Sexual Pain, a Thorny Embrace

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How Illness, Pain and Cancer Treatment Alter Sexuality

By

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Cambridge Scholars Publishing

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INTRODUCTION

What is sexual pain?

Pain during intercourse, or *dyspareunia*, from the Greek meaning pain during sex, is a common symptom among gynecological patients, usually associated with inflammation of external tissues that react vigorously to penetration attempts. We identify three categories of sexual pain: one with a clear and recognizable basis stemming from a known pathology, one that does not show visible external signs and eludes precise diagnosis, and finally, iatrogenic pain which is the undesired effect of necessary medications. The second category includes vulvar vestibular syndrome (or vulvovestibulitis), which is part of chronic pain syndromes of unknown etiology, along with fibromyalgia, irritable bowel syndrome, interstitial cystitis, and temporomandibular joint syndrome. Finally, the third category is induced by oncological therapy. When I told a friend that I was writing about sexual pain, her reaction was, "hmmm … what's that?" That rang a bell for me! If an educated and enlightened woman like her does not know what I am talking about, then I am doing the right thing by addressing it. I have been dealing with sexual pain forever and that brings my two professional identities together: gynecology and sexual medicine. I have come to know a bit about this mysterious and frustrating condition, and I have great respect for women who are affected and struggle to receive the right diagnosis to this today. The first doctor they turn to is naturally the gynecologist given that the pain involves the genitals. However, gynecology is a specialty with many facets, all complex, ranging from infertility to pregnancy, from inflammations to sexually transmitted diseases, from dermatoses to the extensive field of ultrasound and surgery, from lasers to tumor ablative surgery. Only a small percentage of gynecologists specialize in chronic pain syndromes. Therefore, my intention is to educate people about this little-known condition and guide patients to find the help they need.

What does sexual pain entail in a woman's life?

Sexual pain involves, first and foremost, physical discomfort of varying intensity, accompanied by attempts to modify behaviors that cause the pain. This is well understandable, obviously, but there are many aspects to take into account. Pain and avoiding intimate behaviors influence both the patient's emotional state and the couple's wellbeing. Indeed, withdrawing from moments of intimacy and pleasure eventually leads to emotional detachment. Avoiding seductive behaviors is of little importance in the case of an organic problem that is easily diagnosed and requires only appropriate therapy. Perhaps the infection may not respond to the first treatment, it may take time to resolve, or it may relapse, but it will not question femininity or will it alter the couple's romance. Something different happens in the case of pain that interferes with intimate contact preventing penetration, and which cause is not defined. The patient and her partner struggle to understand where the problem comes from and cannot find comfort in doctors. Because not all doctors are experts in chronic pain syndromes, chances are that the consulted physician is not trained to properly frame the issue. Within the couple, the man is deeply affected and reacts emotionally. On the one hand, he feels rejected and sees the sexual difficulty as evidence that love is over. On the other, he feels guilty to be the direct cause of pain. The thought of being a clumsy lover or of not being loved any longer is mortifying. The only option left is to distance himself and withdraw! This deadlock moment challenges the harmony of the relationship. Fortunately, couples who are better at communicating their feelings even when they are painful are more likely to overcome the obstacle. The third example, namely sexual pain caused by cancer treatments, has a clear origin. Nevertheless, its influence is profound since pain disrupts the intimate life of couples who are already burdened by the diagnosis of a disease that, despite enormous progress, remains potentially deadly.

Why am I writing about sexual pain?

I am hoping that my work will contribute to raising awareness on conditions that are not yet completely understood or very frequent but cause physical and emotional distress. Working on sexual pain is my area of expertise, my daily bread**.** I see patients with these problems every day and from their stories I realize that finding physicians with experience in sexual pain conditions is not easy. When a young colleague in tears told me she was the only one with dyspareunia in the entire world, I thought a bit of drama was

needed**.** So, I asked her to compare her date of birth with the one on my first degree at Cornell (same year), and she finally smiled.

How did I come to specialize in sexual pain?

I specialized in Obstetrics and Gynecology at the University of Siena, in Behavioral Sexual Therapy at Cornell University Medical Center in New York City, and in Human Sexuality at Mount Sinai Medical School, also in New York City. The majority of my work involves men and women with difficulties in sexual behavior. My two professional identities allow me to address sexuality issues with both medications and behavioral approach, depending on the need. Medications do the expected work, while behavioral interventions make it possible to modify dysfunctional habits. The sex therapy approach does require some time and active participation on behalf of the patients. In my opinion, it is for sure effective in restoring the couple's harmonious balance. It is gratifying to help people at a standstill and unable to live their romantic lives to the fullest to finally move on. When the dream of many comes true and a child arrives, then the doctors know they have done their job.

ORGANIC-BASED PATHOLOGIES

This chapter is different from the following ones because it addresses pain during intercourse caused by a well-defined organic etiology. The conditions that can lead to difficulties in sexual relations involve the organs of the lower genital tract, have an identifiable organic basis, and are common in gynecological practice. These include malformations, dermatoses, and atrophic processes that can be easily diagnosed through direct observation, "with the naked eye," and through laboratory tests. Difficulties in sexual behavior caused by these pathologies rarely occur during penetration, unlike the conditions described in the subsequent chapters. On the contrary, pain reaches the pelvis due to thrusts during intercourse; or it may be present before the erotic event due to constant inflammation of pelvic tissues caused by the same organic pathology. This is evident in the case of endometriosis, whereas fibromyalgia leads to skin hypersensitivity causing pain with minimal contact. Additionally, fibromyalgia is associated with joint hypomobility that limits comfortable lovemaking positions. Inflammations of the external genitals such as vaginitis, which sooner or later every woman will experience, can be considered pathologies less significant than others. The symptoms are acute, but the obvious and treatable causes respond quickly to medications. They are bothersome but not a real cause for concern unless recurring episodes occur over time.

Infectious or inflammatory processes

Infectious or inflammatory processes commonly referred to as vaginitis appear with symptoms such as intense irritation, itching, burning, and mucous discharge with an unpleasant odor and abnormal appearance. During beach holidays, the incidence of infections increases due to the heat and contact with sand and saltwater, which irritate the genital mucosa, making it more vulnerable to pathogenic agents. It is estimated that one-third of women of childbearing age in the Western world are affected. The most common agents, Candida, Trichomonas, and Gardnerella Vaginalis, are responsible for the majority of cases followed by Chlamydia, Herpes Genitalis, and Condyloma Acuminatum. The clinical manifestation presents an alteration of normal vaginal secretions, itching, local discomfort, and pain during intercourse. However, it is overall a benign condition because

the diagnosis is simple, medications are effective, and there are no long-term health damages. Only in rare cases of chronic infection, a neglected situation may evolve into a significant pelvic pathology. This can occur with Trichomonas, which contaminates the urethra and the lower urinary tract, and also Chlamydia, which ascends to the uterus and the fallopian tubes. Vulvovaginal infections are clear sexually transmitted diseases that thrive in the original host before colonizing a new individual.

Why are infections of the external genitals more common in women than in men?

Infections of the external genitals are more frequent in women than in men mostly because of their differences in anatomy. Male genitals are entirely external, which generally keeps the infectious load too low to develop the disease in men, but is sufficient to colonize the female lower genital tract that is internal and provide a favorable environment for the growth of bacteria, viruses, and fungi. Among sexually transmitted diseases, Herpes Genitalis plays a significant role. It presents painful blisters on the labia majora, vagina, and cervix, which ulcerate after 2-3 days, releasing a high infectious load. In cases limited to the genitals, symptoms include burning, irritation, and pain during urination. However, when the disease involves the entire body, fever, malaise, headache, and muscle pain may occur. Herpes Genitalis is transmitted only through direct contact, as the virus survives only briefly outside a host organism and does not persist in environments like pools or bathrooms. It is important to note that the virus remains present in tissues in a latent phase, suspended activity, until the host's immune defenses weaken. Even common conditions like the flu, would allow the virus to return to the active phase. Another significant agent of vulvovaginal infections is the Papillomavirus. It is responsible for highly contagious condylomatosis transmitted through direct contact affecting both male and female external genitals. This condition causes both spontaneous pain and pain during sexual intercourse and manifests itself with easily recognizable growths known as "cock's comb." The most severe manifestation of HPV is not the genital infection but the colonization of the vaginal canal and the cervix. Cervical localization causes cellular damage, which over time transforms into cancer. The process is slow and takes several decades, but it does occur. The practice of regular Pap tests allows the diagnosis of the disease in its early stages, potentially saving lives!

All infectious or inflammatory processes involving the external genitals cause intense pain during attempts at sexual intercourse. This represents the most common and severe side effect of external genital pathologies. Pain

during intercourse is also known as dyspareunia, a term derived from the Greek word meaning difficult mating. Such pain has a negative impact on the patient's life and persists until the inflammation heals. The condition changes clothing choices because anything that increases pressure on the perineum worsens symptoms and must be carefully avoided. Tight clothing and synthetic or colored underwear are discouraged.

The painful symptoms will persist until healing occurs. Normal daily activities are affected making it difficult to perform office work, attend classes, travel by car, sit for long periods, ride a bike, or engage in horseback riding. In general, it is advisable to avoid anything that could increase irritation of the perineum for a few days, including depilation! Among all behaviors that can be harmful, friction and pressure during sexual contact constitute a significant irritant. Sexual intercourse exponentially increases the intensity of the symptoms; in fact, patients tend to avoid sex until they feel better. Despite the symptoms being so bothersome as to lead to abstinence, an episode of genital inflammation does not disrupt the couple’s harmony because it lasts only a few days and, above all, because it is easy to diagnose. No partner will feel rejected if the woman says "no" to sex during these times. It would actually be advisable to adopt strict abstinence to prevent the transmission of the disease to the partner. Indeed, in recurring infections affecting a couple, it is common for the microorganism to infect the man’s urinary tract asymptomatically and then be transmitted to the woman during sexual intercourse. Men can be asymptomatic carriers, meaning they harbor the pathogenic germ in their genitals without developing the disease and without being aware of it; however, they can transmit the microorganism to their partner through a back-and-forth mechanism which can lead to a real mess, namely the chronicization of vaginitis.

If a woman still wanted to have intercourse during an episode of vaginal inflammation, what precautions should she take? The only real precaution is to allow a few hours to pass between the insertion of the vaginal suppository or cream and intercourse. This is because the tissues need some time to absorb the medication, which is made less effective by the presence of the penis and ejaculate.

Things are slightly different for patients suffering from recurrent vaginitis. This condition is relatively common and affects women who are more sensitive to the action of external microorganisms. Recurrent vaginitis is diagnosed when there are four or more episodes within twelve months. This mainly happens with various strains of Candida and is due to the particular

physiology of this microorganism. Candida, in the majority of cases the albicans strain, exists in two forms: one is active, referred to as the yeast form which causes typical vaginitis and is susceptible to treatments; the other is inactive, referred to as the spore form which does not cause diseases but also does not respond to drugs. Consequently, when the microorganism retreats into the inactive form, it can survive for a long time in the vaginal tissue and later resume its active and aggressive form when the pH of the vaginal environment changes. It occurs during menstruation with the use of vaginal tampons or intimate wash or as a side effect from certain drugs, particularly antibiotics. It is a typical side effect that antibiotics alter the vaginal flora and consequently promote recurrences of Candida vaginitis. The lactobacilli that are part of the vaginal flora maintain pH levels of acidity to prevent the growth of pathogenic microorganisms that could cause vaginitis. Indeed, Candida transition from quiescent spore to phase of active; and pathological yeast always occurs following a pH variation and a weakening of vaginal defenses. Some individuals are more predisposed than others. Among these are diabetic patients when there is not strict control of blood sugar levels or patients more predisposed to host the presence of multiple microorganisms that potentiate each other. The same tendency to develop Candida vaginitis is found in women who consume yeast and sugars like pasta, bread, pizza, wine, and sweets that interfere with maintaining physiological pH values.

The clinical course of recurrent vaginitis is not different from that of an isolated episode; however, the fact that they recur within a few months negatively impacts the well-being of patients. It is important to emphasize that chronic inflammation causes not only decreased lubrication, itching, and spontaneous pain (i.e., independent of stimuli such as prolonged sitting or friction from tight pants) but also scratching-induced lesions that the patient inflicts on herself when the continuous itching becomes unbearable, exhausting, and difficult to control. These tiny wounds and small abrasions associated with mucosal irritation complicate sexual relationships even during periods of remission as discomfort during penetration reduces arousal and blocks orgasm. Over time, the recurrence of vaginitis increases the patient’s anxiety towards painful intercourse. She expects to feel pain instead of sexual pleasure; and with this mindset, she loses interest in intimate behavior, even going to great lengths to avoid them.

A similar dynamic occurs with allergic vaginitis, caused by irritants, that disrupt the biochemical balance of the vaginal canal. This condition is far from rare and accounts for approximately 30% of all cases of vaginitis. The two main causes of this pathology are the patient's hypersensitivity and the

abuse of substances such as soaps, spermicidal creams, lubricants, condoms, tampons, or contraceptive diaphragms. In practice, the vaginal tissue can develop a hypersensitivity reaction to any foreign substance it comes into contact with. In sensitive women, the inflammatory reaction recurs with each exposure, and often, a certain amount of time is required to identify the irritant among the various seemingly benign and harmless substances for daily use. The tissue's inflammatory response becomes chronic, as in recurrent vaginitis, and the symptoms worsen to the extent that, in addition to irritation, burning, and itching, we see swelling, scratching lesions, discharge, and continuous pain. The negative impact on sex, which was of short duration and little importance in simple vaginitis, is now exacerbated by the need for prolonged abstinence. Concern over a difficult-to-resolve condition changes the patient's mood, affecting her sense of well-being and sexual desire thus putting a strain on the romantic bond.

Major malformations

Major malformations, such as the absence of the vaginal canal or fusion of the labia, are disorders of sexual development and represent congenital conditions resulting from chromosomal abnormalities or biochemical deficits. These conditions present themselves as an altered appearance of the external genitalia, evident from birth, and are often associated with internal organ agenesis. Such syndromes have a severe and complex impact on health that goes well beyond the sexual pain being discussed in this chapter **(**1). In the third or fourth week of the embryonic period, the development of the Fallopian tubes begins with the formation of two tubular structures called Müllerian ducts, from which the uterus, cervix, and vagina originate through the reabsorption of a median septum. When reabsorption does not occur correctly, various structural anomalies occur. The most common defect is represented by the bicornuate uterus, which may or may not be associated with vaginal malformations (2).

Vaginal septa, whether complete or incomplete, are minor congenital defects resulting from the improper fetal development of the reproductive system, a process that begins in the fourth week of embryogenesis and concludes in the second trimester of pregnancy. In more severe cases, they may be associated with a didelphic uterus and renal agenesis. The associated malformations raise suspicion of the presence of the septum, which may not be recognized at birth as it does not manifest clear signs until the girl begins her sexual life (3). With the onset of sexual activity, attempts at penetration reveal the presence of the obstacle and trigger the typical pressure pain of

tissues that cannot expand when stimulated. The pathology lies in the fact that the presence of a septum reduces the length and width of the canal, limiting its ability to expand to accommodate the erect penis; this makes sexual intercourse painful or even impossible. The patient's description of how the pain arises and its characteristics suggest the possibility of a vaginal malformation, while confirmation of the obstacle's anatomy (insertion, width, and thickness) is obtained through a bimanual examination. Other relatively common defects are scars and adherent bands, small "bridges" of tissue that extend from one wall to the other of the vagina. They can be congenital, like septa, or form as a result of childbirth lacerations or minor surgical interventions, such as for recurrent abscesses. These bands manifest during sexual intercourse with a sharp "tearing" pain caused by the stretching of the tissue by the penis. The pain is not present during every intercourse; in fact, if the band is not stretched by the movements of the penis, it remains adherent to the vaginal wall and causes no pain. The presence of a band is suspected based on the characteristics of the pain, which is not always present but occurs only when the penis, in its movements, remains "tangled". Confirming the suspected diagnosis requires prolonged observation times since bands are difficult to locate during the examination, as the probing finger does not tension the walls in the same way as intercourse movements.

Lichen Sclerosus

Lichen Sclerosus is a dermatosis resulting from a chronic autoimmune inflammatory process that causes alterations in the architecture of the vulva, leading to atrophic damage. This condition affects women of all ages, including those of childbearing age, but is more common in peri-menopause and subsequent years. The initial symptoms include pain, irritation, burning during urination, and itching, which affect vulva and perineum and are associated with signs of atrophy, hypopigmentation, and visible purpura that can be seen with the naked eye. The lining tissue thins, taking on an appearance similar to cigarette paper or with porcelain-white patches. In advanced stages, there may be complete loss of the normal vulvar architecture (of the vulva) with flattening and fusion of the labia minora, hooding of the clitoris, reduced and stenotic vaginal introitus, fissures of the vaginal mucosa at the posterior fourchette, and finally thinning of the epidermis with erosive lesions, hypopigmentation, and pearly white areas. The main symptoms are burning, itching, and dryness. The rigid and sclerotic vestibule and the thinned, fragile epidermis make sexual intercourse particularly uncomfortable, if not impossible. When left untreated, this

condition can worsen to the complete fusion of the labia minora, fourchette, and clitoris. Specific symptoms include pain at the entrance of the vagina during penetration and movements of intercourse, reduced sensitivity of tissues to erotic stimulation, difficulty in achieving orgasms, and widespread pain throughout the vulva and perineum (4). Dyspareunia is the symptom that most significantly reduces the sense of physical well-being, while the alteration of body image and loss of identity as a sexually desirable person leads to avoiding sex altogether, even to complete abstinence. Patients often experience mood changes, characterized by anxiety and depression, and emotional suffering that is no less significant than physical pain (5). Lichen Sclerosus is an autoimmune inflammatory process in which the subversion of vulvar anatomy occurs early in comparison to menopausal atrophy. Being chronic and progressive, it requires continuous attention; however, if treated promptly and adequately, its progression can be slowed down. Unfortunately, there is still no cure for lichen sclerosus. We can only act to slow down its progression and alleviate symptoms, hoping to achieve remission with prolonged treatment. In this context, the possibility of sexual rehabilitation remains dependent on the trophism of the external genitalia.

Over time, Lichen Sclerosus causes the reabsorption of the labia minora and a reduction in the lumen of the vaginal introitus. The anatomical damage results in sexual difficulties with pain and, in advanced stages, even penetration may become impossible. In the early stages of the disease, this problem can be mitigated with careful and consistent use of vaginal dilators combined with specific medications. However, as time passes, the alteration of the architecture of the external genitalia worsens and stabilizes, eventually requiring a minor surgical intervention to correct the damage at the vulvar opening. The persistent discomfort or irritation of the vulva represents a source of unease and emotional distress that goes beyond the easily observable and quantifiable organic damage. This discomfort further contributes to the negative attitude towards sexuality. In addition to behavioral techniques, a regimen (treatment) with low doses of neuropathic pain medications may be useful for vulvar dysesthesia. The loss of sexual function is a side effect that significantly impacts the lives of these patients and deserves special attention from the healthcare provider (6).

Jole

Jole is a beautiful woman in her sixties. She recently retired from a rather demanding managerial job that may have distracted her from her personal issues. Jole has been suffering from Lichen Sclerosus for about ten years, experiencing frequent symptoms of irritation and burning which, along with

the appearance of her external genitalia, indicate an advanced stage of the disease. After addressing the organic aspect of the problem, Jole angrily reveals that she has stopped her sexual life with Jacopo, her husband, for years. Considering the discouraging appearance of her external genitalia, I dare not utter the word "sex" and decide not to talk about sexual rehabilitation yet. We meet a number of times to adjust the therapy, and about a year and a half after the first visit, symptoms and appearance of her external genitalia have significantly improved. With great caution, I decide to broach the topic of sexuality. Jole lights up, she is excited, and promises to start following the recommendations of Behavioral Sexual Therapy that very day (7). Without a doubt, Jacopo will participate eagerly, so we decided to explore this new opportunity together.

Endometriosis

Endometriosis is a chronic disease characterized by the presence of endometrial tissue outside the uterine cavity where it causes an inflammatory reaction. Its locations include the ovaries, fallopian tubes, rectal or bladder wall, and along with dissemination in the pelvis, it negatively impacts a number of functions: it causes spontaneous pelvic pain, pain during menstruation, urination, and defecation. When endometriosis affects a teenage girl, the first symptom is worsened menstrual pain. But sexual life is not spared! In adult women who are sexually active, pain during intercourse becomes the most difficult symptom to bear because it changes, and not for the better, the harmony of the couple's relationship. Chronic pelvic pain, characterized by spasms, is prevalent in endometriosis and is caused by nodules and adhesions scattered on organs such as the intestines, bladder, rectum, ovaries, and uterus, in addition to infiltrations in the peritoneum.

This spasmodic pain originates from every organ involved, making the symptoms severely debilitating. In addition to a significant reduction in quality of life, these pains are responsible for dyspareunia that limits the sexual life of patients. During intercourse, movements and pressure stimulate tissue nodules located in the pelvis causing contractions, reduced perception of sexual pleasure, and difficulty achieving orgasms. This pain, which recurs with every intercourse, inhibits the physiological response to erotic stimulation and undermines expectations of sexual satisfaction. Patients develop anxiety, anticipation of pain, and loss of desire. When endometriosis infiltrates the ligaments of the uterus and vagina, there is a decrease in lubrication and intensity of erotic sensations. This phenomenon

could be attributed to the dissemination of nodules, which alters the innervation and blood supply to these organs (8). Dyspareunia, the sexual pain that negatively influences the romantic relationship of patients, can occur during penetration or during intercourse, partly depending on the localization of nodules and partly on the diffuse inflammatory state in the pelvis. During these periods of suffering, couples who are able to communicate openly have the opportunity to preserve the harmony of their intimate relationship through gratifying erotic activity that is open to sensual stimuli but avoids pain (9). Harmonious couples can adapt their usual behavior by avoiding penetration and maintaining pleasure in other ways while waiting for healing. On the contrary, inexperienced or conflicted couples and patients without a stable relationship may encounter greater difficulties in overcoming the problem, risking to give up on sexuality altogether. With the experience of pain already endured, many patients expect to experience pain at every erotic encounter and, understandably, try to avoid it. The experience of pain leads patients to shy away from all manifestations of intimacy that could trigger desire. However, "remaining cold" is not an effective solution, as it makes patients feel guilty and unfeminine. Feeling inadequate and losing the sense of one's femininity is an additional wound for patients who must face physical pain and the relinquishment of emotional satisfaction, along with a change in romantic intimacy, influenced by these negative symptoms. The discomfort from the decline in the sense of well-being and the limitation of normal activities adds to the worsening of subjective body image, as many patients report. A body that causes pain instead of joy does not deserve aesthetic appreciation. It is understandable that these bitter thoughts further limit sexual function to the point where some patients become abstinent. However, it is important to emphasize that, as is often observed in the field of human sexuality, emotional suffering from lack of gratification can be valuable because it is the lever that moves motivation and forces one to confront the problem. In recent decades, Medicine, and particularly Obstetrics and Gynecology, have developed numerous subspecialties. It is understandable that a gynecologist, specialized in the diagnosis and treatment of endometriosis, after performing an ultrasound diagnosis, prescribing medications, and performing surgical interventions, may not also dedicate themselves to sexual rehabilitation, which represents an area of work quite distant from their expertise and clinical experience. I emphasize this aspect to advocate for those colleagues who, despite performing an extremely complex job, are sometimes reproached for neglecting the aspect of sexuality. This is unfair because the treatment of sexual dysfunctions, whether secondary to an organic condition or not, requires specific skills: medical training for prescribing medications

and knowledge of sexual behavioral therapy techniques necessary to modify dysfunction factors. As observed in other conditions causing dyspareunia, women with endometriosis are not particularly satisfied with their sexual lives and may even develop a certain aversion, regardless of whether they are satisfied with the harmony and balance of the relationship. Additionally, the disease has a negative impact on their partners, who may desire a greater frequency of intercourse but refrain because they know that sexual activity causes pain. Despite the pain, many patients remain active because they want to maintain stability in their relationships or are seeking pregnancy. We know that endometriosis causes a reduction in fertility and that reproductive difficulties can generate discomfort and lower satisfaction, ultimately becoming a factor of instability in the relationship. The motivations of these patients are easily understandable, but suffering unnecessarily makes little sense! For them, it would be advisable to rely on an experienced doctor to incorporate behavioral strategies and maintain a rewarding sexual relationship (10).

Hypoestrogenism

This condition occurs when estrogen levels are lower than what is considered normal (physiological) for childbearing age. It is the typical sign of menopause but can also occur in cases of infertility and as a side effect of endocrine disorders affecting women of fertile age. For example, it is found in ovarian insufficiency, secondary amenorrhea, and in response to certain medications. The reduced production of estrogens also occurs inevitably with the surgical removal of the ovaries, as happens in extensive uterine fibroids, in endometriosis, and in some cancer pathologies that require hormonal suppression to control the main disease. In each of these cases, the atrophic condition is independent of the patient's age. Estrogens play a role in regulating cognitive function, mood, the cardiovascular system, and bone metabolism. Their main responsibility is to regulate fertility and the function of the female genital tract as a whole, ensuring the physiological status of the uterus, ovaries, vagina, and vulva. When hormonal support is lacking, these organs lose the ability to function properly, and the condition that arises is called vulvovaginal atrophy or urogenital atrophy.

The most exhaustive and complex example of hypoestrogenism is represented by the Genitourinary Syndrome of Menopause (GSM). This condition is essentially a physio-pathology, a process with a negative impact on the physical and psychological well-being of the patient, but which stems from

a normal and inevitable event: menopause. GSM is a chronic and progressive condition characterized by a wide range of symptoms affecting the vulva, vagina, and lower urinary tract, including the urethra and bladder. It's a new term for an old problem! GSM represents the association of two conditions, vulvovaginal atrophy and lower urinary tract symptoms. The term GSM doesn't add new information to what is already known. Rather, it emphasizes that the two conditions have a similar origin, being caused by the decrease in circulating estrogens. Furthermore, they have a similar parallel course as they worsen progressively over time. The definition, as published in 2014 by the International Society for the Study of Women's Sexual Health and the North American Menopause Society, specifies that the term Genitourinary Syndrome of Menopause refers to the association of symptoms of vulvovaginal atrophy and those of lower urinary tract atrophy provoked by reduced estrogen levels by any cause.

Different patients may experience some symptoms and not others or be more affected on one side or present a mix of manifestations. The state of hypoestrogenism that begins with menopause leads to functional and anatomical changes, which are destined to worsen over the years, affecting the functions defined by GSM: urinary, genital, and sexual functions. This worsens the overall sense of well-being, especially affecting sexually active women. Elasticity, lubrication, pH, and muscle tone are physiological characteristics of the external genitals that gradually deteriorate. Gynecological examination evaluates the loss of muscle tone in the pelvic floor, the decreased sensitivity of the vagina, and the stenosis of the vestibule. With naked eye observation, it is easy to notice the atrophic appearance of the lining mucosa, which appears fragile, pale, with streaks, and associated with a reduction in the vaginal opening. Tissues elasticity, mucosal lubrication, and vaginal pH must be maintained at adequate levels to ensure urinary function, sexual activity, and defense against external microorganisms, and alteration of physiological characteristics has specific consequences at the level of the urinary, genital, and sexual systems.

The urinary system

Atrophic damage weakens the supportive tissues and sphincters of the bladder, bladder neck, and urethra, resulting in a loss of urinary control. The initial manifestations consist of minimal urine leakage of which the patient often becomes aware only when finding wet or malodorous underwear. Over time, the difficulty to control various aspects of the urinary function can lead to incontinence. The faces of incontinence are multiple, each with

some embarrassing aspect that the patient must endure. It ranges from incomplete bladder emptying to true incontinence. In the case of incomplete bladder emptying, the bacterial load in the residual urine causes recurrent cystitis that are difficult to eradicate precisely because of this maintenance mechanism. Incontinence, meaning difficulty controlling the flow, depends on weakening of the sphincters and manifests itself either as more or less abundant leakage or as the urgency to empty the bladder as soon as the urge to urinate is felt. This is the typical "key in the lock" reaction that afflicts many women, who are capable of controlling themselves for a while but unable to hold urine when the urge becomes strong, such as when returning home.

Even the sudden flow triggered by lifting a weight, such as a laundry basket or grocery bags, is caused by the weakening of the pelvic floor muscles that fail to sustain and oppose the increased pressure from the abdomen. Another common side effect of atrophy of the lower urinary tract is the difficulty to control the urge to urinate during sleep. For many, waking up to go to the bathroom becomes an impelling need that interrupts nighttime rest and exacerbates the discomfort of the situation, leading to ongoing fatigue, drowsiness, and difficulty concentrating during the day. The weakening of the pelvic floor muscles is also the cause of an event as embarrassing as urine leakage during sexual intercourse due to the straining of movements. Even cystitis that develops after intercourse in menopausal women can be attributed to the structural changes in the external genitals, which exacerbate and worsen each other. In fact, the repeated cystitis that these women experience result from bacteriuria caused by incomplete emptying of the bladder and from coital movements that facilitate the migration of bacteria from the outside to the bladder itself. Both events are associated with scant lubrication that is not enough to protect the mucous membranes from the mechanical trauma of penetration.

The genital system

Vulvovaginal Atrophy (VVA) is a term that perfectly describes the state of the vulva and vagina when estrogen levels decrease in the blood. The external genitals are the primary target of estrogens, which help maintain their biological functions: acidic pH to inhibit colonization by external microorganisms, lubrication in response to erotic stimulation, and elasticity that allows the vagina to expand to give birth to a baby. When estrogens decrease, these functions gradually deteriorate over the years in a progressive and inevitable fashion. The passing of time is a crucial factor in this

condition affecting even those patients who, in the early stages of menopause, had better preserved their physiological function.

Atrophy is not exclusively characteristic of menopause as it is found in any situation where estrogen levels are significantly reduced, regardless of the patient's age.

The most common diseases that can lead to atrophy include primary and secondary amenorrhea, anorexia, surgical removal of the ovaries, and the iatrogenic effect of medications needed to control estrogen-dependent conditions such as endometriosis or breast cancer. In the case of a woman of childbearing age, atrophy should be treated as early as possible to ensure tissue restoration and the resumption of reproductive life. Indeed, young patients suffer deeply from sexual pain due to atrophy and the resulting abstinence. Together with their young husbands, they desire to live a life and have an intimate relationship that are appropriate for their age and their desire to be a couple; therefore, the limitations imposed by the illness represent a significant mortification.

The difficulty to maintain normal pH values depends on the decreased effectiveness of the vaginal mucosa which, in becoming atrophic, is no longer able to host adequate amounts of lactobacilli. The loss of the acidic environment reduces the formidable natural defense against attacks from external microorganisms and allows the development of various strains of Candida, protozoa, cocci, and mixed flora that reach the vaginal canal from the outside. During the childbearing years, the acidic environment prevented colonization; thus, infections were easily avoided. This is why postmenopausal women are often prone to vaginitis. It's a bit curious to note that the same sensitivity is observed in pre-pubertal girls because they, too, lack the estrogen concentration necessary to inhibit external microorganisms.

Another perhaps less evident but no less important aspect of atrophy, is the weakening of the structures supporting the vaginal vault, namely the pelvic floor muscles. The loss of tonicity causes a disruption of the anatomical connections between vagina, bladder, and uterus, leading to prolapse of these organs and the inability to retain urine.

The sexual function

Hypoestrogenism interferes in many ways with sexuality and worsens the full satisfaction of women who are still sexually active. Even in the absence of a true inflammatory process, dryness, burning, and itching manifest

themselves with continuous irritation that does not foster erotic thoughts. The loss of tissue elasticity and lubrication becomes apparent during sexual activity, making penetration uncomfortable. The elastic component of the tissues surrounding the vaginal canal is replaced by fibrous tissue, which prevents the vagina from expanding easily to accommodate the erect penis.

In the early years of perimenopause and menopause, discomfort is mild and transient, usually disappearing with continued intercourse or the use of local preparations. However, over time, atrophy worsens, likely making penetration and intercourse increasingly difficult. For the same reason, thrusting during intercourse becomes painful. In some cases, severe pain may lead to sexual abstinence, causing grief and loss of the couple's erotic intimacy.

To appreciate how significant the loss of elasticity is, it is sufficient to consider that during fertility, the vagina has the capacity to expand enough to give birth to a child. Furthermore, it is important to remember that the weakening of vaginal structures contributes to the prolapse of the uterus and bladder, exacerbating all the conditions discussed. Reduced lubrication is caused by the deterioration of the functions of the lining mucosa. For the patient, this sensation translates into an unpleasant feeling of dryness, which manifests itself as burning and irritation during thrusting**.** Burning and irritation may disappear during intercourse as long as the mucous alterations are mild, but they become increasingly severe and intolerable over time. The final stage of this condition is the withdrawal from erotic penetration.

When discussing sex, one cannot limit oneself to the obvious organic components, because there are different aspects, invisible to the exploring eyes of the doctor, but of crucial importance for the harmony of a couple. The fantasy of an erotic encounter and the desire for an intimate relationship arise primarily in the emotional sphere of a person, depending on past experiences and the bond between partners. First, there is an expectation that stimulates desire, which, if the expectation materializes in the erotic encounter, is followed by excitement and culminates in orgasm. As we have just seen, vulvovaginal atrophy and the anatomical and functional changes that follow estrogen reduction make penetration painful, decrease pleasure, and block orgasm. In this age group, obstacles to satisfying sexuality have a clear organic origin; but their most significant effect concerns the emotional sphere. A mortifying experience causes loss of desire and negatively impacts the couple’s harmony for sure. Estrogen deprivation is linked to menopause, while other common conditions, such as diabetes or hypertension, can affect men's sexuality by decreasing their capability to have good erections.

Despite sexual behavioral difficulties being common, only a small portion of people over sixty seek help. Why is there this refusal?

Let's consider different scenarios. First of all, it is plausible that the accumulation of difficulties for both partners discourages those who are less motivated to maintain an active sexuality, as well as those for whom sex has never been the strong point in the relationship. For others, we can speculate that perhaps their sexual life has reached a natural conclusion, while a new relationship balance values different interests. Caring for an extended family is no less gratifying! Furthermore, it may be that the couple considers sexual difficulties as a normal aspect of aging that must be accepted. It is not necessarily so! In fact, changes in physiological functions are progressive; and appropriate therapeutic management is crucial for slowing down and alleviating symptoms. Treatment can be mild initially, involving local preparations (both non-hormonal and hormonal) that provide immediate lubrication if used at the time of penetration. Additionally, we use moisturizers that improve the mucous membranes' hydration and should be used regularly, not just upon intercourse. Over time, conditions worsen and it may be necessary to resort to more aggressive interventions with systemic medications or physical treatment. At every stage of the mucous modification, interventions specific to Sexual Medicine are effective in maintaining or improving the elasticity and tone of the structures of the external genitals.

Some considerations on sexual well-being

Sexual well-being depends on health status; but adequate physiological response alone is not sufficient to achieve erotic gratification and orgasmic pleasure. Emotional satisfaction arises from the interest in sex that each person has as a personality trait (a true appetite or "instinct"), from attraction to the partner, and from compatibility in the habits and rhythms of the relationship between two people. Without all of these factors, achieving pleasure becomes difficult. I remember a post-menopausal woman who came to me exclaiming, "I want to come!". Her sexual history had been positive until a few years earlier when a decade-long relationship had ended. After a period of solitude, a new partner appeared whom the lady appreciated for many reasons: his care towards her, good character, culture, and even (why not?) social status. However, she criticized him for a certain clumsiness and lack of style. In short, this gentleman did not seem attractive or emotionally capable of exciting her. Therefore, although he was excellent company, he lacked the power of seduction, essential for a gratifying sexual relation. Before consulting me, on her gynecologist's advice, the lady

underwent several vaginal laser applications aimed at reducing the degree of atrophy and improving her erotic capacity. The laser had done what the laser does well; it had effectively performed its task, improving vaginal tropism, but it had not succeeded in changing the tone of the relationship. Other post-menopausal women show even more diverse nuances of behavior. One patient, Maria, presents with severe atrophy that has prevented intercourse for several years. Despite treatment with local medications for 3-4 years, she has not experienced significant improvement and may require a more aggressive pharmacological approach. Additionally, she appears to be the ideal candidate for a Sexual Medicine intervention, which we decide to try. Her husband accompanies her to every appointment, participating with determination and thoughtfulness; and expressing his desire to resume an active intimate life while not neglecting his wife's needs.

Another patient, Lucia, presents with clinically different characteristics. She has been a widow since the early stages of menopause when the atrophic condition had not yet appeared. She has not had a sexual relationship since then and does not seem interested in seeking one. "Erotic fantasies have passed," she says, "although I would like affection and companionship." Why then does she want to resolve the atrophic condition? Let's hear her words: "The feelings of irritation and continuous burning are unpleasant and make me feel uncomfortable. I want to feel good for myself."

We have examined three clinically similar patients, but with different motivations. Their stories remind us that every life choice is legitimate and that all human beings owe themselves all possible well-being. Our studies show that, in motivated couples, non-penetrative sexuality helps maintain erotic intimacy in the face of organic damage, and that the harmony of a couple is what defines sexual discomfort in the broadest sense and indicates the possibilities of treatment (11, 12, 13).

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SEXUAL PAIN OF UNKNOWN ORIGIN

Sexual discomfort, especially in young women, involves multiple factors that are not related to medical ailments. Lack of awareness about sexual matters is often a problem in adolescents who do not receive adequate guidance. For them, misconception about sexual behavior can lead to shame and avoidance to discuss their uneasiness, as well as their expectations and consent in engaging in sexual acts. Additionally, due to ignorance, adolescents may not realize that pain during sex is not normal and certainly does not have to be endured. Needless to say, in this context, young women may not see pain as a sign of emotional distress or medical condition, both of which need to be ruled out and receive professional care. Enduring pain in silence is never a smart idea, especially if embarrassment leads to reluctance to discuss difficulties even with one's partner. Lack of communication and fear of rejection are the ultimate straws that can cause potentially serious consequences for young, inexperienced women. In a circular fashion, factors such as negative experiences or anxiety can affect the perception of touch on the skin during sexual activity, amplifying the intensity of pain. Even with no physical cause, skin and genital sensitivity is enhanced and made unpleasant by psychological distress.

It is impossible to determine how many women under the age of 18 experience pain during intercourse. Low desire, decreased lubrication, and difficulties with orgasm likely contribute to coital pain in adolescents. Studies indicate that almost half of women suffering from painful intercourse would not stop making love despite pain, some others would feign pleasure, and most would not tell partners about their discomfort. What are their motives for sacrificing themselves?

Most adolescents explain that having intercourse despite pain is an affirmation of being a real woman, being interested in sex and capable of giving pleasure, and fosters feelings of physical closeness, while also avoiding rejection (14).

The experience of sexual pain generates significant emotional distress and lowers self-esteem in young, otherwise healthy women. Upon close observation, it appears that these women experience inner conflicts related to sexuality, relationship, and intimacy. They may not see themselves as

desirable sexual partners and may have less life satisfaction. When there are no physical causes, painful sexuality coincides with lack of desire and it is likely to occur more often in individuals with psychological problems and depression.

While the relationship between painful sex and depression is well documented, other factors may also be involved. Longitudinal studies show how loneliness has significant psychological implications in the development of depression in fragile populations such as young people, the elderly, and adults with illness. For them, loneliness also means feelings of isolation without having someone to talk to about their condition of pain. Furthermore, the perceived lack of understanding and support from partners, friends, and medical professionals make them feel even lonelier. Data indicate that loneliness mediates the relationship between increased pain during intercourse and depressive symptoms (15)

Sexual pain is associated with mood disturbances in women who have lower self-esteem, feel less feminine, less desirable and less confident about their sexuality. They are also less assertive in communicating their needs and difficulties to their partners (16). Furthermore, dyadic sexual communication seems associated with women's pain intensity, sexual functioning, and depressive symptoms. Conversely, better intimate communication between women with pain and their partners was associated with the women's greater sexual functioning, greater relationship adjustment, and lower sexual distress (17).

Educational and cultural factors, along with social norms, attitudes and expectations can influence sexual behavior and impact a person's own sexuality and emotional balance. To maintain good emotional well-being while facing social challenges, individuals may benefit from consulting with health care professionals and confronting imposed, constructed ideals.

Pain threshold

Dyspareunia, a Greek word that means pain at intercourse, is a symptom that is often found together with most disorders of the lower genital tract. Some of these, vaginitis for example, are temporary and easy to diagnose and cure. Others need lengthy treatments, as with the atrophic changes caused by hormonal imbalance. Still others do not improve easily, as in the case of extensive perineal scars from to a difficult vaginal delivery. However, each disorder can be diagnosed on the basis of its clinical manifestations, naked eye observation, bimanual exploration and ultrasound

scans. Moreover, infectious etiology is diagnosed by simple laboratory tests that determine the presence of different pathological microorganisms.

When burning or sharp pain occurs with light pressure, such as when sexual penetration is attempted, and without visible signs of a disease, we must suspect a functional vulvar hyper-reactivity, namely increased sensitivity to a given stimulus.

The intensity of the pain varies and can affect different parts of the external genitals and the pelvic region. This pain is referred to as superficial when it is felt in the vulva or vagina during penetration and deep when it is felt in the pelvic area as intercourse progresses. Whether superficial or deep, it arises with penetration and subsides when pressure ends, but it can last for a few hours or a few days after sexual contact has been interrupted**.** When it is stimulated by bimanual exploration or during gynecological treatment, the pain has the same characteristics, but to a lesser degree. In this case, too, it may continue well after the actual examination. Finally, it should be stressed that a burning pressure pain may arise spontaneously even when there is no pressure stimulus.

Is it possible that patients with sexual pain have a lower pain threshold? In other words, are they hypersensitive, developing a pain reaction even with stimuli of low intensity? A number of investigations have evaluated the pain sensitivity of the affected women. What did they find?

The pain threshold in the genital area in women who experience pain on penetration appears to be considerably lower than that of well women of a similar age. This characteristic remains stable over time and indeed is associated with a reduced tolerance to pain in other parts of the body too, suggesting a generalized systemic hypersensitivity. Recent studies using an algometer, a device that measures the threshold of sensitivity to pressure pain, have shown that the pain threshold in the pelvis and inner thighs of these patients was lower than that of healthy women (18). Data in the literature confirm a higher sensitivity to pressure stimuli and pain in the genitals as well as in a number of body areas. To date, although we do not have unanimous agreement on the exact etiology, it seems that the pathology is influenced by predisposing factors of various different origins. Two factors, probably of genetic origin, are a generalized hypersensitivity to pain and touch associated with a low sensitivity threshold in the genitals.

When patients tell us of pain initiated by sex that can last for hours and even days after intercourse, we must consider a possible diagnosis of Genito-