

OUTPATIENT SURGERY FOR INGUINAL HERNIA

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Abstract: The large number of hernia repair techniques practiced and published in various articles and treatises leads to a true effervescence of the young surgeon who is most often forced to acquire the “clinic’s technique” or that of his mentor. Putting together the various concepts of anatomy, the numerous surgical techniques, but especially by gathering experience from the domestic and abroad surgical centres where we practiced surgery and, being helped by a young team of surgeons and anesthesiologists, we have managed to improve and adapt for the private practice, the Lichtenstein technique, which we consider perfect for any type of inguinal hernia, in ambulatory surgery with a three-hour length of stay. The retrospective study was conducted within the Proctoven Clinic of Sibiu, for a period of 3 years. There were evaluated 108 patients with a clinical picture of inguinal hernia, operated by the above-mentioned surgery technique between March 2011 and March 2013. In a first stage, the patients were evaluated at 2 and 7 days after surgery, then at 6 months, one year and 3 years. We believe that the Lichtenstein procedure in outpatient surgery not exceeding 3 hours is a highly feasible process, very well tolerated by patients, with good results on the short and long term.

INTRODUCTION

Surgery for inguinal hernia is one of the most common interventions in a surgical department.

If for other types of diseases, the technique is well codified, the situation is totally different for inguinal hernias. On one hand, it is about the correct knowledge of the anatomy of the inguinal region, a transition area between the abdomen and thigh, which have suffered significant changes as a result of humans switching to bipedal position. In the last half century, there were numerous works on the anatomical structures of the region, with authors such as Mc Vay and Lytle, who devoted almost their entire research activity to the inguinal region. On the other hand, the large number of techniques practiced and published in various articles and treaties has led to a real effervescence of the surgeon, especially of the young one, who is most of the times forced to acquire the clinic’s technique “or that of his mentor.”(1)

We believe that, in the treatment of hernia, one must keep in mind one of the many ideas regarding surgery apprenticeship belonging to the great surgeon, Juvara. This one said that surgery is “learnt by looking and noting down what a man with experience is doing, helping, but especially by doing research.”(1) Putting together the various concepts of anatomy, many surgical techniques, especially by gathering experience from the domestic and abroad surgical centres, where we practiced surgery, and helped by a young team of surgeons and anesthesiologists, we have managed to improve and adapt to the private practice, the Lichtenstein technique, which we consider perfect for any type of outpatient inguinal hernia with a length of stay of maximum three hours.

The fact that currently, the surgical treatment of inguinal hernias is part of the simple and benign operations is the result of a long process of adaptation and improvement of surgical techniques, from the extremely complicated and difficult aspect from a few decades ago up to that of today.

The major development of knowledge about hernia anatomy and its treatment occurs in the eighteenth century. Percival Pott in London was the first to suggest the congenital origin of hernia. In the XVIIIth and XIXth centuries, there were discovered new accurate data regarding the inguinal structures by Antonio Scarpa (1809-1810), Heisselbach (1814-1816), Sir Astley Paston Cooper (1804-1807), Jules Germain Cloquet (1819), Don Antonio De Gimbernat (1793), Thomas Morton (1841) and Friedrich Gustav Jakob Henle (1855). Edoardo Bassini suggests the first anatomical surgery, correct from the functional and surgical point of view, surgery which is still used in some services today and which bears his name.

Over time, significant contributions in the surgical treatment of inguinal hernias have been brought by Henri Fruchaud through his work “Anatomie chirurgicale de hernies de Vaine” in 1956 and the establishment of the American Hernia Centre at the initiative of Shouldice (1945-1951).

Posterior transperitoneal approach was first used by Annandale (1873), then by Taft (1891), but without success. Cheatle (1921) was the first to use properitoneal way, more interesting than the others. Nyhus (since 1955), followed in France by Rives and Stoppa, starting with 1967 have been using this method of approach which today lies at the basis of the video-assisted laparoscopic surgery.

In 1984, Lichtenstein promoted the concept of “open tension-free hernioplasty”, through which it performed a polypropylene mesh prosthesis of the posterior wall of the inguinal canal.(2)

MATERIALS AND METHODS

The procedure used to repair the hernia defect was the modified Lichtenstein procedure. It has been routinely used in men and women with primitive and recurrent hernia. We have contraindicated in children and young people who have not completed the process of growth.

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Technique: anesthesia used in all cases consisted of a combination between the regional block (ilioinguinal-nerve block with local infiltration) and intravenous general anesthesia which allowed us the early mobilization of the patient immediately after surgery, the patient walking alone from the operating table to patients ward. Antibiotic prophylaxis was routinely used, each patient receiving 1g of Amoxiplus for the induction of anaesthesia.

No premedication was used as sedative premedication may prolong the awakening time and may delay the discharge of patients. Propofol was used for induction and maintenance. One of its main advantages is the ease and speed with which the patient wakes up.(3,5) After propofol, patients are lucid and there is low incidence of postoperative nausea and vomiting. It was administered in TCI system with or without the combination of a short-acting opioid, although the association is quite costly.(4,6,7)

Laryngeal mask was used only when muscle relaxation was ultimately required, avoiding tracheal intubation and extubation, which allows for faster cases running. Recovery after anesthesia is a very important parameter in day-surgery anaesthesia.(8,9) Nonsteroidal anti-inflammatory drugs, diclofenac and ketorol were routinely used for providing postoperative analgesia.

After creating a regional block with 1% lidocaine solution and skin infiltration with another 1% lidocaine, an incision of maximum 5 cm is performed. The incision was done transversely, parallel to the bispinous line, centred by the inguinal canal, at approximately 2 cm from the superficial orifice of the inguinal canal. The advantages of this incision are both aesthetic (incision is hidden in the abdominal folds; it decreases the risk of keloid scar by decreasing traction on the suture line) and tactical (it can be more easily sectioned cranially and caudally, depending on the area where the work is done, providing extra wall strength, not being in line with the external oblique aponeurosis suture).(10)

The incision intersects the skin, the subcutaneous cellular tissue up to the aponeurosis of the abdominal external oblique muscle. The opening of the inguinal canal is made through the anterior wall, obliquely intersecting the skin incision shaft. Locating the superficial inguinal opening and its abolition is made in the classic manner. There follows the luxation of the spermatic cord and the release the posterior wall of the inguinal canal, isolation and treatment of hernia sac, dissection and isolation of the hernia compulsorily accompanied by the removal of the preherniar lipoma. Sac content check up is done, followed by its resection.

Resection of the cremaster muscle is routinely done, especially of the lateral fascicle that hinders the fixation of the mesh in the crural arch at the level of the deep inguinal ring. Posterior wall of the inguinal canal prosthesis was made with a single line and large-pore polypropylene mesh, through own manufacturing of 6x15 cm. The mesh is fixed by a separate thread in the spleen bin, then it continues with the fixation of the lower edge of the prosthesis to the lacunar ligament and to the posterior lip of the crural arch, up to the deep inguinal ring with a continuous thread-Surjet, 3.0 BIOPRO, non-resorbable.

Upper edge fixation is done at the level of the right abdominal sheath with separate threads with the same type of thread. External extremity of the mesh surrounds the spermatic cord so that the prosthesis' slot to circumscribe the cord; the two strips are fixed with two separate threads that restore the deep inguinal ring. External oblique muscle aponeurosis restoration over the spermatic cord is also made with BIOPRO 3.0 continuous-Surjet thread-with superficial inguinal orifice recalibration. Finally, intradermal suture is made. No drainage

was used in any case.

Duration of intervention was between 35 and 60 minutes.

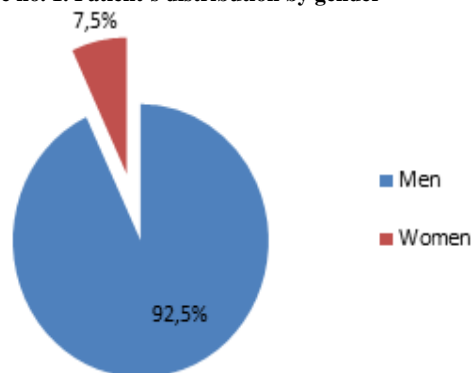
Patients were discharged within two hours after lifting off the operating table after urinating (to prevent full bladder at home) and after showing they can sit without help and the unassisted walking was possible. At discharge, patients were accompanied by a responsible person in the family and were forbidden to drive a motor vehicle for the next 24 hours.

RESULTS

The retrospective study was conducted in Proctoven Clinic of Sibiu, for a period of 3 years. There were evaluated 108 patients with a clinical picture of inguinal hernia, operated by the above-mentioned technique between March 2011 and March 2013. Being a private clinic, addressed to chronic patients, from the very beginning complicated hernias were excluded from the study. Patients were evaluated at 2 and 7 days after surgery in a first stage, then at 6 months, one year, three years.

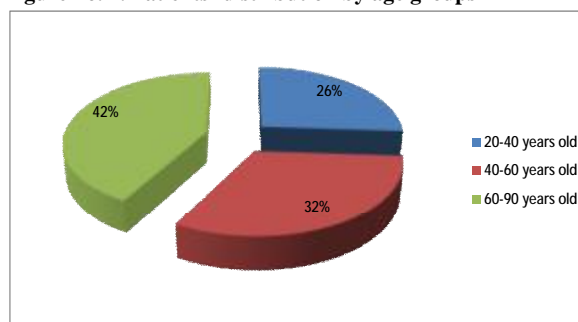
Of these, 100 cases were encountered in men and 8 cases in women.

Figure no. 1. Patient's distribution by gender



The lower age limit was 18 years old, dictated by the growth period that contraindicates the procedure; the oldest patient was 81 years old. The distribution of patients by age is represented in the figure below.

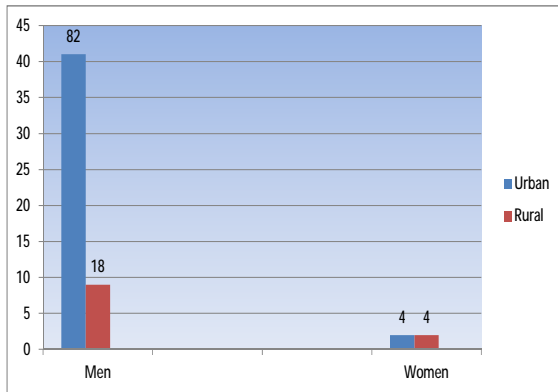
Figure no. 2. Patients' distribution by age groups



Distribution according to area of origin of the patients diagnosed with inguinal hernia is also due to limited financial possibilities of rural patients to afford diagnosis and treatment of a disease in a private clinic, and to reduced open-mindedness thereof to short-term hospitalization (the tradition of being hospitalized until threads are removed); 86 were from urban areas and 22 were from rural areas.

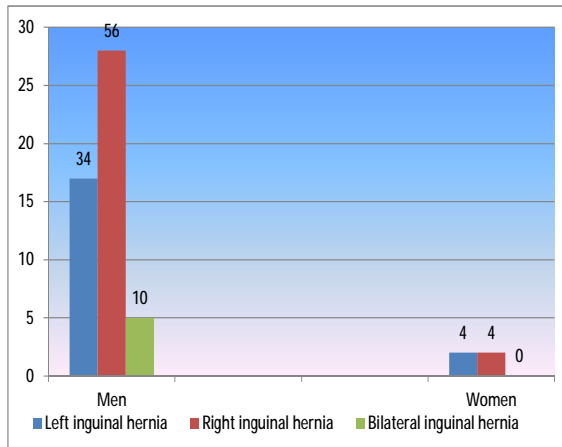
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Figure no. 3 Patients' distribution by gender and area of origin



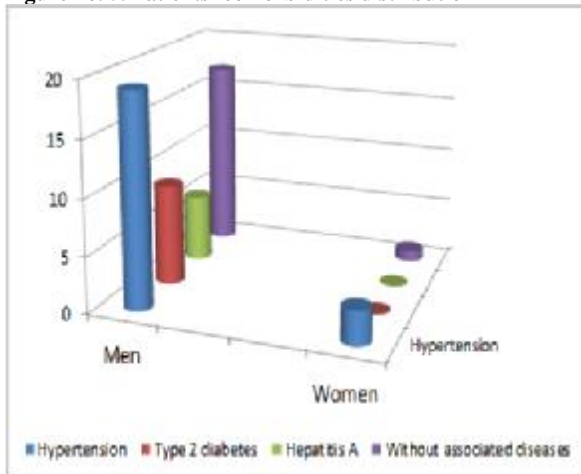
Depending on the type of inguinal hernia, there were 19 patients with left inguinal hernia, 30 patients with right inguinal hernia and 5 patients with bilateral inguinal hernia.

Figure no. 4. Distribution of the types of hernia in study patients



Depending on the associated diseases, there were 42 patients with hypertension, 18 patients with type 2 diabetes, 12 patients with Hepatitis A and 36 patients without any associated diseases.

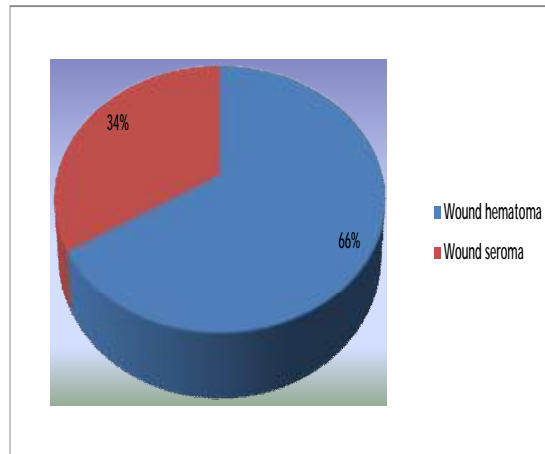
Figure no. 5. Patients' comorbidities distribution



From figure no. 5, one can notice a higher number of patients who have had hypertension as associated disease.

Immediate complications occurring within 7 days after surgery, detected during the check-up made on days 2 or 7 after surgery, upon suppressing the intradermal suture were 12, represented by 8 (66%) patients with wound hematoma (especially in those with very large inguinoscrotal hernia with difficult dissection, postoperative drainage not being used), 4 (34%) patients with wound seroma. No postoperative suppuration was recorded.

Figure no. 6. Immediate postoperative complications



Late postoperative complications were postoperative chronic pain – 4 cases and skin hypoesthesia - 12 cases (resolved in all cases within 3-6 months). We considered as chronic pain, persistent pain or its occurrence after the normal healing of the tissue, lasting three months after hernia repair. Of these, three complained about mild pain and 1 patient moderate, slightly affecting his work and the leisure activities. Chronic pain is most severe long-term complication of hernia repair and may persist for several years.

DISCUSSIONS

While for other diseases the technique is well codified, the situation is totally different for inguinal hernias. Proper knowledge of the anatomy of inguinal region, a transition area between the abdomen and thigh, which have suffered significant changes as a result of humans passing to bipedal position, is extremely important in order to properly resolve hernia pathology. The large number of techniques practiced and published in various articles and treatises put the surgeon, especially the young one in a difficult situation, being most of the times forced to acquire "the clinic's technique" or that of his mentor.(1)

In 1989, few surgeons believed in the veracity of the results provided by Lichtenstein after 1 000 consecutive operations with minimal complications and no recurrence at intervals of 1-5 years of follow up, suggesting the routine use of this method in all types of hernias. This technique can be avoided in the patients with multiple relapses and in those where fascia transversalis is very poorly represented, these ones being candidates for alloplastic preperitoneal technique.(11,12)

Although laparoscopic technique, heavily promoted lately, has undeniable advantages: acute and chronic postoperative pain are reduced, convalescence is also significantly shortened and it is also accompanied by the early return to work compared with the classical techniques (13), the largest operating time, the difficulty of learning this technique,

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the higher cost of equipment, the length of stay lasting more than in the Lichtenstein technique, all these were genuine arguments to prefer the mentioned technique. In the US, laparoscopic operations represent 15-20% of the total number of operations for inguinal hernias.(13,14)

According to the European Hernia Trialists Collaboration, the use of alloplastic process in comparison with any other classical method decreases the risk of relapse by 50%.(15,16) In our study, relapse was absent, remaining only the chronic pain present in 3.7% of cases.

The clinical trials and the experiments done on animals have shown large differences in the inflammatory capacity of the ability of the alloplastic material used, as a result of pore size. Thus, the presence of pores less than 1 mm cause a deeper inflammation and fibrosis, while the large pores are associated with reduced fibrotic response, smooth scar formation and retention of elasticity.(17,18) In the present study, we used only alloplastic material with large pores, leading the presented results.

Regarding the formation of seroma or hematoma according to alloplastic Lichtenstein technique, compared to other conventional techniques, the literature does not mention the difference between the mesh groups and those without.(17,19) We believe that their occurrence is more related to the manner in which the technique is applied and to the comorbidities and particularities of each individual patient than the applied technique.

CONCLUSIONS

We believe that the Lichtenstein procedure in outpatient surgery not exceeding 3 hours is a highly feasible process, very well tolerated by patients, with good results on the short and long term.

Intravenous general anesthesia allowing early mobilization started immediately after surgery is one of the most important factors in rapid recovery and social reintegration of the patient.

Working in a stable surgical team with a perfect standardized technique lowers at minimum the postoperative complications.

Estimating the complications after more than 4 years has not only been possible due to the application of this technique only in 2011.

The extremely correct price/quality ratio, as well as the excellent postoperative results, make the technique very attractive to patients.

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