

## Is it essential to put a drain in patients with Cholecystectomy?

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### Abstract

**Background:** Improvements in surgical technique for hernia repair, together with the development of new prosthetic materials and a better understanding of how to use them, have significantly improved outcomes for many patients.

**Objectives:** In this case series we aimed to determine the acceptability, practicality, effectiveness, and safety of inguinal hernia repair using Lichtenstein tension-free mesh repair in Iraq.

**Patients and methods:** Ninety-six adult patients with inguinal hernia were included in this study. The age range of patients was 20-70 years. The study was conducted in Al-Karama Teaching Hospital-Baghdad for the period from October 2002 to October 2009. Herniae were repaired with Prolene mesh as a tension-free Lichtenstein-style. All patients had prophylactic antibiotics, and were followed for surgical wound infection, induration, pain, recurrence, and other complications. Three (3.1%) Surgical operations were done entirely under spinal, and one (1.0%) under epidural anesthesia.

**Results:** All the procedures were completed safely. No patient had complications directly attributable to or affecting the implanted mesh. One patient developed infection treated by antibiotic. No recurrence occurred during a maximum follow up period of seven months. Seroma occurred in two cases (2.0%), one patient had the procedure after failure of laparoscopic repair, and no removal of the mesh was needed during this period. Most of the patients were discharged on the next day or on the same day.

**Conclusions:** Lichtenstein tension-free mesh repair appears quite acceptable, practical, effective and safe for inguinal hernia repair in our environment.

**Keywords:** Lichtenstein, Inguinal hernia, mesh repair, prosthetic.

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### Introduction

Hernia repair is one of the most common surgical procedures performed in the United States, with 700,000 operations performed each year [1]. Improvements in surgical technique, together with the development of new prosthetic materials and a better understanding of how to use them, have significantly improved outcomes for many patients, with some institutions reporting failure rates of less than 1%. [1,2] In contrast, failure rates for general surgeons, who

perform most hernia repairs, remain significantly higher accounting for up to 10% for primary hernias and 5% to 35% for recurrent hernias.[3]

A major recent study demonstrated the superiority of the open technique for mesh repair in preventing life-threatening complications such as bowel obstruction or strangulation of incarcerated hernia contents [4]. During the last two decades, mesh repair has become more accepted because of its results in tension-free repair with a low

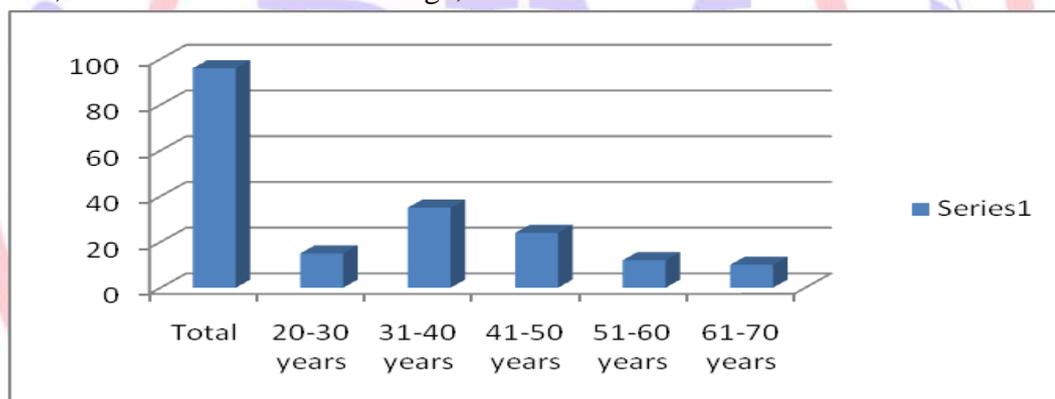
recurrence rate. [5] A European prospective study reported that open mesh repair has a lower recurrence rate, is simpler to perform, and is the preferred method for herniorrhaphy rather than a laparoscopic approach.[6] Most hernia patients are men, and in later life some will require radical surgery for prostate cancer. Radical prostate surgery is much more complicated if a mesh has been previously placed in the prepubertal space during a laparoscopic repair. [7] In a study conducted the Department of Surgery, Creighton University, Omaha, Nebraska, favored an open mesh repair for several reasons: shorter operating time, lower complication rates, and lower costs. In addition, the Lichtenstein open mesh repair avoids the prolonged learning curve that is required to become a proficient laparoscopic hernia surgeon. Furthermore, life-threatening complications, such as serious hemorrhage,

and even death, following the Lichtenstein repair, are much less likely to occur than with a laparoscopic repair. [8] It should be noted that patients prefer laparoscopic repair because of reduced postoperative pain. [9]

Previously it was believed that the incidence of infection in mesh hernioplasty was more common than conservative surgery.[10,11] However, recent data suggests that acceptable rates of infection (lower than 2%) can be achieved in patients undergoing mesh hernioplasty.[12-13]

### Patients and Methods

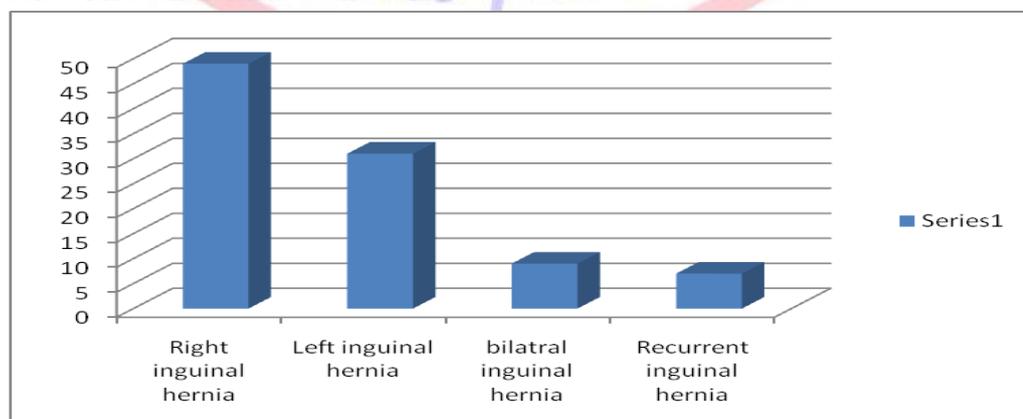
During the period between 1<sup>st</sup>. October 2002 and 30<sup>th</sup>. October 2009, 96 patients with inguinal hernia were admitted, and all of them were repaired using Lichtenstein method with mesh implant, most of patients were between 31-50 years, figure (1).



**Figure (1):** Bar chart showing the frequency distribution of study sample by age.

There were 49 right inguinal hernia, 31 left, 9 presented with bilateral inguinal hernia. All of them were delt with both hernias at the same

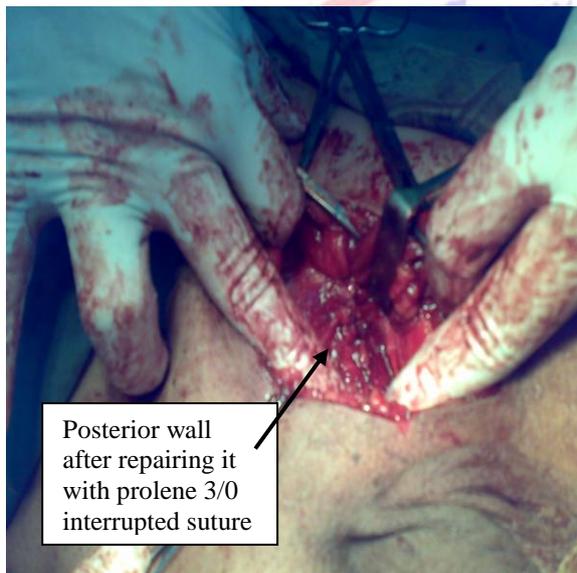
time, and seven with recurrent hernias, figure (2).



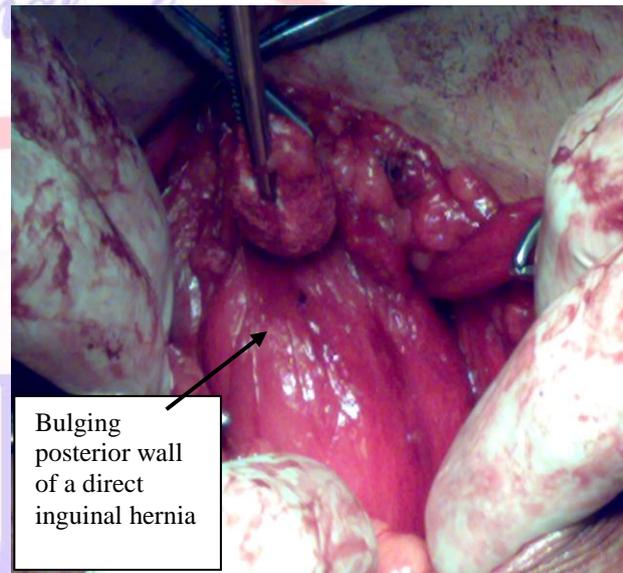
**Figure (2):** types of hernia.

General anesthesia used in 92 (95.8%) patients, spinal in 3 (3.1%) and epidural in 1 (1.0%). All the operations were done by the same surgeon. In the indirect inguinal hernia, herniotomy was done in the usual way, then a polypropylene mesh was sutured to the conjoined tendon and the lower (shelved) layer of the inguinal canal, using prolene suture 3/0 to fix the mesh to the pubic tubercle, 3-4 stitches to the conjoined tendon and 3-4 stitches to the inguinal ligament,

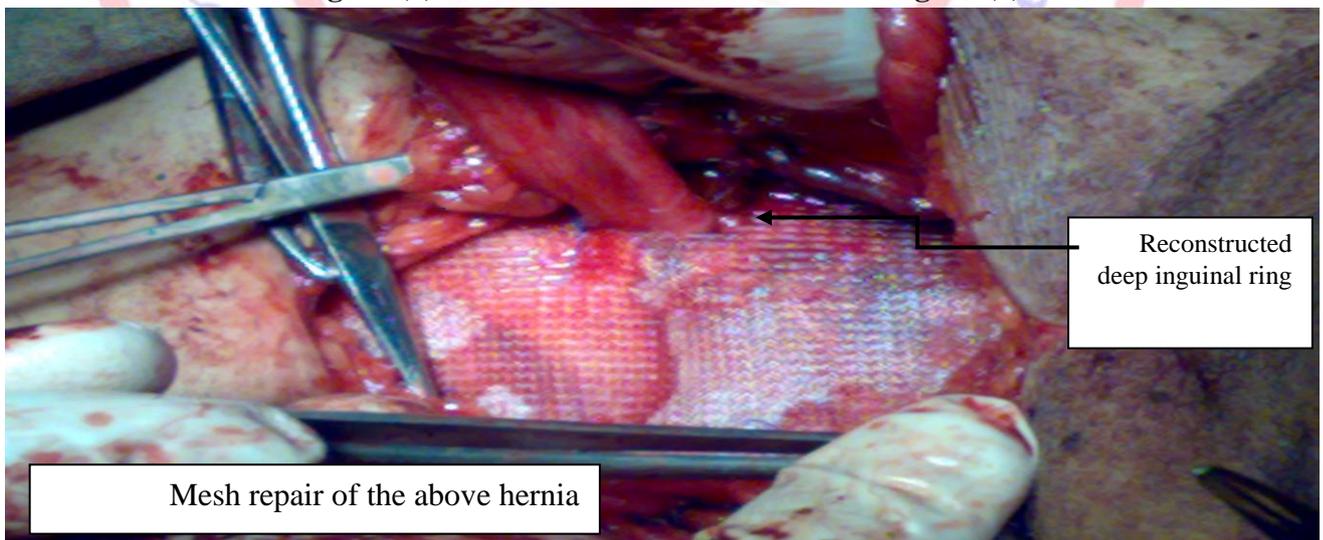
overlapping the tail of the mesh to reconstruct an artificial deep inguinal ring, while in the direct inguinal hernias, and after mobilization of the spermatic cord, the bulging posterior wall of the transversalis fascia was repaired with prolene 3/0 suture, interrupted stitches, and then the mesh was arranged according to the defect and inguinal canal size and implanted as described above, figure (3,4) and (5).



**Figure (3)**



**Figure (4)**



**Figure (5)**

Before the induction of anesthesia, the patient receive either amoxyclav vial or ceftriaxon according to the availability, then the patient will continue on oral antibiotic

according to his first dose for a period of 3 days with monitoring of the wound and the testes for any edema, tenderness, or any other abnormality. Patient usually discharged from



the hospital on the next day, but sometimes the patient discharged on the same day, two cases with recurrent inguinal hernia and difficult procedure stayed for two days. Statistically, the Frequency distribution for selected variables was done.

## Results

With a period ranging from seven years to few weeks, the outcome of this type of repair was as follows, (table 1); Infection of the wound occurred in one case (1.0%) with redness, hotness and tenderness, after five days from the repair and this was dealt with by antibiotics, ceftriaxon 1gm was used for ten days and the problem was settled and the

patient feels good after that, leaving the mesh in place. Seroma occurred in two cases (2.1%), one of them was a doctor, and in spite of this complication that lasted for a few days, and resolved completely without the need to any interference, just rest and monitoring. He described the repair as painless, and he could drive on the 4<sup>th</sup> post operative day in the neighborhood. The other patient needed evacuation of the seroma through the medial margin of the incision with antibiotic coverage for five days and using a fine wick from this wound margin, knowing that the area was dry on the 3<sup>rd</sup> day after evacuation.

**Table (1):** Complications rate and significance.

Complication	Percentage
Infection	1%
Seroma	2.1%
Testicular odema	4.1%
Need for drainage	3.1%

**No subject had recurrence, Mesh removal or Hematoma**

Three out of the seven patients with recurrent hernia (3.1%) needed drainage, using a closed system tube drain for a period varying between 3-5 days. All patients with bilateral inguinal hernia had their hernias both repaired at the same time, and all becomes well postoperatively and had no complications at all. Testicular edema occurred in four cases (4.1%), and all the patients with excessive manipulation especially those with recurrent hernia were encouraged to put on a testicular strap directly after operation to prevent testicular edema and it was very effective. During this study hematoma did not occur in any of our cases. One patient with a trial of laparoscopic hernia repair, the procedure was difficult and hernia repair with mesh after repairing the posterior wall because of the laparoscopic manipulation was done. No recurrence

occurred in this period of follow up and no removal of the mesh was done during this period because of an unhealed complication.

## Discussion

Inguinal hernia is the commonest problem amongst all external hernias and Inguinal hernia repair is most frequent procedure in general surgery accounting for 10–15% of all operations.[12,13] The age incidence is distributed in all decades of life. In our study most of the patients were between 31-50 years, and right inguinal hernia was the commonest site and this was comparable to other studies. [14]

The Marlex mesh was first used by Uscher.[15] Use of prosthetic material was criticized by some surgeons that being as a foreign material, it may increase the incidence of infection. They thought that this infection is difficult to treat and it may



necessitate removal of mesh which causes more morbidity to the patient. But many other studies showed that Lichtenstein's repair is safe, easy to perform, with no evidence of increased infection risk with mesh implant. [14] In our study one patient developed skin and subcutaneous infection (1.0%), other studies showed that despite all of the efforts and the advances in medical technology, a small proportion of patients undergoing mesh herniorrhaphy develop wound infections. Most of these infections are superficial and are treated promptly without surgical intervention.[16] Rates of deep groin infection after hernia repair vary between 3/100,000 patients and 1.4% and generally occur after the second postoperative week. The most commonly isolated microorganism is *Staphylococcus aureus*, although *streptococcus*, *peptostreptococcus*, gram-negatives, and eventually non-tuberculosis mycobacterium have also been isolated. [16-17]

The question of whether prosthetic hernia surgery should be done under prophylactic antibiotic coverage has been investigated by a number of researchers.[16] Validity of these studies lacks homogeneity because of the definition of wound infection by researchers, follow-up criteria, and duration of surveillance. The general attitude in surgical practice is toward utilization of prophylactic antibiotics in hernia surgery.[18,19] Because of the above; prophylactic antibiotic was used in our study, also because when the study was started, the use of mesh as a primary repair for inguinal hernia was not yet acceptable for Iraqi surgeons community. Till now many surgeons still using the traditional methods for primary hernia repair rather than using the mesh implant, but in spite of the above Some studies indicate that utilization of mesh in groin hernia surgery does not increase the risk of postoperative infection and prophylactic antibiotic is not needed.[16]

In a large randomized controlled trial that compare between open versus laparoscopic Mesh Repair of inguinal hernia, it has been found that open mesh repair has a lower recurrence rate, simpler to perform, and is the preferred method for herniorrhaphy. Similar conclusion was reported by a European prospective study [20] and in a more recent study by Jain et al. (2006).[21] In our study, there was no recurrence during a follow up period of 7 months. There was a single patient with inguinal hernia where an attempt of repair was done by laparoscopic surgeon; and because of technical difficulty, and the long time, the procedure was converted to open repair, where repair of the posterior wall and mesh implant was done, the patient did very well after that, and till the time of writing this study, the hernia did not recur.

Seromas form in herniorrhaphy wounds done without mesh but with greater frequency following mesh repairs, due to both tissue trauma and foreign body reactions.[22] Tissue trauma causes a reabsorption imbalance of fluid that escapes from damaged venous and lymphatic capillaries. The foreign body reaction can be measured by histologic examination for macrophages and giant cell formation. Typically, a seroma presents on the third or fourth postoperative day. Ultrasonography confirms the clinical diagnosis. Treatment consists primarily of observation and expectation. Aspiration is rarely necessary, and in most cases the seroma will completely reabsorb in 2 to 3 weeks. Seroma occurred in two cases (2.1%), one of them was treated conservatively without any interference, and the other was treated by opening the wound through its medial edge because the tension was so much on the wound causing patient discomfort, and both becomes very well after that. Hematoma is treated by opening the wound [22], evacuating the hematoma, and allowing it to close by secondary intention and treats



bleeding into the wound. If the bleeding occurs into the scrotum, however, drainage is more difficult. In our study and because of the above, closed system drainage was used when the operative field was not satisfactorily dry, and this was done in three (3.1%) patients.

Testicular complications may occur after the repair of inguinal hernias and include ischemia with testicular atrophy and thickening of the spermatic cord [23, 24]. Other complications include transection or disruption of the vas deferens, hydrocele, and osteitis pubis, in this study testicular edema occurred in four cases (4.2%), to prevent this, testicular strap was advised directly in all patients with recurrent hernia, and in all patients with excessive manipulation. From this study, it can be concluded that herniology will remain in the realm of the surgeon. Important advances have been made in herniorrhaphy resulting in improved outcomes. Lichtenstein tension-free mesh repair is a simple, safe, comfortable, effective method, with extremely low early and late morbidity and remarkably low recurrence rate and therefore it is the preferred method for hernia repair. There is virtually no 'learning curve' for the surgeons. However the cost of meshes was not considered. Also, a larger sample size and further studies are needed to compare outcome of mesh repair in our environment more objectively with traditional inguinal hernia repair.

## Conclusions

It appears that herniology will remain in the realm of the surgeon. Important advances have been made in herniorrhaphy resulting in improved outcomes. Lichtenstein tension-free mesh repair is a simple, safe, comfortable, effective method, with extremely low early and late morbidity and remarkably low recurrence rate and therefore it is the preferred method for hernia repair.

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