manual therapy of the musculus piriformis, and therapy of the superficial back line myofascial meridian and the lateral line myofascial meridian were used. The physiotherapy program consisted of ten 40 minutes visits over 6 weeks (Table 2).

Manual therapy of the lumbopelvic hip complex consisted of trigger point therapy, friction massage (i.e. stroking, rubbing, and kneading), and manual diaphragm release. These techniques were performed with the patient lying on her back with the upper limbs placed along the back and the lower limbs placed on

Table 2. Course of urogynecological physiotherapeutic treatment.

Number of sessions	Therapies used
1	MT LPHC, MT MP
2	MT LPHC, MT MP, MT BL, MT LL
3	MT LPHC, MT MP, MT BL, MT LL
4	MT LPHC, MT MP, MT BL, MT LL
5	MT LPHC, MT PV
6	MT LPHC, MT MP, MT BL, MT LL
7	MT LPHC, MT PV
8	MT PV
9	MT PV
10	MT PV

MT LPHC – manual therapy of lumbopelvic hip complex, MT MP – manual therapy of musculus piriformis, MT BL – manual therapy of back line, MT LL – manual therapy of lateral line, MT PV – manual therapy per vaginum

a couch. The purpose was to relax the abdominal wall. Manual therapy per vaginum used trigger point therapy, friction massage (i.e. stroking, rubbing, and kneading), and post-isometric relaxation. This manual therapy was performed in the supine position with the patient's lower limbs bent at the hip and knee joints with the feet placed flat on the couch. The purpose was to relax the pelvic floor muscles. Therapy of the superficial back line myofascial meridian and the lateral line myofascial meridian consisted of post-isometric relaxation and mobilization techniques. The techniques were performed in a supine position with the lower limb raised, bent at the hip joint, and straight at the knee joint. In order to stretch the posterior tape, a dorsiflexion of the foot was performed; in order to stretch the lateral line myofascial meridian, the patient's lower limb was placed in adduction. Additionally, the range of flexion in the hip joint was increased. Also, transverse massage of the muscles of the lower extremities as well as post-isometric relaxation of the muscles of the lower extremities was used to increase the effectiveness of therapy. Musculus piriformis therapy was carried out using trigger point therapy and friction massage. The techniques were performed in the front lying position.

During the final session, the patient reported an improvement in relation to the symptoms presented, most notably no frequent feeling of bladder pressure. This allowed for less frequent visits to the toilet during the day and night. The patient also reported no pain and no urgency during sexual intercourse. Until the follow-up visit, the patient received an individualized set of exercises to perform, including stretching exercises of the superficial back line myofascial meridian and the lateral line myofascial meridian and the musculus piriformis (Table 3).

Four weeks after the last treatment session, the patient attended a follow-up visit during which she reported improvement in urinary symptoms, that is, alleviation of the frequent sensation of bladder pressure and nocturia. Additionally, the physiotherapist performed the entire evaluation once again, as during the first visit.

Table 3. Exercises for patient with detailed descriptions.

Exercise	Description	Number of repetitions
1	Take the front lying position. Bend one lower limb at the knee joint, place it on the side of the lower leg, pull it under the abdomen, and straighten the other one along the extension of the torso. Bend your torso forward, lie on your thigh, and stretch your arms forward. Hold the position for 10–15 seconds. Perform the exercises on both lower limbs so that you feel the stretching on the bent lower limb	Twice a day in two series of 10 repetitions for each lower limb
2	Take a standing position. Bend forward with your feet shoulder-width apart. Keep your back straight. Keep your head at the extension of your torso, look down. Do not slouch. Stop your body when you feel stretching and hold it for 3–4 seconds	Twice a day in three series of 10 repetitions
3	Take a sitting position. Straighten the lower limbs in the knee joints and put the feet in the active position. Keep your upper body in a neutral position, try to keep your head high without tilting it too far forward. Then, slowly bend toward the right lower limb until you feel a stretch at the back of the leg. At this point, hold the lower limb with your hands and stay in the 10 seconds position. After this time, relax and do the opposite limb exercise.	Twice a day in a two series of 10 repetitions for each lower limb

In ultrasound imaging using a convex transducer, the bladder volume was estimated at 380 ml and patient's subjective feeling of bladder pressure was identified as 9. During examination, the patient presented correct phasic and tonic activity and elevation of the pelvic floor muscles. No retention of urine after urination was found. The length of the urethra, which was 2.5 cm, was measured using an endovaginal transducer. In the cough stress test, correct reaction of the urethra and activity of the musculus pubovaginalis and musculus puboanalis was observed, with no urine leakage and no depression of the lesser pelvic organs. In the per vaginum examination, the patient did not report any pain during palpation and showed correct phasic and tonic activity of the pelvic floor muscles. During palpation of the anterolateral abdominal wall area, the patient did not report pain symptoms in examined structures on the left side; however, on the right side, pain had decreased to 2/

10 on the NRS. The superficial back line myofascial meridian was still painful on both the sides, but the patient defining the lower intensity of pain on the NRS, i.e. 5/10 on the left side and 4/10 on the right side. The patient also reported pain improvement during the lateral line assessment: on the NRS, the intensity of pain on both the left and the right side had decreased to 5/10. Palpation of the musculus piriformis did not trigger any pain symptoms. In view of the above, the physiotherapist recommended continuation of the individualized set of exercises and a further follow-up visit after about three months.

Outcomes

The final follow-up visit took place five months after the initial visit and three months following the last follow-up visit. The patient reported almost complete relief of the symptoms, which she had originally presented at the center. Once again, the physiotherapist performed the whole examination as described above. The bladder volume was estimated at 270 ml, and the patient's subjective feeling of bladder pressure was identified as 6. Such a result suggests the improvement and normalization of the sensation of the bladder. Before the therapy, the patient assessed the urgency to urinate on a scale of 0–10 out of 9 with 260 ml bladder filling, after therapy 9 with 380 ml filling and 6 with 270 ml filling.

Correct phasic and tonic activity of the pelvic floor muscles with correct elevation was observed. No retention after urination was found. The length of the urethra was found to be 2.5 cm during ultrasound imaging using an endovaginal transducer. During the cough stress test, appropriate reaction of the urethra and activity of the musculus pubovaginalis and musculus puboanalis were observed. The patient reported no pain symptoms on examination per vaginum and presented correct phasic and tonic activity of the pelvic floor muscles. No urine leakage and no depression of the lesser pelvic organs were observed during the cough stress test. During anterolateral abdominal wall palpation, the patient reported pain in only one of the assessed areas situated outward from the umbilicus. On both sides, the patient defined pain intensity as 1/10 on the NRS. During examination of the back line, the patient reported no painful symptoms. Assessment of the lateral line was painful on the left side, but intensity was defined as 3/10 on the NRS. Examination of the musculus piriformis did not reveal any pain symptoms. Following interview and physiotherapeutic assessment, the patient and physiotherapist agreed to conclude the process of physiotherapy and it was decided to refer the patient to a urologist for a follow-up examination. The consultation with the urologist did not reveal any irregularities. The patient was instructed to continue the prescribed exercises and monitor her health condition.

Discussion

Overactive Bladder Syndrome is a intractable disease, which exerts a significant influence on quality of life and patients' well-being, which may, in turn, lead to exclusion from social life (Bø et al; 2020; Gormley, Lightner, Faraday, and Vasavada, 2015; White and Iglesia, 2016). Treatment of OAB is a multistage process, which involves application of different therapies and different approaches. For this reason, the choice of a particular form of OAB therapy should be based on risk/benefit assessment and be informed by patients' expectations (Olivera et al., 2016). In most cases, pharmacotherapy is the leading form of treatment. However, sometimes, it happens that due to unsatisfactory results, namely, incomplete alleviation of symptoms and/or incidence of adverse events, pharmacotherapy is often discontinued (Olivera et al; 2016; White and Iglesia, 2016). Some studies show that the anticholinergic drugs used in OAB treatment may adversely affect the central nervous system and therefore lead to long-term cognitive function impairment and dementia (Robinson and Cardozo, 2019). On the other hand, botulinum toxin therapy is related to a higher risk of urine retention and incidence of urinary tract infection. In addition, this therapy requires self-catheterization by patients and long-term observation shows that the healing effect passes in about 9–12 months, after which therapy must be repeated. A similar situation exists in the case of application of PTNS therapy because the symptoms of OAB tend to intensify 6–12 weeks after therapy (Olivera et al., 2016; Robinson and Cardozo, 2019). The application of SNS therapy necessitates surgical intervention (in order to implant electrodes), which results in the exclusion of some patients due to their general health status (Robinson and Cardozo, 2019). Most common therapies in OAB may lead to some relief of symptoms but are unable to eliminate them completely. This may be a result of the fact that these therapies are focused on symptomatic treatment instead of elimination of root causes. Consequently, it is essential to carry out a detailed process of diagnosis, taking into account the pathophysiology and risk factors of OAB (Kasman, Stave, and Elliott, 2019)

Gormley, Lightner, Faraday, and Vasavada (2015) observed that patients suffering from OAB are very often treated using the second and third tiers of

treatments, while they are almost never treated using behavioral therapy or more conservative treatments. This may result from a lack of knowledge of conservative methods of OAB treatment and so demonstrates the need for wider education on this matter. Similar conclusions are presented by Kasman, Stave, and Elliott (2019) who claimed that conservative treatment is often insufficiently used and poorly understood by physicians. Physiotherapeutic treatment is becoming an integral part of urology and represents one possible conservative treatment option. Previous studies have perceived the physiotherapeutic treatment of OAB through the prism of pelvic floor muscle training (Bø et al., 2020; Olivera et al., 2016; White and Iglesia, 2016). Justification for the efficacy of pelvic floor muscle training is based on the fact that the increase in muscle tension leads to increased pressure in the urethra, then decrease in tension of the *musculus detrusor vesicae*, and thus inhibition of the micturition reflex. Therefore, patients have more time to reach toilet facilities and avoid urine leakage. Moreover, pelvic floor muscle training leads to permanent changes in the morphology of pelvic structures, which may stabilize neurogenic activity and pressure in the urethra.

In addition to pelvic floor muscle training, physiotherapy offers other therapeutic techniques for the treatment of OAB, as is demonstrated by the present case report. Thus far, there are not many studies evaluating the effectiveness of physiotherapy in cases of OAB or comparing different physiotherapeutic techniques. The lack of a standardized physiotherapeutic approach to the treatment of OAB makes it difficult to recommend particular forms of physiotherapy in particular cases. There is, therefore, a clear need for further studies in this area.

Conclusion

The findings of this case report suggest that for this individual with OAB syndrome, conservative treatment interventions focusing on correct pelvic floor muscle contraction, manual therapy of the pelvic floor and lumbopelvic hip complex, and individually selected exercises provided relief of the patient's OAB symptoms.

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