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# Quality of sexual life after inguinal hernia repair

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## Abstract

Inguinal hernia repair is one of the most common surgical procedures. Post-operative pain is one of the main factors determining sexual life satisfaction and general quality of life. However, not much research has focused on the problem of chronic pain after a corrective surgery and its impact on the quality of human sex life. Recurrent inguinal hernia to a large extent has been reduced due to the use of synthetic mesh, but there was a serious problem - chronic postoperative pain, which significantly reduces the overall quality of life of patients.

**Key words:** inguinal hernia, pain, surgery, sex life, quality

## Introduction

An inguinal hernia is a bulge caused by the dislocation of tissues or organs beyond the abdominal cavity, which is their physiological location. The bulge can enlarge under the influence of e.g. physical effort or coughing [2]. Hernia has been known for millennium (the first description of the bulge of abdominal walls can be found in the Ebers papyrus from around 1552 B.C.). Inguinal hernia is the most common type of hernia, which mainly affects males [1]. The inguinal hernia surgery is one of the most common surgical procedures [3]. At the moment, the gold standard for the treatment of inguinal hernia is the volt-free method introduced by Irving L. Lichtenstein in 1984 with the implantation of a synthetic mesh, it is the best researched and known technique for the provision of open hernia. Relative ease and low perioperative mortality allowed for the introduction of this method during one-day surgery and minimally invasive surgery [1,4]. Postoperative pain is one of the main factors determining sexual life satisfaction and general quality of life. Increased pain after surgery results in prolonged convalescence and prolonged recovery time to complete physical fitness and work [5].

## Sexual life

Man's sexual activity belongs to his social behaviour and is an inseparable element of human life. The Declaration of Sexual Rights of the World Health Organization (WHO) states that sexual pleasure is a source of human well-being in the physical, psychological, intellectual and spiritual spheres. Therefore, man’s sexual needs satisfaction has got a huge meaning, because they are considered one of the strongest motives of his actions. Satisfying sex life significantly increases the overall quality of life [6]. The WHO definition of health defines it as "a state of full physical, mental, social and spiritual well-being, not just a lack of disease or disability" [7]. Moreover, in the last few years quality of life has been recognized as an integral part of the overall concept of human health, currently it is an important parameter of the clinical condition and assessment of treatment outcomes. WHO, along with the General Surgery Office in the United States, agree that sexual activity is a fundamental human right and an integral part of life [8]. Failures in sexual life can significantly affect self-esteem and personal satisfaction; the consequence of lowering the quality of life may be a negative impact on human health [9]. Problems with the sphere of sexuality are an important factor in the development of depression.

The appropriate level of knowledge about sexual dysfunction is very important, but so far it is often a taboo subject, which causes a barrier against talking about it with the doctor. General practitioners should discuss with their patients about their sex lives, conduct them on a visit, or make patients available to complete surveys that may be more comfortable. It is very important to acquire the ability to talk on shameful subjects and learn how to solve these problems [7].

A study conducted by Lew-Starowicz on sexual health allowed us to analyse the level of acceptance of interviews between doctors of various specializations with the patient about his sex life. As many as 74.88% of physicians invited to participate in the study resigned immediately or during the course of the study - thus expressing their reluctance to talk about problems related to sex life. Only 25.12% of all physicians included in the study returned completed surveys. Increasing awareness of the society in matters related to sexuality, changes occurring in sexual customs, the pressure of information connected with sexual health in the media cause that disorders in the sphere of sex are an increasingly important problem in medical practice. Thanks to the spread of this subject, it ceases to be a taboo subject, and patients are often less ashamed to seek help in solving their problems with specialists.

The question about sexual health problems should be an integral part of the medical history, unfortunately most doctors do not touch this topic at all. Lew-Starowicz reports that 79% of men and 67% of women in the adult population of Poland have never been asked about a medical visit for sexual health, and as many as 80% of patients expect a doctor to start a first conversation on the subject. Sexual health aspects are very important and should be an inseparable element of medical history [10]. Physicians and patients regard sexual health problems as one of the most difficult topics in the doctor-patient relationship. The reasons for such a large number of doctors who do not undertake the topic of sexual health can be traced to the inability to talk about the subject with the patient, lack of awareness of the importance of the problem and inappropriate level of physician knowledge. Some of the doctors do not take up the topic because they are afraid of frightening the patient, receiving questions as excessive curiosity. It is worth getting the patient's consent to ask questions about sexual life before the start of the interview [11-15].

**Pain**

Pain is the most common symptom in medicine [16]. The definition of pain according to the International Association for the Study of Pain states that pain is an unpleasant sensory and emotional experience related to the current or potential tissue damage or experience described in the category of such damage lasting longer than 3 months [17]. The pain acts as a

warning, its occurrence is a sign of illness or injury and it is a possible threat that allows to release a reflex reaction to reduce the effects of damage, and thus provides for survival. When the pain becomes chronic, it ceases to be a warning, and it becomes a disease in itself, it provides unpleasant sensations, thereby reducing the quality of human life [16].

The occurrence of pain after inguinal hernia repair was recognized for the first time in modern times by the Canadian R.K. Magee in 1942, described this pain as "Inguinofemoral Causalgia" [17]. Neuralgia in the area of the groin after surgery is a pain of the character of pulling, tearing and pricking, patients describe it as emaciated. The main cause of pain is compression or damage by means of a seam, garter or clip of one of the nerves present in this area (ilioinguinal, genitofemoral, iliohypogastric or lateral cutaneous nerves of thigh). The occurrence of pain usually occurs immediately after surgery, but it can also occur later. Pain following surgery can be acute or chronic [5].

Acute pain is more common, may be mild or moderate, and is associated mainly with surgery itself. According to followers of the tension-free method with the use of a mesh, it is associated with less pain than pain in the case of voltage methods - however, no exact scientific studies have been carried out confirming this relationship. Studies, on the other hand, show lower pain after inguinal hernia repair using the laparoscopic method compared to the open classic method. The highest intensity of differences in the occurrence of pain after surgery is observed within the first 24 hours after the operation, and it equilibrates in the period of about 3 months after the surgery.

Chronic pain is associated with the frequent occurrence of pain in the inguinal hernia prior to surgery, patients report their occurrence during rest and physical activity. In Rychlewski et al., approximately 1-2% of patients report severe pain and in 10-18.2% pain occurs during physical activity. It was shown that in the case of 80% of patients, pain was present even before the surgery [5]. In Reinpold's studies, the pre-operative pain index was 41%, and after 5 years 16.1% of patients reported pain and 20.3% had a sensory disorders in the groin region [19]. Aasvang and Kehlet report that inguinal hernia surgery is associated with the risk of chronic pain in about 10% of the operated patients. Available studies suggest that pre-operative pain may increase the risk of chronic pain, but more detailed research is needed on this topic [20].

Researchers prove that the inguinal hernia repair procedure reduces pain but does not mean its elimination. Another reason for the relationship between the presence of pain before the hernia operation and the pain persisting after the operation is the fact that the operated patients report minimal pain at rest and no pain during physical activity a year after the repair procedure. Randomized studies still do not explain much about the relationship between the

influence of the mesh on long-term persistence of pain after inguinal hernia [5]. Until now, many outcomes of hernia operations have focused mainly on relapses, but with the introduction of methods using grids, the relapse rate has dramatically decreased. On the other hand, there was an increase in interest in chronic pain after the repair operation as a side effect. In a large Swedish study of 2853 patients, the incidence of residual pain after inguinal hernia repair was evaluated to identify factors associated with its occurrence and consequences for the patient. In the period from 24 to 36 months after surgery, almost 30% of patients reported pain or discomfort, and nearly 6% of patients reported intensity pain that distracted the patient during daily activity. In addition, in 11.3% to 14.2% of operated patients, this pain affected walking, standing and sitting causing social disability [21]. Similar results have been shown by the Bay-Nielsen and Poobalan studies [22, 23]. In addition, Poobalan et al. in a review of 40 different studies reported that the incidence of chronic pain varies from 0% to 63% during one year after the corrective surgery. Such a large difference results from discrepancies in measurements, definitions and pain assessment using various methods [24]. Condon received very different results, which states that chronic pain affects only 1% of patients [25]. It has been proven that high pre-operative pain results in an increased risk of postoperative pain [21, 22]. This may suggest that the inguinal hernia was already complicated before the surgery. The role in the perception of postoperative pain play tension, entrapment, inflammation of local nerves, as well as psychological sensitivity or increased sensitivity to pain. In addition, pain may also occur before surgery and be unrelated to inguinal hernia, and after surgery remains.

The obtained results emphasize that chronic pain should be perceived as an important factor in the results of hernia surgery [21]. However, there is still a lack of well-researched studies on the extent to which chronic pain impairs functioning. Surgeons know that this pain can occur after a corrective surgery, but the exact causes have not yet been well described [22].

**Types of pain**

In a review of available literature, chronic pain due to its origin is divided into three types: somatic, neuropathic and visceral. The most common type is somatic pain, the cause of which is the damage to the pubic nodule when attaching the mesh or damage to deep muscle layers. Neuropathic pain is most probably caused by the damage of ilioinguinal and iliohypogastric nerves. Primary nerve injury can be caused by breakage, crushing, electrical damage or by means of attached sutures. Secondary nerve damage is seen in local inflammation. Neuropathic pain is described as a feeling of pulling, numbness, jerking and stabbing. The occurrence of this type of pain is very often delayed from a few days to weeks after the repair

operation. The last type of pain described is visceral pain - inter alia pain during ejaculation due to dysfunction of structures around the urethra, narrowing of the seminal tube due to scarring or spraining. To avoid chronic pain caused by nerve damage, the knowledge of the anatomy is very important, in particular the course of the skin nerves, as well as anatomical differences. During surgery, sensory nerves should be preserved, but this is not always possible [24]. Careful delamination of the inguinal canal with uncovering nerves does not reduce the fact that the nerves are exposed to the foreign body which is the synthetic mesh [26].

**Nerves**

Identification of the nerves (ilioinguinal, genitofemoral and iliohypogastric) in the surgeon's area is of great importance in the long-term effects of inguinal hernia repair. Damage to these nerves may result in the development of chronic pain after surgery, but there is still a lack of detailed research on the subject. Several studies have analyzed testicular pain, which occurred in 1-6% of patients, erectile pain in three studies was 1.2% -3%, 1.5% of patients had pain during ejaculation. Kernel pain may be caused by nerve damage or ischemia. In most of these studies, there are unfortunately insufficient descriptions of pre-operative sexual functions. Despite this, it can be assumed that complaints of patients with genital complaints are significant after inguinal hernia, especially for younger men. The basic mechanisms and risk factors of sexual dysfunction are unknown and require more detailed studies [20]. The increase in the frequency of use of synthetic mesh in inguinal hernia operations caused the development of SIN Syndrome (Surreptitious Irreversible Neuralgia). It has been called hidden because its beginning is slow, unexpected and irreversible because the pain progresses, does not weaken and does not respond to the applied treatment. The mechanism of the formation of this pain is seen in the phenomenon of regeneration of cut nerve fragments. It has been shown that cut nerves try to regenerate by developing small branches with a diameter of up to 1 mm. Pores in the mesh are perceived as mini-compartments of biological tissue exposed to chemical and mechanical factors, such as scarring, pressure, entrapment, deformity, swelling or inflammation. Mesh deformations provide additional opportunities to entrap the nerves. The new branches which are created grow into the openings of the implanted mesh and for this reason it is very difficult, and even impossible, denervation of the area with the mesh sewn during the procedure. The need to understand the interaction between polypropylene mesh and human tissues becomes more important than ever [27].

**Sexual functions**

Sonmez et al. conducted a study to assess the sexual function of a person, which can be affected by inguinal hernia and changes after the repair procedure. The study assessed erectile function, sexual desires, functions of sexual intercourse, general satisfaction and satisfaction from orgasm. The study included 47 patients with inguinal hernia. When patients were asked about the cause of improvement in sexual function during 6 months after surgery, 36.1% said that this was due to the disappearance of cosmetic problems (including bulge in the area of the hernia and postoperative scar), and 75% of patients reported a reduction in pain . Pain is the most important factor determining successful sexual life, and inguinal hernia surgery has positively influenced the sexual functions of patients [3]. Zieren et al., on a group of 224 patients, studied sexual functions before surgery and three and six months after surgery and found that the quality of sexual life improved in patients with pre-operative dysfunction and had no effect on patients with normal preoperative sexual life [28]. ]. Zieren et al. in the next study assessed the relationship between the used synthetic mesh and fibrosis, which could affect kernel's sexual functions. He showed no evidence of significant impairment of spinal cord structures, and thus sexual function after inguinal hernia repair using a mesh [29]. El-Awady et al. studied the sexual function of 40 patients in the third and ninth month. In the obtained results they found improvement in all parameters of sexual life with the exception of orgasm [30]. Bulus et al. studied the effects of peri-articular fibrosis and kernel's arteries swelling in patients after Lichtenstein-type surgery. The results provided information that the operation had no negative effect on the sexual function of patients [31].

**Summary**

Symptoms associated with inguinal hernia, such as a cosmetic defect in the form of a bulge, feeling of pressure and pain can significantly lead to restrictions in the sexual life of patients. Inguinal hernia repair has a positive effect on sexual function compared to the pre-operative period. Studies show that patients with pre-operative sexual dysfunction have a chance of recovering from a restorative operation. According to the available literature, it can be concluded that inguinal hernia repair has a positive effect on the improvement of sexual function and sex life. Studies on inguinal hernia have so far focused on minimizing relapse, and the prevention of chronic pain may require a slightly different approach. This area of clinical care still receives too little attention from researchers and is a significant problem for future research.

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