International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438

Comparative Study on the Application of Surgipro Partiene Mesh and Light Partiene Mesh, in Patients with Inguinal Hernia Surgery with the Lichtenstein Method

Dr. Gordana Bozhinovska - Beaka

MOB "8th September" - Skopje

Abstract: ***Introduction: According to historical data treatment of inguinal hernia is one of the first surgical interventions made by human worldwide, annually operating around one million patients, applying different operating techniques. Object of the paper: To make a comparison of the results in patients with inguinal hernia operated by the Lichtenstein method using SURGIPRO PARIETENE MESH AND LIGHT PARIETENE MESH, in the incidence of post-operative pain, post-operative wound infection, time of post mobilization and days of hospitalization. Material and Methods: This study analyzed 50 patients with inguinal hernia operated in the period between 01.01 - 31.12. 2013, ate the unit for digestive surgery at MOB "September 8" in Skopje. Of these, 25 patients are inserted with SURGIPRO mesh, and 25 with LIGHT meshes. All patients were operated under general anesthesia with the Lichtenstein method. Results: This paper is a comparative study involving 50 subjects with inguinal hernia. Of these, at surgery in 25 (N1) patients are embedded Light - meshes, and 25 (N2) Surgipro meshes. Regarding age there is no statistically significant difference between the patients from both groups (Mann-Whitney U Test: Z = - 0,951 p = 0,3417) The VAS - scale of 1 to 10 patients in the first group N1 postoperative day confirmed present Boca average volume of 3,20 ± 1,0 and patients confirmed the presence of N2 on average volume of 3 88 ± 1,33. The difference in terms of days of hospitalization was statistically significant in relation to the occurrence of infection; there is no statistically significant difference between both groups.***

Keywords: inguinal hernia, surgical meshes, operational techniques

1. Introduction

According to historical data on treatment of hernia is one of the first surgical interventions made in humans. It is safe to say that nowadays hernia is the leading diagnosis in the population especially among males. The ratio between male and female is high "advantage" in favor of men.

Worldwide, annually around one million patients are being operated, applying different operating techniques. (1) In making a hernia repair in patients with hernia depends on factors such as the type of the hernia, the patient's age and the physical appearance of the patient may make direct hernia repair with suture or using mesh (2,3)

The modern era of hernia repair begins 50 years ago with the use of monofilament woven meshwork of a previous direct suture of the defect. (4,5)

By definition, surgical alloplastic meshwork is an artificial material that is used to strengthen the abdominal wall. It may be of biological material, made of plastic or combine both types of material in making mesh shaver must meet certain standards series: to be permanent, to have the ability to restore the integrity of the abdominal wall, easy to operate, be able to better integration in native tissues, low foreign body reaction to be resistant to infection and have the ability to adjust / reclined natural structures covered.

In making the mesh used to strengthen the abdominal wall, you should consider several important points: the material from which it is made by the meshwork structure of the thread that is woven / woven meshwork, the method of creating the meshwork - a woven / knitted and the characteristics of the meshwork (meshwork strength, elasticity, thickness, material memory, softness, porosity and wrinkling of the web). (6, 7, 8)

2. Objectives of the paper

In this paper we compare the results obtained in patients who used two types of meshes: SURGIPRO MESH AND PARIETENE LIGHT MESH

A Surgipro meshes is a monofilament polypropylene mesh, made of polypropylene monofilament thread. It is a sterile inert porous mesh with thickness 0.5mm suitable for manual and mechanical fixation with Tucker. The size of the pores is 0.6h0.8mm and weight 91gr / m 2. Knitted is thus bidirectional provides elasticity. It is easy to cut it with particularly high tension strength (strength of support). It falls into the category of heavy mesh with low porosity and economically worthwhile.

A light-weight mesh is a monofilament polypropylene mesh, made of polypropylene monofilament thread. It is inert and sterile mesh with obvious tension strength. Wicker is thus allows multidirectional elasticity and easy stitching. The mesh's thickness is of 0.5 mm and is suitable for manual mechanical fixation to fixation tackers. The size of the pores which is hexagonal and is optimal 1,5x1,6mm. The weight of the meshwork is 37-38gr / m 2, and falls into the category of simple mesh works with optimal porosity. (6, 7, 8)

Object labor: to make a comparison of the results in patients with inguinal hernia operated by the method of Lichtenstein using Surgipro meshes and Light-weight meshes, in the incidence of post-operative pain, post-operative wound infection, time of postoperative mobilization and days of hospitalization.

3. Material and methods

The paper analyzed 50 patients with inguinal hernia operated in the period between 01.01 - 31.12. 2013, at the unit for digestive surgery at MOB "September 8" in Skopje. Of these, 25 patients had the Surgipro mesh put in, and 25 Light-weight meshes. All patients were operated on under general anesthesia by the method of Lichtenstein.

Both types of meshes that are used are monofilament polypropylene mesh that can be distinguished in terms of porosity and weight (g / $m^{2)}$. These two types of meshes are suitable for placing in all types of inguinal hernia and invingoscrotal. The choice of the type of mesh placed in participants was made randomly.

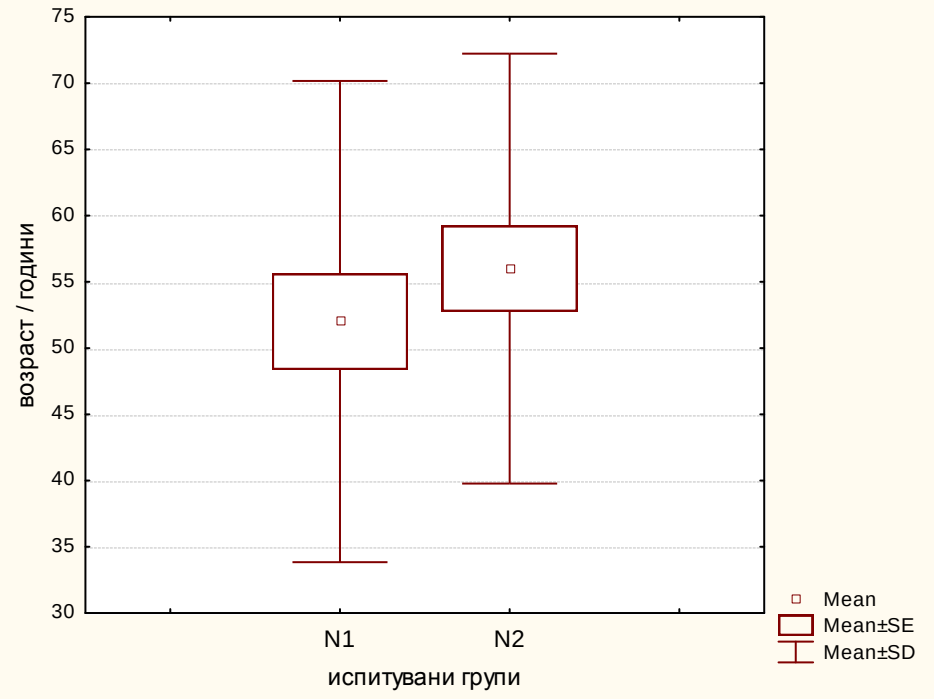
When analyzing the data with the correct distribution, to determine the significance of differences between the two studied groups used the Student - t test for independent samples. To determine the significance of differences of data with irregular distribution is applied the non-parameter Mann-Whitney U Test.

4. Results

This paper is a comparative study involving 50 subjects with inguinal hernia. Of these, at surgery in 25 (N1) patients are embedded Light - meshes, and 25 (N2) Surgipro meshes. In terms of gender, 49 subjects were male, and the woman was placed Light - mesh. N1 patients were an average age of 52 ± 18,16 years and N2 patients were an average age of 56 ± 16,22 years. In terms of age does not exist statistically significant difference between patients of both groups (Mann-Whitney U Test: Z = - 0,951 p = 0,3417) (Table. 1 and Chart. 1)

Table 1: Average values of respondents according to age / years

Studied groups	average	CO	Min.	Max.
N1	52.0	18.16	17.0	84.0
N2	56.0	16.22	17.0	80.0



Graph 1: Average values of respondents according to age / years

The VAS - scale of 1 to 10 patients in the first group N1 postoperative day confirmed present Boca average volume of 3,20 ± 1,0 and N2 patients confirmed present Boca average volume of 3,88 ± 1,33. Notation difference in postoperative pain among the tested groups is statistically significant, ie, the pain is significantly stronger in patients who built Surgipro mesh. (Student - t test: t = - 2,040 p = 0,0468).

Patients operated from inguinal hernia with the Lichtenstein method using Light - meshes were hospitalized an average of 3,40 ± 0,91 day, and patients who were implanted Surgipro meshes were hospitalized an average of 5,16 ± 1,37 days. The difference in terms of days of hospitalization was statistically significant (Table no. 2)

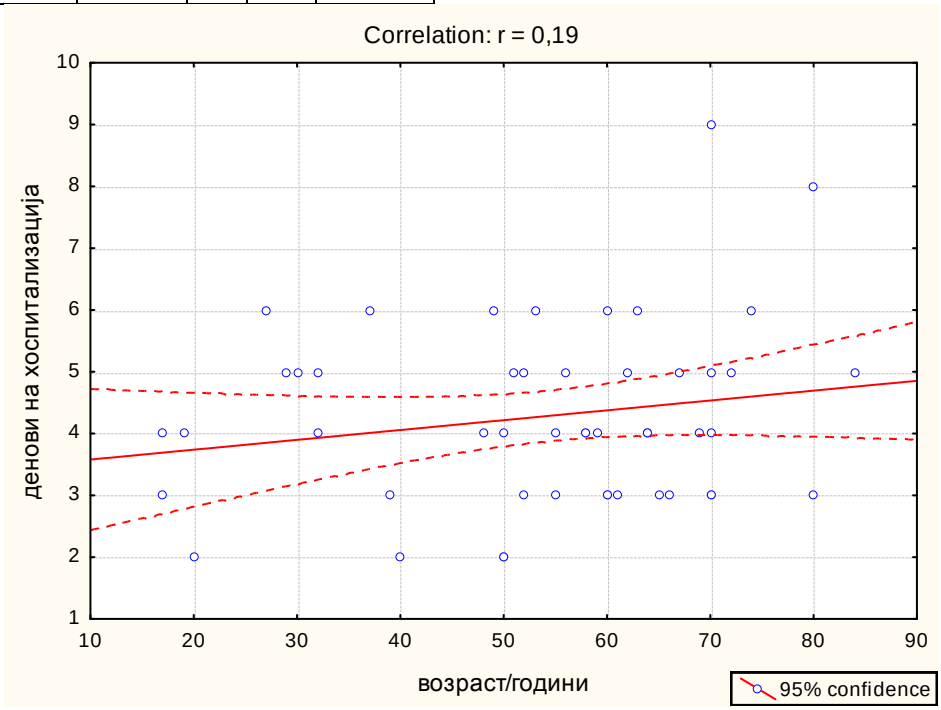
Patients in the first group studied (N1) the occurrence of wound infection was noted in only one patient (4%), while in the second group examined the occurrence of surgical wound infection (Cerro) is registered in 3 (12%) patients. In terms of incidence of infection, no statistically significant difference was spotted between both groups. (Table no. 2)

Table 2: Significance of the difference in days of hospitalization and incidence of surgical wound infection in patients from both groups

variables	Mann-Whitney U Test				
	Rank Sum	Rank Sum	U	Z	p-level
days of hospitalization	411.0	864.0	86.0	-4.394	0.000011 *
occurrence of infections	587.0	688.0	262.0	-0.979	0.327164

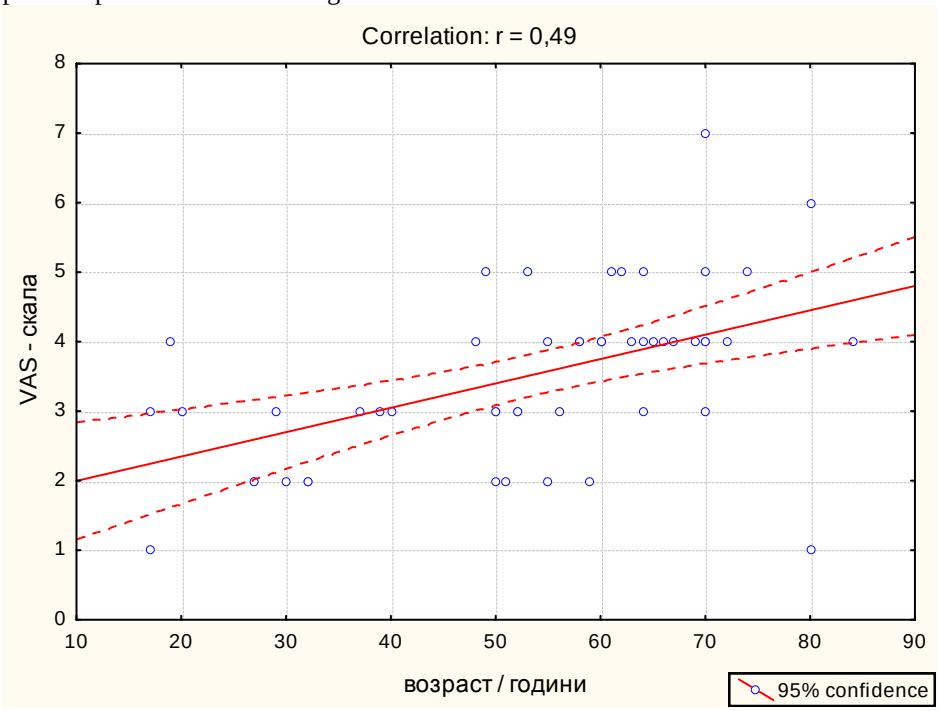
* Statistically significant difference

In order to see whether the age influence the length of hospitalization and severity of post-operative pain of patients according to VAS - scale, an analysis of the linear correlation. Determined that there is little weak positive correlation between the age of the patients and the number of days of hospitalization (r = 0,19), i.e., elderly patients have a longer hospitalization period.



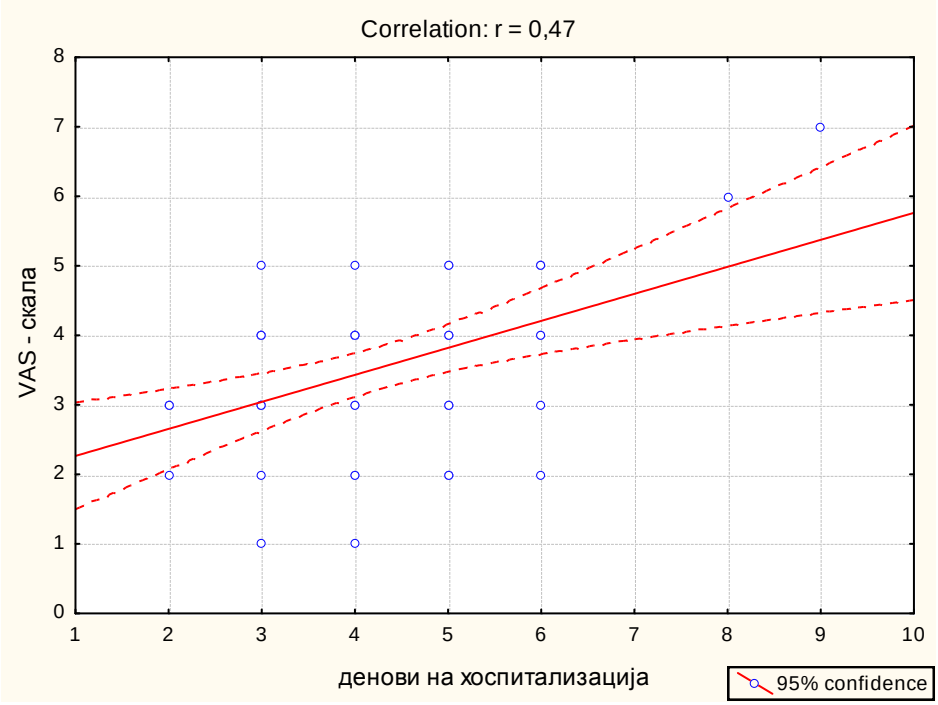
Graph 2: Correlation between age and postoperative hospital stay

Between the age of patients and postoperative pain by VAS - scale, there is a high positive correlation and strong (r = 0,49) - older patients postoperative pain assessed as stronger.



Graph 3: Correlation between age and the intensity of the post-operational pain.

There is a medium strong positive correlation between the days of hospitalization and postoperative pain in patients by VAS scale.



Graph 4: Correlation between the days of hospitalization and severity of postoperative pain

5. Discussion

This paper analyzes the results obtained when comparing the two groups of patients in making a hernia repair is implanted difference types of meshes. Included are a total of 50 subjects with inguinal hernia, which at surgery in 25 (N1) patients are embedded Light - meshes, and 25 (N2) Surgipro meshes. In terms of gender, 49 subjects were male. According to literature, the inguinal hernia pathology is very common in men. [9, 10] N1 patients were an average age of 52 ± 18,16 years and N2 patients were an average age of 56 ± 16,22 years. In terms of age, there is no statistically significant difference between patients of both groups. Nadim Khan associates refer to the average age of the operated patients were operated from inguinal hernia and analyzed in their labor is 38,2 ± 13,34 years. [11] This clue indicates that patients in our country for many years live with inguinal hernia, and decide on an operation when the hernia will start to seriously affect the quality of daily life at older ages.

Patients operated inguinal hernia by the Lichtenstein method that is used in Light - mesh were hospitalized an average 3,40 ± 0,91 day, and patients who used Surgipro mesh were hospitalized an average of 5,16 ± 1,37 days. The difference in days of hospitalization, resulting in post-operative pain of patients, patient's age and bio-characteristics of the placed mesh. [6, 7, 8]

According to VAS - scale of 1 to 10, a difference in terms of postoperative pain between our respondents from both examined groups was noted and it is significant to mention - the pain is significantly stronger in patients who built Surgipro mesh. In the consulted literature on this subject is obtained similar results, whereby age is emphasized as an important factor that influences the intensity of pain VAS - scale and duration of hospitalization. [12, 13, 14]

Patients whose results were analyzed and elaborated in this paper, the presence of postoperative infection was observed in a small number of patients in both groups. Easy elevated rates of incidence of infection in patients, who used Surgipro meshes, are probably due to the quality of the tissue, that is, a relation between ages of the operated patients and biomechanical characteristics of the various meshes themselves. [15, 16]

References

[1] Klinge U, Klosterhalfen B, Birkenhauer V, Junge K, Conze J, Schumpelick V. Impact of polymer pore size on the interface scar formation in a rat model. J Surg Res. 2002; 103: 208 -14.
[2] The EU Hernia Trialists Collaboration. Repair of groin hernia with synthetic mesh: meta-analysis of RCT. Ann Surg. 2002; 235: 322 -32.
[3] Nixon SJ, Jawaid H. Recurrence after inguinal hernia repair at ten years by open darn, open mesh and TEP - no advantage with mesh. Surgeon. 2009; 7: 71 -4.
[4] Klosterhalfen B, Junge K, Klinge U. The light Weight and Large Porous Mesh Concept for Hernia Repair. Expert Rev Med Dev ISSN. 2005: 1743-4440.
[5] Post S, Weiss B, Willer M, Neufang T, Lorenz D. Randomized clinical trial of lightweight composite mesh for Lichtenstein inguinal hernia repair. Br J Surg. 2004; 91: 44 -8.
[6] Schumpelick V, Klinge U. The properties and clinical effects of various types of mesh used in hernia repair. Association of Great Britain and Ireland (Yearbook) 2001

[7] Klinge U, Klosterhalfen B, Birkenhauer V, Junge K, Conze J, Schumpelick V. Impact of polymer pore size on the interface scar formation in a rat model. J Surg Res. 2002;
[8] Anderson JM, Miller KM. Biomaterial, biocompatibility and the macrophage. Biomaterials. 1984; 5: 5 -10.
[9] Piper JV. A comparison between whole thickness skin graft and Bassini methods of repair of inguinal hernias in men. Br J Surg. 1969; 56: 345 -8.
[10] Post S, Weiss B, Willer M, Neufang T, Lorenz D. Randomized clinical trial of lightweight composite mesh for Lichtenstein inguinal hernia repair. Br J Surg. 2004; 91: 44 -8.
[11] Nadim Khan , AdilBangash , MuzaffaruddinSadiq , AinUlHadi , and Haris Hamid : Polyglactine / Polypropylene Mesh Vs. Propylene Mesh: Is There a Need for Newer Prosthesis in Inguinal Hernia? Saudi J Gastroenterol. 2010 Jan-Mar; 16 (1): 8 - a thirteenth
[12] O'Dwyer PJ, Kingsnorth AN, Molloy RG, Small PK, Lammers B, Horeyseck G. Randomized clinical trial assessing impact of a lightweight or heavyweight mesh on chronic pain after inguinal hernia repair. Br J Surg. 2005; 92: 166 -70.
[13] Kehlet H, Bay-Nielsen M, Kingsnorth A. Chronic postherniorrhaphy pain-a call for uniform assessment. Hernia. 2002; 6: 178 -81.
[14] O'Dwyer, Kingsworth AN, Molloy RG, Small PK, Lammers B, Horeyseck G. Randomized clinical trial assessing impact of a lightweight or heavyweight mesh on chronic pain after inguinal hernia repair. Br J Surg. 2005; 92: 166 -70.
[15] Polish Hernia Study Group. Surgical site infections after mesh hernioplasty -analysis of two series of patents.Hernia. 2005; 9: 5147th
[16] Klinge U, Junge K, Spellerberg B, Piroth C, Klosterhalfen B, Schumpelick V. Do multifilament alloplastic meshes increase the infection rate? J Biomed Mater Res.2002; 63: 765 -71.