

# Chapter 12

## Genitourinary System: Presentation and Management

### Take Home Messages from this Chapter

- o A number of structural and functional differences may be found in the genitourinary system of a patient with a diagnosis of HSD/EDS.
- o Along with increased and decreased tone of the pelvic floor (a protective increased tone response tends to be more common with increased stretchiness of the structures), varying degrees of prolapse of the pelvic organs may be more common in an individual with HSD/EDS than in the general population.
- o Bowel and bladder dysfunction can be present in an individual with HSD/EDS and can stem from a number of different comorbid conditions. Female-born patients with HSD/EDS can also experience menstrual abnormalities, endometriosis, and localized vaginal involvement. Pelvic floor dysfunction is not as thoroughly researched in male-born patients. There may be an increased risk for erectile dysfunction and penile fractures, although EDS type is not specified in the limited available research.
- o Bowel and bladder dysfunction, sexual dysfunction, and pudendal neuralgia are more common in patients with HSD/EDS. The involvement of the central or autonomic nervous system needs to be investigated.
- o Inflammatory pelvic conditions such as interstitial cystitis, irregular menstrual cycles, and recurring vaginosis may involve abnormal mast cell activity in patients with HSD/EDS.
- o Treatment of conditions in the pelvic area require comprehensive investigation into the local physical anatomy, along with a thorough screening of nervous systems (CNS and ANS). The potential presence of MCAS should also be investigated.
- o A table of differential diagnoses is presented including overlapping symptoms of potential comorbid conditions that can occur in patients with HSD/EDS.

With Beth Anne Fisher PT, DPT, CSCS, WHC

Patients with HSD/EDS may be prone to developing issues in the genitourinary system — the bladder and reproductive organs. We see genitourinary complications more often in female-born patients with HSD/EDS than male-born patients. Male-born

patients also experience some of the conditions mentioned (such as incontinence and sexual dysfunction), but they appear more prevalent in the biologically female population, according to available literature. We will spend the first part of this chapter discussing hormonal and anatomical presentations specific to female-born bodies, that may be present within this population and can lead to conditions that are more common to patients of all genders who have HSD/EDS (prolapse and bladder issues).

Regarding the genitourinary system, the current literature refers to EDS in general, rather than specifying types of EDS. Therefore, the information we offer here will refer to a general presentation of HSD/EDS. From the more specific research available, we may offer the following details regarding different types of EDS [9]:

- Prolapse may be more common in cEDS, clEDS, and hEDS
- Cryptorchidism (testicle fails to descend into the scrotum) may be more common in mcEDS and AEBP1 mutation
- Rupture of the organs involved in the genitourinary system is more common in vEDS

This particular chapter was reviewed by and collaborated on with Beth Anne Fisher PT, DPT, CSCS, WHC. Dr. Fisher specializes in working with biologically female bodies of patients who experience themselves as highly sensitive people, to heal their abdominal-pelvic-based challenges. People see Dr. Fisher to address such conditions as pelvic floor dysfunction, painful periods, optimal natural fertility, prolapse challenges, endometriosis, bladder leaking, painful intercourse, and others. Her practice is located in the Denver metro area of Colorado.

## General Approach to Pelvic Health

It is common for the pelvis and hips to be hypermobile in patients with HSD/EDS. One theory is that pelvic muscles hold more tension, in a subconscious attempt to guard against excessive

movement of the hypermobile joints. Hypermobile joints actually cause excessive muscle activity, which can then alter pelvic mechanics in such a way that produces more pain. Like other muscles in the body, pelvic muscles may become sore due to overuse. We can combat this by working to reduce tension in the pelvic floor muscles. This can provide relief and a rest to fatigued muscles. Perhaps counterintuitively, relaxing these muscles more effectively can lead to improved strength, as the relaxed muscles are better able to recover from the work of supporting the pelvis and hips. When crafting treatment plans for HSD/EDS patients, we should always include relaxation techniques, in tandem with neuromuscular control and stabilization exercises, in order to promote and maintain function. Strengthening exercises should be approached as we would in other areas of the body. Quieting guarding, reducing pain, and improving the firing of stabilizers, while ensuring they don't guard or tense too much, is critical to success. (read more in "Chapter 20: General Principles of Rehabilitative Treatment").

Adverse childhood experiences — sexual abuse at any age, and/or trauma related to the pelvis at any age — can increase pain perception. As the brain gets trained through trauma to be alert to potential threats, it may issue its warnings through increased pain perception. Because of this, incorporating a trauma-informed approach to the treatment of genitourinary pain is essential. It might also be necessary to also include elements of pain neuroscience and somatics as part of the treatment plan.

Keep in mind the cyclical nature of the female reproductive organs, as well as their effect on their neighbors both anatomically and hormonally. For example, symptoms which wax and wane over time should be evaluated in the context of the patient's hormonal cycle, which can increase inflammation during some phases and laxity during others.

Symptoms in the genitourinary region can be multifactorial. By focusing on symptoms that can be changed, the effect may be significant enough to alter the patient's perception of pain.

## Organs in the Pelvic Space

The pelvic floor can have musculoskeletal issues, as we commonly think of them, with hypo or hypertonicity in its muscles; however, we must also remember the organ structures in this area that are supported through pressure systems and connective tissue. As mentioned in “Chapter 7: Organs,” organ issues may be more common in the hypermobile population due to fascial pulls, soft tissue abnormalities, and altered pressure systems in the abdominal cavities. The following is a brief review of some general anatomical pelvic organ information.

### Bladder

The bladder can more frequently present with anatomical, inflammatory, and/or neurological issues in those with hypermobility than in those without it. As with most of the body’s organs, it is surrounded and supported by fascia, soft tissue, and ligaments. Listed below are some limited fascial connections of the bladder to consider if a patient is facing bladder issues [3]. (Neurological issues related to the bladder will be discussed later.)

- Peritoneum (membrane that lines the abdominal cavity and covers the organs) adheres to the vertex of the bladder
- Median and medial umbilical ligaments act as fascia that connects the bladder to the umbilicus (continues on as fascia to the liver through the falciform ligament)
- Posterior attachment system from the soft tissue fold of the broad ligaments and sides of the vagina
- Pubovesical and pubo-urethral ligaments from the muscle of the bladder wall (run from the posterior border of the pubic symphysis to the anterior bladder, neck of the bladder, and urethra, connecting to the vesicovaginal fascia)
- Vesicular base is a firm base support for the bladder with connecting fascia to the uterus, rectum, and sacrum

Besides shared organ fascia, there are the connections from the bladder to the space of the obturator foramen. Intentional manual treatment strategies, focused on the obturator internus muscle, have shown to reduce ptosis/sagging down of the bladder. The cause for this is not fully known but may be related to changing cavity pressure by applying pressure on the obturator membrane, bladder contraction signals sent by mechanoreceptors from the obturator internus, or efferent nerve stimulation through the nervous reflex system to the suspension ligaments of the bladder.

### Prostate

The prostate, part gland and part muscle, is found in male-born patients, around the circumference of the lower end of the urethra, just in front of the rectum and is directly adhered to the bladder. All of the functions of the prostate are not yet known; however, a main role is to squeeze fluid into the urethra, moving sperm through during sexual climax. Enlargement of the prostate is common as the male body ages. If the prostate enlarges to the point of pressing onto the urethra, it can clamp down on the tube. This will eventually cause the bladder to become irritated and contract more frequently, leading to more frequent urination. Signs of an enlarged-prostate (benign prostatic hyperplasia (BPH)) are as follows:

- Urination hesitancy, interruption, or a weak stream
- Urinary urgency
- Urinary leaking and/or dribbling
- Increased urination frequency, especially at night

The prostate shares fascial connections with its surrounding structures. These may benefit from manual work, performed by a specialist in pelvic health and/or visceral manipulation. These structures include [3]:

- Rectum
- Levator ani muscle

- Puboprostatic ligament (from the prostate to the pelvic fascia to the pubic bone)
- Rectovesical fascia (fascia separating the prostate and bladder from the rectum)
- Urogenital diaphragm (double layer of fascia that supports the prostate between the ischial and pubic rami)
- Bladder and its ligaments
- Urethra
- Seminal vesicle/ductus deferens
- Left kidney, left testicular vein

## Uterus

The uterus receives a good deal of support from surrounding ligamentous and fascial structure (connective tissue). These ligaments include the following [3]:

- Round ligament running through the deep inguinal ring to the labia majora
- Broad ligament extends from the sides of the uterus to the floor and lateral walls of the pelvis
- Uterosacral ligaments from the sides of the cervix toward the sacrum, to the levator ani muscles (the uterus and its ligaments should be considered in those with an SI dysfunction)
- Transverse cervical ligaments from the cervix to the lateral walls of the pelvis

The uterus is also supported by the levator ani muscles, coccygeus, and the muscles of the urogenital diaphragm. Neurologically, it is innervated by the inferior hypogastric plexus, which resides in the broad ligament. This plexus has sympathetic, parasympathetic, and afferent fibers. If there is a dysfunction of the bladder or uterus, it is highly recommended to assess associated ligaments, fascia, muscles, bony connections, and the autonomic nervous system (both globally and at associated spinal level sympathetic ganglia).

## Female Pelvic Health Issues In HSD/EDS

Female-born patients with HSD/EDS may present with physical issues in the pelvis, or hormonal abnormalities, more frequently than the general population. The diagnoses within this genitourinary section that are prevalent in HSD/EDS are [13], [14], [16]:

- Menstruation abnormalities
- Dyspareunia (painful intercourse)
- Vulvar disorder/recurrent vaginitis/vulvodynia
- Pelvic organ prolapse
- Endometriosis
- Infertility
- Pudendal neuralgia

## Menstruation Abnormalities

Quite frequently, we may see abnormal menstruation in female-born patients with HSD/EDS. This can include menorrhagia, dysmenorrhea, and/or an abnormal menstrual cycle. To define these terms:

- Menorrhagia is increased, heavy flow during a period or prolonged bleeding time during the period.
- Excessively heavy flow is usually defined as filling a menstrual pad or tampon in less than two hours' time, or needing to use two forms of protection simultaneously to prevent leakage beyond menstrual products.
- Dysmenorrhea refers to painful periods often caused by excessive intensity and/or time of contractions of the uterus.

Abnormalities in the menstrual cycle can include either a shortened or lengthened cycle, along with alternating between varying lengths, as well as off-cycle or mid-cycle bleeding. The definitive cause is unclear and likely multifactorial, depending on the individual. Some theories suggest that it may

be related to poor regulation of the ANS, and/or systemic inflammation from MCAS, or autoimmune disorders that disrupt hormonal regulation [13], [14], [16]. From our viscerofascial osteopathic perspective through clinical practice, we may hypothesize that excessive uterine mobility, which may place increased strain or asymmetric restrictions on various ligaments supporting the uterine and ovarian structures, may contribute to painful periods.

<b>Menstruation Abnormalities Present in those with HSD/EDS</b>
<ul style="list-style-type: none"> <li>• Menorrhagia</li> <li>• Dysmenorrhea</li> <li>• Abnormal menstrual cycle</li> </ul>

Figure 12.1 Different menstruation abnormalities that may be present in those with HSD/EDS.

If we are assessing menstrual dysfunction with MCAS as a driving factor, it is important to note the relationship of histamine levels throughout different phases of the menstrual cycle. For one reason, histamines raise pain sensitivity. As histamine levels may be higher at ovulation and/or menstruation phases, and the clinician may suspect MCAS as a contributing driver of pain when additional symptoms such as flu-like generalized myalgias, fatigue, or congestion seem to appear cyclically. Also, estrogen increases in the follicular stage (start of the menstrual bleed until ovulation). Estrogen promotes degranulation of mast cells, which allows for the release of mediators such as histamine and cysteine leukotrienes. As a result, in a system with dysfunctioning mast cells, the reaction during this phase may be altered and cause symptoms related to MCAS. Promising research by Afrin et. al. (2019) [1] reports that histamine-reducing suppositories decrease some menstrual symptoms and dyspareunia. The effects of this dysfunction may also be experienced by some patients with HSD/EDS, to a lesser extent, during ovulation, due to similar natural pro-inflammatory mechanisms at this phase of the menstrual cycle. To make matters more complicated for

those with hypermobility, the hormone progesterone increases in the week prior to menstruation, and can increase laxity of tissues. Because of this, working with a specialist on a strategy to increase mast cell support when approaching the follicular phase of the cycle may be very helpful for some patients.

## Dyspareunia

Dyspareunia, or pain during intercourse, can be more prevalent in patients with HSD/EDS than in the general population [1], [10]. Some contributors to this particular symptom include: vaginal dryness, tissue fragility, pelvic floor dysfunction, vulvar edema, and hyper or restricted mobility of the cervix's visceral-fascial supports. While the exact causes of these conditions are unknown, it's beneficial to the patient's treatment for us to consider what role comorbidities play a role in the presentation of this disorder. Because comorbidities can help create the conditions for dyspareunia, reducing systemic manifestations that may exacerbate or drive pain-related symptoms can help reduce the pain sensations. This symptom, as with many other issues in HSD/EDS, may benefit from a treatment plan that factors in MCAS, dysautonomia, other systemic inflammatory drivers, and autoimmune disorders.

**With birth control pills, the vulvar and vaginal tissues receive constant doses of synthetic steroid hormones instead of native ones. This can lead to a variety of changes and possibly symptoms for women including: decreased libido, decreased lubrication, urinary urgency or frequency, recurrent UTIs, or yeast infections. These recurrent issues can lead to secondary changes, such as increased sensitivity in the nerves in these areas, increased baseline/resting and active tension in the pelvic floor muscles, and connective tissue restrictions. With these tissue changes, the risk of developing dyspareunia may increase. When assessing dyspareunia in a patient, this may be an area to investigate with a specialist provider.**