

## CHRONIC INGUINAL PAIN AFTER LAPAROSCOPIC TRANSABDOMINAL PREPERITONAL HERNIOPLASTY IN INGUINAL HERNIA

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*The ubiquitous application of inguinal hernioplasty performed by various methods does not exclude the occurrence of certain late postoperative complications, the cause of which is sometimes extremely difficult to establish. The article describes a clinical case of observing a patient with chronic postoperative pain 6 months after inguinal hernioplasty using the TAPP technique. When studying the possible causes, the presence of a fixing material (tacker) in the triangle of pain was found, the removal of the latter led to a complete leveling of the clinical picture. Thus, despite the simplicity of performing inguinal hernioplasty, the surgeon's desire for excessive fixation and a violation of the principles of this operation can lead to undesirable complications and temporary disability of the patient.*

**Keywords:** inguinal hernioplasty, chronic postoperative pain, treatment.

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### BACKGROUND

In spite of the fact that inguinal hernioplasty is the most common surgery performed in modern surgical practice, and that many young surgeons work with it independently, there are a number of complications in the postoperative period that require further investigation and urgent attention [1].

A huge number of proposed options for hernia plastic surgery have been put forward. However, these options have consistently demonstrated their less conformity to international standard, hence the constant search for an ideal technique for performing this surgery. The European Herniological Society, in conjunction with the International Society for Endoscopic Surgery of Hernia and the European Associa-

tion of Endoscopic Surgeons, developed the International Guidelines for the treatment of inguinal hernia. On this basis, the main types of inguinal hernioplasty includes Lichtenstein plastic surgery, totally extraperitoneal hernioplasty (TEP), and transabdominal preperitoneal plasty (TAPP) [2]. The choice of the type of plastic surgery is dependent on the experience of the surgeon as well as availability of standard material and equipment in the operating room. However, with recurrent inguinal hernias, a number of reputable centers have recommended an approach for performing classical hernioplasty in the event of a relapse after laparoscopic technique and, conversely, laparoscopic method should be applied in the event of a relapse after open hernioplasty [2, 3].

One of the uncertain complications arising from hernia repair is the neurological disorder manifesting as paresthesia, pain, foreign body sensation, among other neurological disorder sensitivity [4]. Regardless of the technique used, a major complication of inguinal hernioplasty in the postoperative period is the chronic postoperative pain which occurs in 8–15%, and according to some reports, in 40% of patients [5]. The International Association for the Study of Pain and, in conjunction with World Health Organization (WHO), included chronic postoperative pain in the 11<sup>th</sup> edition publication of the International Classification of Diseases. According to modern criteria, chronic postoperative pain is considered as the pain that occurred after surgery, with the progression of clinical symptoms lasting for at least 3–6 months, resulting a reduction in the quality of life of patients. Chronic postoperative pain is localized in the area of surgery, and/or in the area of innervation of a nerve located within the area of surgery. It presents dermatographic symptoms in the area of the irritating nerve [6, 7]. Certain factors affecting the incidence of chronic postoperative pain, as well as their prevention strategies, have been identified in spite of the method of hernioplasty, tension-free plastic repair, the use of fewer fixatives (sutures, agraffes, tackers), the use of resorptive materials, adhesive compositions, self-fixing prostheses, rejection of titanium tackers, the choice of a less traumatic variant of hernioplasty (including rejection of the autoplasmic stage, isolation of spermatic cord and excessive fixation of the prosthesis) [4]. Several studies have emphasized the advantage of endoscopic hernia repair techniques over open interventions [8]. However, there are no reliable international multicenter studies proving the advantage of one type of plastic surgery over the other [9, 10].

The widespread use and the large number of performed hernia repair result to some inac-

curate predisposition of surgeons towards the methodology for performing this surgery, making technical errors. One of these errors is the excessive fixation of the mesh prosthesis and its fixation in the “forbidden zones”, such as the “triangle of pain”, which is the area around the ilioinguinal, iliohypogastric, genitofemoral, and lateral cutaneous nerves of the femoral and inguinal region. Fixation of the prosthesis within this area can lead to the development of chronic excruciating postoperative pain which, sometimes, disables the patient [4].

## CLINICAL CASE

### Patient information

Patient S., 52 years of age, was admitted on a scheduled basis to the surgical department of the St. Luka Clinical Medical Multidisciplinary Center of V.I. Vernadsky Crimean Federal University with complaints of pain in the pubic region which irradiates to the anterolateral surface of the thigh, aggravated by physical exertion, presenting paresthesia in the inguinal region and on the inner surface of the thigh, a and foreign body sensation in the area of the surgery. These complaints appeared on the first day of the postoperative period, when TAPP was performed at one of the clinics in the Republic of Crimea. The patient was discharged regardless of with these complaints from the hospital, and was treated on an outpatient basis. However, blocking was repeatedly performed on him, and physiotherapeutic procedures and drug medications were prescribed. Over the past 6 months, the pain was intensified, propelling the patient's uncontrollably intake of non-steroidal anti-inflammatory drugs (such as nimesil, nise, diclofenac, among others), which unfortunately had a short-term pain relieving effect. As a consequence, the patient quitted his job due to the inability to perform physical work, as well as the development of neurological disorders which appeared due to the sleep interruption caused his pain.

## Examination

Upon examination, the patient's general condition was satisfactory. During the physical examination, a disorder of the sensitivity zone in the innervation of the ileo-inguinal nerve, and the femoral branch of the genito-femoral nerve was recorded. Upon palpation, the mesh implant was found in the area of the prosthesis placement, which caused a lot of pain following its traction with surrounding tissues. A typical clinical examination revealed did not reveal any abnormalities whatsoever.

Ultrasound examination revealed an infiltrate in the pubic area spreading to the urinary

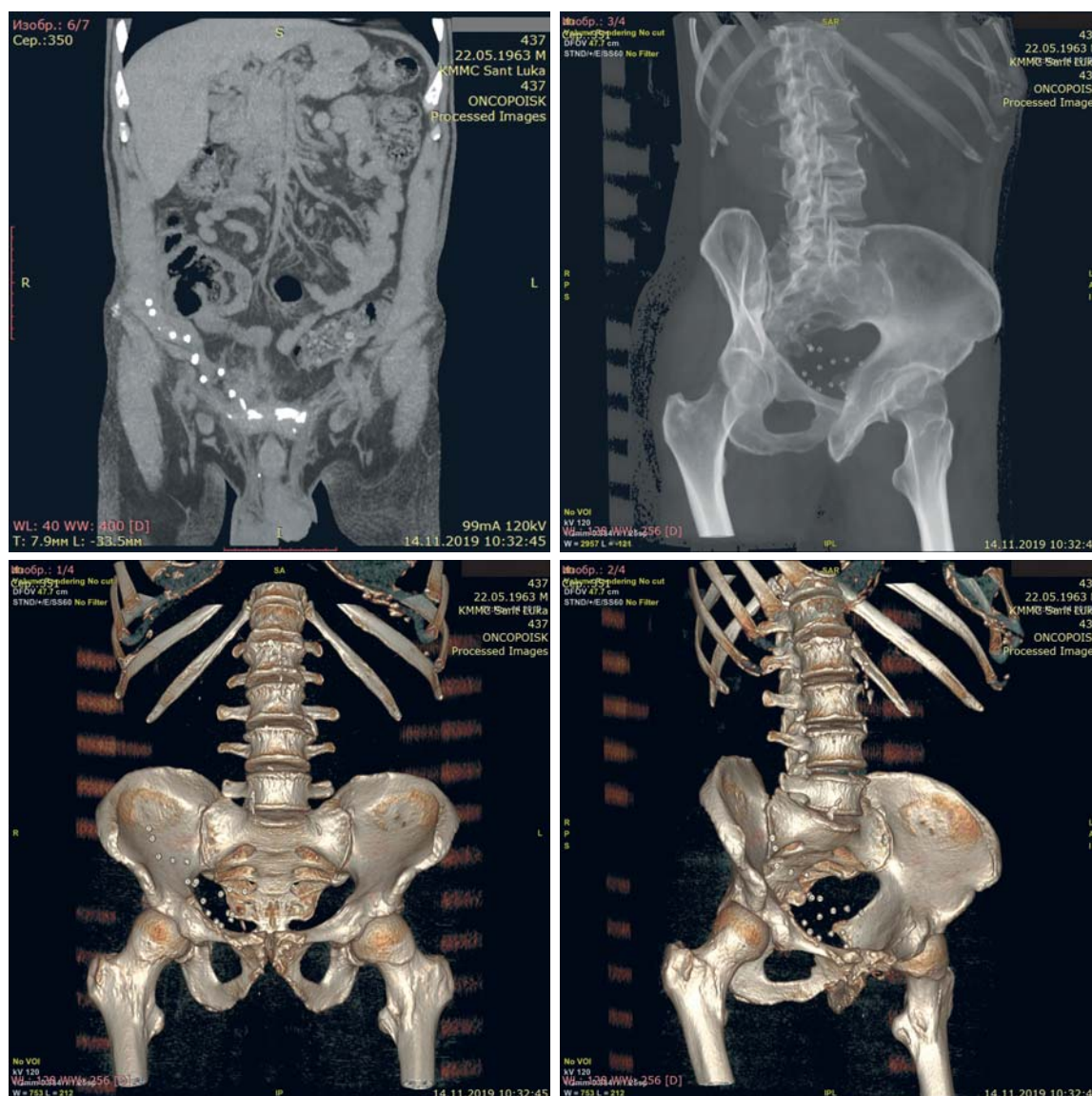
bladder wall. A mesh implant with no signs of inflammation was discovered in the area of the surgery.

Computed tomography showed symphysitis, with the presence of infiltrate in the region of symphysis spreading to the front wall of the urinary bladder. In the right-axis of inguinal region, there was a mesh implant with multiple (No. 22) titanium tackers (Figure 1).

## Surgical intervention

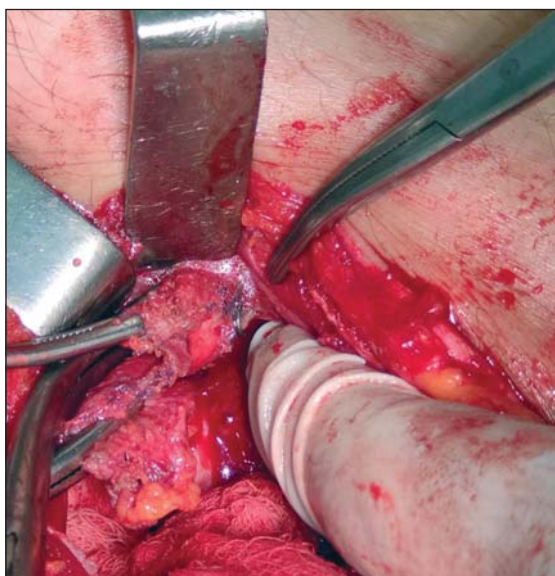
A layer-by-layer approach with pararectal incision into the abdominal cavity was made, and then a mesh prosthesis with multiple tack-

**Fig. 1.** Patient S., 52 years of age: computed tomography of the abdominal cavity and true pelvis.



**Note.** The anterior and lateral views revealed a complication after transabdominal peripitoneal plasty. In the right-axis of the inguinal region, multiple tackers of mesh implant were located.

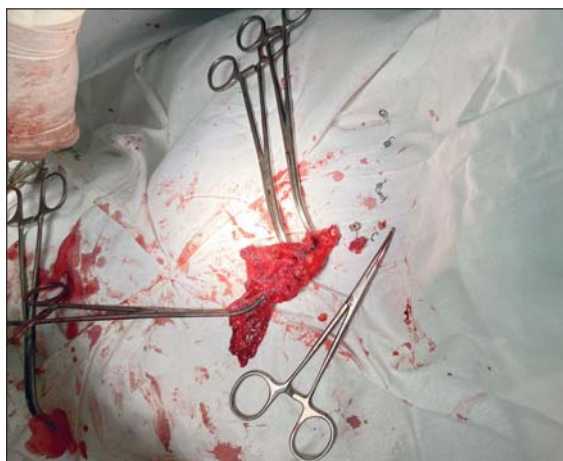
**Fig. 2.** Patient S., 52 years of age: removal of titanium tackers and the mesh implant.



ers was visualized. A total of 22 tackers were unscrewed from the underlying tissues using the Bilioth's hemostatic forceps (Figure 2), a mesh implant was excised (Figure 3), and the abdominal cavity was then drained and sutured in layers.

The postoperative period was uneventful. On the first day, the patient noted the disappearance of preoperative complaints. On discharge, he was physically restored completely, and residual paresthesia was noted in areas of interest. The patient was discharged from the department in satisfactory condition. Further, recommendations of a neurologist were given 3 months after the surgery. He presented no

**Fig. 3.** The mesh prosthesis and tackers removed.



complaints by telephone and was gainfully employed in a new job.

### Discussion

Therefore, pain in the hernia region, and limitation of mobility due to pain and discomfort in the postoperative period may be the reason for a violation of the surgical intervention technique, and traumatic damage to the nerve trunks with surgical material. In this regard, the technique of performing hernioplasty is honed. Although studies are constantly being conducted on the use of various mesh prostheses and suture material, new options for performing the surgery are offered regularly, suggesting that despite the simplicity of performing the inguinal hernia repair, there are a number of complications leading to an impairment in the patient's quality of life and social rehabilitation [9]. Chronic postoperative pain does not occur frequently immediately after surgery and lasts a long time. Reports reveal that pain during the first 3 months after an intervention is not always regarded as chronic postoperative pains, because during this period, it is possible to assess the functional results of the surgery performed, the phenomena of inflammation in the postoperative wound is eliminated, and the body's reaction to the prosthesis is leveled, and in some cases, by the third month, the pain syndrome completely disappears. Another scenario is when the pain lasts for 6 months after the surgical intervention, that is, when other temporary causes are eliminated. The source of chronic postoperative pain, as well as, the possibility of its elimination should be investigated [10].

It should also be noted that there are several possible causes of chronic postoperative pain in inguinal hernioplasties [4], which often does not establish the reliable source of the complication. A significant difference in the occurrence of chronic postoperative pain between open and endoscopic hernioplasties, as well

as between prosthetic and autoplasmic methods, are yet to be established. If conservative methods of treating chronic postoperative pain are ineffective, neurolysis with excision of all cicatricial structures together with the prosthesis is necessarily performed in accordance to the recommendations of the European Hernia Association of 2013 [2, 4].

## CONCLUSION

On a final note, at the moment there is no “gold standard” for hernioplasty based on any technique. The choice of treatment method solely depends on the experience of the surgeon, and the equipment of the medical institution. However, in private medical structures, the patient makes the choice of the method of hernioplasty, which is not a medically appropriate. In our opinion, the choice of treatment for inguinal hernia should be individually differentiated, considering factors such as age, concomitant pathology, patient lifestyle, and

degree of destruction of the inguinal canal tissues.

## CONTRIBUTION OF AUTHORS

V.Yu. Mikhaylichenko performed material processing and text writing; E.Ya. Kerimov, N.E. Karakursakov performed collection and processing of the material; V.A. Chernorotov developed the concept and design of the study; I.V. Gladilin was involved in editing; S.A. Samarin was responsible for the unification of all parts of the article. All authors made a significant contribution to the research and preparation of the article, read and approved the final version before its publication.

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## CONFLICT OF INTERESTS

No conflict of interest was reported by the authors.

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