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## Female sexual function in urological practice

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## **CHAPTER I**

# General introduction

### **UROLOGY AND FEMALE SEXUAL FUNCTION**

Sexual dysfunction in women is a multifactorial and multidimensional condition combining several biological, psychological, medical, interpersonal and social components. The World Health Organization defined Sexual dysfunction as “the various ways in which an individual is unable to participate in a sexual relationship as he or she would wish”. The Report of the International Consensus Development Conference on Female Sexual Dysfunction (FSD) classified sexual dysfunction in women into sexual desire disorders, namely, hypoactive sexual desire disorder (HSDD) and sexual aversion disorder, female sexual arousal disorder (FSAD), sexual orgasmic disorder and sexual pain disorders (dyspareunia, vaginismus and non-coital sexual pain disorder) (1). According to the National Health and Social Life Survey, the most frequently cited study (2) approximately 43% of American women suffer of sexual disorders. Unfortunately, this study does not provide information on prevalence rates in women over the age of 59 and does not include in the definition an element of personal distress caused by the dysfunction.

Why should the urologist play a role in managing female sexual dysfunction? The relation between urological disorders and female sexual function was poorly studied and understood. The contributions of urologists like Raz (3), McGuire and Kursh (4) supplied a more holistic few on female urology including female sexual function. Women’s specific anatomy, and specially the role of the pelvic floor, was reconsidered, with increasing attention to the physiologic role of sexual hormones and bladder, genitals and sexual response.

Based on everyday clinical practice and according to the most recent publications (5-7), there is a relevant correlation between urogynaecological conditions and FSD. In this scenario, the role of the urologist in the management of FSD should be to attempt to reveal, diagnose and treat sexual disorders in female patients suffering from urological problems or refer patients to a sexologist. Besides that, urologist and other surgeons should try to avoid FSD as collateral damage due to surgical procedures.

### **UROLOGICAL ANATOMY EN FEMALE SEXUAL FUNCTION**

Although 30%-50% of women suffer from sexual dysfunction, only recently has more medical and clinical research been focused on the problems related to urological and surgical and gynecological operations (8-10). The inferior hypogastric plexus, also called ‘pelvic plexus’, is the pathway for efferent and

afferent sympathetic and parasympathetic autonomic nerves and some sensory nerves supplying the rectum, uterus, vagina, vestibular bulbs, the clitoris, bladder and urethra. The superior hypogastric plexus and the hypogastric nerves are mainly sympathetic; the pelvic splanchnic nerves mainly parasympathetic. Theoretically, disruption of the pelvic plexus could lead to altered vascular function during sexual arousal and possibly disordered orgasm. The pelvic plexus supplies the blood vessels of the internal genitals and is involved in the neural control of vasocongestion and, consequently, the lubrication-swelling response. The innervation of the vaginal wall originates mostly from the pelvic plexus. In addition, significant devascularization of the clitoris often occurs with removal of the distal urethra, affecting subsequent sexual arousal and desire. Recently Yucel et al reported that the cavernous nerve supplies the female urethral sphincter complex and clitoris (11). The branches of the cavernous nerve were noted to join the clitoral “dorsal” nerve at the hilum of the clitoral bodies. These branches stain positive for neuronal nitric oxide synthase. The cavernous nerves originate from the vaginal plexus component of the pelvic plexus. They travel at the 2 and 10 o’clock positions along the anterior vaginal wall, and then at the 5 and 7 o’clock positions along the urethra. In this study the cavernous nerves in fetuses were clearly demonstrated, highlighting the importance of further studies in adults to define the anatomy accurately to preserve their integrity during reconstructive and ablative surgery. The sensation of the external genitalia is not related to the pelvic plexus: pudendal nerve branches are the somatosensory pathways for the vulva.

## **UROLOGICAL COMPLAINTS, DISEASES AND FEMALE SEXUAL FUNCTION**

FSD is commonly reported in relation to Lower Urinary Tract Symptoms (LUTS) in general (12-14) and Urinary Incontinence (UI) (15). Also related to pelvic floor disorders FSD is prevalent and a challenging problem. These disorders include prolapse of the uterus, cervix, vagina, bladder and rectum as well as incontinence. Women with pelvic floor disorders often have co-existing urological, gynecological, faecal and sexual complaints (16).

UI in women is a highly prevalent condition in urological and gynecological practice. In 2002, Shaw (15) reported the results of a review of all primary epidemiological articles reporting the prevalence of “sexual incontinence” and the impact of UI on sexual function in women. Notwithstanding the great methodological heterogeneity of the different studies, the analysis showed a prevalence of FSD ranging between 0.6 and 64% among studies. In a review by Barber et al (17) there was a greater incidence of sexual dysfunction in women who

were incontinent or had LUTS, compared to the general population.

In a review published by Salonia et al.(18), the diagnosis of overactive bladder (OB) negatively the quality of life and sexual function of women.

In specific urological diseases like Interstitial Cystitis/Pelvic Pain Syndrome (IC) sexual dysfunction is an important issue (19-21). IC is characterized by chronic urinary urgency, frequency, and/or pelvic pain in the absence of any known etiology. Several studies have focused attention on dyspareunia as one of IC related symptoms in female patients (22-25). The importance of sexual counseling in relation to IC is clear.

The influence of Spina Bifida on female sexual function was nicely reviewed by de Vylder et al (26). Because of the growing life expectancy of Spina Bifida patients, there is more interest in sexual functioning. How to deal with this topic in Spina Bifida treatment is nicely described by Verhoef et al (27). She gives a good advice and format of the interview on sex education, relationship and sexuality for young adults with Spina Bifida.

## **IMPACT OF UROLOGICAL SURGERY ON FEMALE SEXUAL FUNCTION**

The impact of urological surgery on female sexual function may be the result of neurovascular damage or disturbance of vaginal anatomy.

Female sexual dysfunction is prevalent after radical cystectomy, and especially in a younger population, sexual dysfunction is an important concern. With improved detection and oncological control of bladder cancer, earlier surgical therapy can be tailored allowing preservation of neurovascular bundles and other adjacent structures such as the vagina and cervix. Historically, radical cystectomy removed or damaged the neurovascular bundles on the lateral walls of the anterior vagina, causing significant devascularization of the clitoris. Clitoral devascularization also occurs with removal of the distal urethra. Urethral sparing and neurovascular preservation potentially saves the nerves and vasculature of this region. The first publication on radical cystectomy in relation to female sexual function was published in 1985 by Schover et al (28). More studies on sexual implications followed (29-31). Only recently the first manuscript on nerve sparing cystectomy in relation to female sexual function was published (32).

The close anatomical proximity of the bladder and urethra to the vaginal canal allows an association between lower urinary tract dysfunction and sexual difficulties. The alteration of vaginal anatomy after surgery is another issue related to radical cystectomy but also in relation to vaginal surgery like prolaps (33;34) and incontinence operations. The maintenance of sexual function requires preservation of a vaginal length and caliber adequate for sexual intercourse and

preservation of the innervation of the clitoral nerves.

Another issue is the influence of surgery on body image in general but also specific to operations like urostoma (35). The impact of the urostoma on female sexual function is seldom discussed by urologists and hopefully discussed by the stoma-care nurse. This is an area of sexual function in urological practice that needs attention.

### **SEXUAL ABUSE IN UROLOGICAL PRACTICE**

The importance of discussing abuse with a patient before performing an invasive gynaeco-urological examination is clear. Survivors of sexual abuse rated the gynecological care experience more negatively than the controls, experienced more intensely negative feelings, and reported being more uncomfortable during almost every stage of the gynecological examination than the controls. In urological practice, studies on the prevalence of sexual abuse are rare. In gynecological and obstetric care abuse was prevalent in 10-20% (36-40) and 19,4-27,5% in pelvic pain patients (41-43). In general physicians mention many barriers to ask women about sexual abuse, including lack of time and resources of support, fear of offending women, lack of training, fear of opening the “Box of Pandora”. Actually, this is still a “black box” in urology, demanding research and education of urologists.

### **PELVIC FLOOR & SEXUALITY RESEARCH GROUP LEIDEN**

The Department of Urology of the Leiden University Medical Center has a long tradition of male sexual function related research started by Donker who after his retirement described the surgical anatomy of the pelvic autonomic nerves in detail in 1986. Earlier he published with Walsh the article on nerve-sparing radical prostatectomy, as a result of a visit of Walsh to Donker in Leiden in 1981 (44). It is of interest that in the same period Donker did a lot of neuroanatomical research on female cadavers. We were unaware of these dissections until when recently the anatomical archive was moved to a new building. A detail of one of these drawings, is illustrating the cover of this thesis.

In 2004 the Department of Urology founded the Pelvic Floor & Sexuality Research Group Leiden. The aspiration, mission, of the research group is initiating pelvic floor and sexual function related research. In 2004 the first manuscript was published by the group (45) and in the same year Pfizer and “stichting Amsterdam 98” supported the research group by unrestricted grants.

### **OUTLINE OF THE THESIS**

The principle aim of the study was to investigate the prevalence of sexual (dys) function in a urological clinic. Also the prevalence and detection of sexual abuse are discussed as well as the impact of urological treatment on female sexual function.

The study was initiated by the in 2004 founded Pelvic Floor & Sexuality Research Group Leiden.

In chapter two we describe the results on the prevalence of female sexual function in an outpatient urologic clinic related to different urological complaints.

Sexual abuse appeared to be a quite frequent problem in urological practice.

During a pelvic floor evaluation by our physiotherapist 32% of 141 female patients with pelvic floor complaints had a history of sexual abuse. In chapter three sexual abused patients are evaluated in relation to their pelvic floor complaints in order to estimate which patients are prone to have a history of sexual abuse. Chapter four reports an evaluation of a self-administered questionnaire versus a taken questionnaire administered by a pelvic floor clinician in relation to sexual abuse in patients with pelvic floor complaints. The reliability of a self-administered questionnaire in detecting sexual abuse is discussed. Also the literature in relation to pelvic floor complaints and sexual abuse is reviewed.

Research on the influence of urological surgery on sexual function is relative rare in female in contrast to male patients. In chapter five we describe the influence of Tension-free Vaginal Tape (TVT) incontinence surgery on sexual function.

Whether the impact of surgical treatment of stress urinary incontinence (SUI) on female sexual function is related to the procedure as such, in chapter six the influence of TransObturator suburethral Tape (TOT) or Tension Free Vaginal Tape Obturator (TVT-O) is discussed. Also some novel questions are introduced to get more neuro-sexuological specific information after the incontinence operation.

In chapter seven we evaluate the female sexual function and activity following cystectomy. In this study the sexual function after cystectomy and continent urinary tract diversion for benign indications is reported. In order to diminish the impact of a cystectomy procedure on sexual function, the effect of a partial cystectomy procedure of a 32-year-old woman with radiation cystitis is described in chapter eight.

Finally, in chapter nine the results of the presented studies and future prospects are discussed.

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