



UNIVERSITY OF MEDICINE, PHARMACY, SCIENCE AND TECHNOLOGY

"GEORGE EMIL PALADE" OF TÂRGU MUREȘ

Summary of Doctoral Thesis

Title: Study of postoperative pain following minimally-invasive treatment of inguinal hernias

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Introduction

Nowadays abdominal wall hernias represent a major public health problem affecting a significant part of the population. Inguinal hernia is the most common type of parietal defect of the abdominal wall, representing about 75% of all hernias. Although operations for inguinal hernias are some of the most common surgeries performed worldwide and laparoscopic treatment proved to be superior to the open approach, having multiple immediate and late postoperative benefits, however, the complexity of the surgical procedure and the anatomy of the posterior abdominal wall provide the laparoscopic procedure a steep learning curve and require special training. The pathology of the abdominal wall is extensively presented and researched in the literature of specialty. Along with many already well-established aspects, the primary attention is currently focused on hernia recurrence and postoperative pain. The latter mentioned one represents a feared complication of inguinal hernioplasty, which can have a major impact on the patient's daily activities and socio-professional reintegration. Though the cause of this complication is not sufficiently known yet, due to being certainly multifactorial, major risk factors related to the patient, the surgical procedure and the implanted prosthetic material are relatively well elucidated in the literature. A less studied aspect is the factor called "surgeon" and its influence on the immediate and late postoperative result.

Hypothesis and objectives

The objective of this study was to investigate postoperative pain following minimally-invasive treatment of inguinal hernias, applying exclusively TAPP procedure (transabdominal preperitoneal procedure).

The main hypotheses are formulated in the lines below:

- The use of self-adherent surgical mesh provide superior postoperative results in terms of postoperative pain, following minimally-invasive treatment of inguinal hernias
- The learning curve could influence the immediate postoperative outcome, including the intensity of immediate postoperative pain, after laparoscopic inguinal hernioplasty
- The surgeon, as an independent risk factor, through his experience, could exert an important influence on the development of immediate and late postoperative pain after minimally-invasive inguinal hernioplasty

Furthermore, during the study following objectives were established:

- The first study analyzes the relationship between fixation methods of the prosthetic material and the occurrence of postoperative pain, after laparoscopic treatment (TAPP) of inguinal hernias
- The second study analyzes the relationship between learning curve and immediate postoperative outcome, quantified by the frequency of postoperative pain
- The third study analyzes the relationship between learning curve and surgeon experience on immediate and late postoperative outcome, quantified by the frequency of postoperative pain

General methodology

The studies involved in this doctoral research were carried out at the 2nd Surgery Clinic of Mureş County Emergency Clinical Hospital, respectively at the Surgery Department of General Hospital of Odorheiu Secuiesc. The study included both prospectively and retrospectively analyzed data. The main theme was represented by the study of postoperative pain following minimally-invasive treatment of inguinal hernias. Demographic, clinical, surgical, postoperative outcome, data related to pain sensation and other information collected during postoperative follow-up were analyzed. The research involved two doctors, a senior doctor with experience in minimally-invasive surgery from the 2nd Surgery Clinic II of Mures County Emergency Clinical Hospital, respectively a junior

specialist at the Surgery Department of General Hospital in Odorheiu Secuiesc, on the upward slope of experience in minimally-invasive surgery.

The first study was a single-centered, prospective, cohort study. The study population was represented by patients diagnosed with inguinal hernia and who benefited from elective laparoscopic treatment, applying exclusively the transabdominal procedure (TAPP). The aim of the study was to determine the relationship between the methods of fixation of the prosthetic table and the occurrence of postoperative pain.

The second study was a single-centered, retrospective, cohort study. The objective of this study was to define the learning curve for the transabdominal-preperitoneal procedure (TAPP) and to analyze the effect of the learning curve on the immediate postoperative outcome, quantified by the frequency of postoperative pain.

The third study was bicentric, prospective-comparative and involves two hospitals, one county clinic, respectively one municipal hospital. The aim of this study was to investigate a possible relationship between the learning curve, the surgeon's experience and the development of postoperative pain after the application of the TAPP procedure for the treatment of inguinal hernia.

To evaluate and quantify postoperative pain, we used two types of questionnaires (PainDetect and Simple Numerical Scale) during the studies.

General conclusions

During the doctoral thesis we specifically analyzed the impact of some less studied factors on postoperative pain after minimally-invasive hernioplasty:

- the influence of prosthetic material and its fixation methods on the postoperative result, quantified by postoperative pain parameter
- the influence of learning curve on the immediate postoperative result, quantifying postoperative pain parameter
- the influence of the learning curve and surgical experience on the immediate and late postoperative result, quantifying postoperative pain parameter

Based on the first study conducted, our research confirmed the hypothesis that synthetic material implanted during laparoscopic inguinal hernioplasty can influence the intensity of postoperative pain. Consequently, atraumatic fixation methods (eg tissue adhesive) or self-adherent surgical mesh give superior results in terms of the postoperative pain factor.

Based on the second study, our research confirms the hypothesis that the period of learning curve may influence the intensity of immediate postoperative pain following minimally-invasive treatment of inguinal hernias. It should be noted, however, that this

influence seems to be minor, taking into consideration that the results obtained had close values and no statistical significance.

The third study examines the influence of learning curve and surgical experience on immediate and late postoperative pain. Based on the results obtained, it can be concluded that overcoming a learning curve is necessary to obtain optimal results, the technique can be safely implemented on a large scale in non-university hospitals as well.