

Original Research Article

Mesh fixation versus non fixation in open herrnioplasty

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ABSTRACT

Background: The goal of this study was to compare herrnioplasty with or without mesh fixation for inguinal hernias, paraumbilical hernia and epigastric hernia.

Methods: This study included 288patients (170 males and 118 females) of different age groups with hernia who were admitted to general surgery department of sohag university hospital during the period from April 2018 to march 2019. Analysis of the clinical presentation, type of hernia and patients risk factors was done. All patients with above mentioned hernias without history of previous operations, was eligible for the study.

Results: A total of 288 patients, 123 patients (42.7%) had oblique inguinal hernia, 75 patients (26%) had epigastric hernia, 77 (26.7%) had Para umbilical hernia and 13 (4.5%) had direct inguinal hernia. We had two groups, group (I) with mesh fixation included 141 patients (49%), while group (II) included patients (51%) without fixation of the mesh. Methods of fixation of the mesh in group (I) included suturing in 94 patients (32.6%), while using staples in 47 patients (16.3%). From 288 patients, 26 patients (9%) were hypertensives, 13 patients (4.5%) were diabetic and 13 patients (4.5%) were smokers. Follow up period extended for eight months post operatively, patients without fixation to their mesh had less pain and infection.

Conclusions: Herrnioplasty can be carried out either with fixation of the mesh or not, it will not affect recurrence of the hernia and has less cost and operative time.

Keywords: Fixation, Hernia recurrence, Inguinal hernia, Mesh migration

INTRODUCTION

Hernia (Latin, disruption; Greek, bud) it's defined as the organ protrusion through a gap in the abdominal wall when there is a weakness or hole in the peritoneum, the muscular wall that usually keeps abdominal organs in place. The abdominal wall hernias are the most common cause for major surgery.¹

The hernias are among one of the most frequent disease that affect men, being one of the first diseases to be detected due to the obvious signs. Surgical techniques with mesh or without produce different immediate postoperative complications.² Hernias can commonly be found in the following areas, Groin: a femoral hernia

creates a bulge just below the groin. This is more common in women. An inguinal hernia is more common in men. It is a bulge in the groin that may reach the scrotum. Upper part of the stomach: a hiatal or hiatus hernia is caused by the upper part of the stomach pushing out of the abdominal cavity and into the chest cavity through an opening in the diaphragm. Belly button: a bulge in this region is produced by an umbilical or per umbilical hernia. Surgical scar: past abdominal surgery can lead to an incisional hernia through the scar.³

Hernioplasty is one of the most common surgeries performed in the world with an excellent outlook. It does not only repair the condition but also prevent its recurrence.⁴

The procedure is often used interchangeably with herniorraphy but they have some notable differences including the fact that herniorraphy repairs the abdominal wall without introducing any supportive device like a patch.⁵

Mesh fixation as a routine appears to be unnecessary hernia repair. It is associated with higher operative costs and an increased risk of infection without increasing the risk for early hernia recurrence.⁶

The mesh can be placed without fixation or can be fixed into place, The current surgical options for mesh fixation include, but are not limited to, sutures, tacks or staples, self-fixing meshes and fibrin or other glues.⁷ Several studies have shown that nonfixation is a viable option without an increased risk for recurrence, and that it also has the advantages of shorter operative time, less chronic groin pain, no injury to the vas deference, gonadal vessels, inferior epigastric vessels, in groin hernias. and an overall improved quality of life when compared with mesh fixation.⁸

The aim of this study was to compare Hernioplasty with or without mesh fixation for inguinal hernias, paraumbilical hernia and epigastric hernia.

METHODS

This study was a prospective study which was conducted at Sohag University Hospital at sohag gouvernrate Egypt, the data base was reviewed. The data were analyzed by SPSS data base with application of Chi –square test and test of comparison of proportions, p value < 0.01-0.05. Agreement of ethical committee and written consents from patients was obtained. The study include patients (males and females) with hernia (inguinal both direct and indirect, epigastric and Para umbilical) during the period of the study from April 2018 to March 2019. Analysis of the clinical presentation, type of hernia and patients risk factors was done.

All patients with above mentioned hernias without history of previous operations, was eligible for the study. All the data was recorded tabulated and statistically analysed emphasizing on:

- Clinical data including patient age, sex, risk factor, previous surgery.
- All investigations laboratory and radiological will also be added.
- Follow up the patients up to six months after discharge for possibility of recurrence or any other complications.

RESULTS

A total of 288 patients were admitted to the outpatient general surgery clinic at Sohag University Hospital complaining of hernia from April 2018 to march

2019. Patient age ranged from 25 to 76 years with a mean of 47.78 years at time of presentation, 118 (41%) of them were females, and 170 (59 %) were males Figure 1.

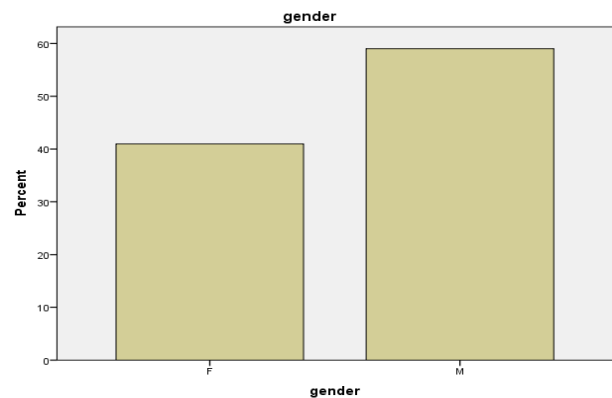


Figure 1: Gender.

123 patients (42.7%) had oblique inguinal hernia, 75 patients (26%) had epigastric hernia, 77 (26.7%) had Para umbilical hernia and 13 (4.5%) had direct inguinal hernia Figure 2.

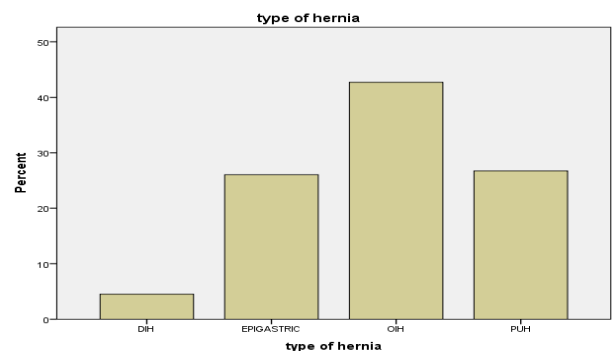


Figure 2: Type of hernia.

We had two groups, group (I) with mesh fixation included 141 patients (49%), while group (II) included patients (51%) without fixation of the mesh. Methods of fixation of the mesh in group (I) included suturing in 94 patients (32.6%), while using staples in 47 patients (16.3%) Figure 3.

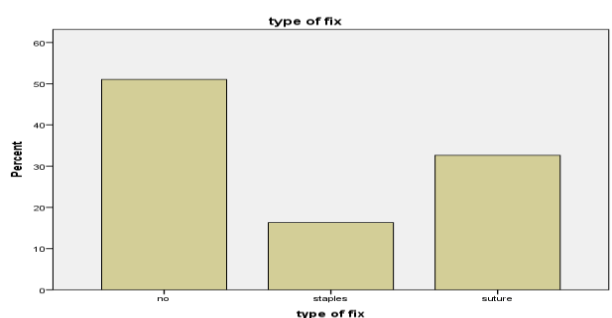


Figure 3: Type of fix.

From 288 patients, 26 patients (9%) were hypertensives, 13 patients (4.5%) were diabetic and 13 patients (4.5%) were smokers.

On follow up of patient's post-operative, 41 patients (14.2%) had post-operative pain at site of hernia and treated by analgesics, 12 patients (4.2%) had seroma at site of the wound, none of our patients had wound haematoma, 12 patients (4.2%) had hernia recurrence and 19 patients (6.6%) had wound infection.

From 19 patients who had wound infection, 14 (4.9%) of them had medical treatment while 5 (1.7%) the medical treatment failed and needed mesh removal Figure 4.

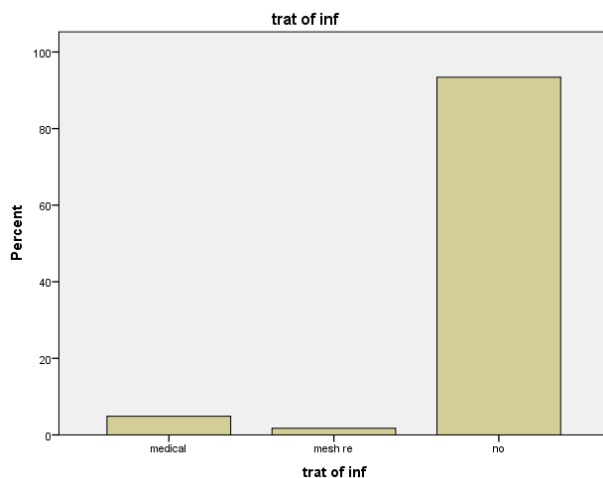


Figure 4: Trat of Inf.

Follow up period extended for eight months post operatively, patients without fixation to their mesh had less pain and infection, also less operative time and less cost. But no significant difference was found between both groups in recurrence, seroma haematoma and displacement of hernia.

DISCUSSION

Several investigators have questioned the need for mesh fixation, which has been implicated as a source of chronic inguinodynia for example in groin hernias. Mesh fixation is believed to prevent hernia recurrence as it is an important measurable outcome. The mechanisms of recurrence have been studied by many investigators and are mostly related to technique rather than fixation of the mesh or not. One of the most common reasons for recurrence is incomplete dissection. Incomplete dissection is more often associated with inadequate reduction of the hernia sac, missed hernias, missed lipomas or preperitoneal fat, insufficient exposure for adequate mesh size. Another common reason for hernia recurrence is inadequate overlap of the hernia defect from placement of a small mesh. And to avoid problems with mesh migration and shrinkage. Avoiding mesh fixation prevents nerve entrapment in groin hernias. Kraus first

reported damage to the lateral femoral cutaneous nerve of the thigh and subsequently noted injury to the femoral branch of the genitofemoral nerve. The cause of injury was misplacement of staples, and he concluded that more accurate positioning would decrease the incidence of nerve injuries.⁹

There are several prospective randomized studies comparing fixation versus non fixation of mesh in hernia repair.¹⁰

In a prospective randomized study reported no difference in the hernia recurrence rate between fixation versus non fixation of the mesh in different groups over 12-month follow-up period in 92 patients.

In our series, we conducted a prospective study in about 288 patients, mesh fixation either by staples or stitches carried out in 141 patients and in 147 patients we did not fix the mesh.

We noticed no significant difference between both fixation or non-fixation of the mesh on post-operative seroma, recurrence or displacement of the mesh.

Post-operative pain and infection was related more to patients whom their mesh was fixed.

Follow up period extended for eight months post operatively. Also there was no significant difference in outcome between fixed mesh or non-fixed. Taylor conducted a large prospective multicenter double-blinded randomized trial for 500 hernias repaired. They found no difference in recurrence between fixation versus non fixation of the mesh. They also looked at pain after hernia repair. Moderate to severe pain was reported in 2% of fixated repairs and none in patients with unfixed mesh.¹¹

There are several other randomized studies comparing fixation versus non fixation with similar results. Some suggest that mesh fixation should be used in patients with large hernia defects. Hollinsky did a cadaver experiment in non-fixed mesh.

They recommended minimum mesh overlap of 2 cm for small hernias. For a hernia size 2 cm and larger, the distance between the margin of the prosthesis and the hernial opening should be equal to the diameter of the hernia. From 4 cm and larger, they recommended that the prosthesis should be secured with a stapler or a stitch. Based on this experiment, Lau et al. did selective non fixation of hernias for the size smaller than 4 cm and recommended fixation of mesh for hernias more than 4 cm. In theory, even a defect greater than 4 cm could be repaired without fixation but with a greater sized mesh.¹²

In our study, we followed the above mentioned method in choosing the size of the mesh, the distance between the margin of the prosthesis and the hernial opening was equal to the diameter of the hernia.

CONCLUSION

Hernioplasty without mesh fixation is associated with less pain and infection; patients undergoing surgery with mesh fixation requires higher doses of painkillers and antibiotics for fear of infection. Seroma, hematoma and recurrence did not differ between both groups; either fixation or non-fixation. There is a tendency that patients without mesh fixation have a lower cost and time of surgery.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Preetham RG. A study of Uncomplicated Inguinal Hernia Repair as A day care Surgery. Diss. RGUHS. 2009.
2. Sauerland S, Jaschinski T, Edmund AMN. Laparoscopic versus open surgery for suspected appendicitis. Cochrane Database of Systematic Reviews. 2010; 10.
3. Khan K. Systematic reviews to support evidence-based medicine. Crc Press; 2011.
4. Rosen MJ. Multicenter, prospective, longitudinal study of the recurrence, surgical site infection, and quality of life after contaminated ventral hernia repair using biosynthetic absorbable mesh: the COBRA study. Ann Surg. 2017;265(1);205.
5. Mooradian DL. Allografts and xenografts in soft tissue repair: Current use and future trends. Extracellular Matrix-derived Implants in Clinical Medicine. Woodhead Publishing; 2016;41-62.
6. Miserez, M. Update with level 1 studies of the European Hernia Society guidelines on the treatment of inguinal hernia in adult patients. Hernia. 2014;18.2:151-63.
7. Reinpold W. Risk factors of chronic pain after inguinal hernia repair: a systematic review. Innovative Surgical Sci. 2017;2(2):61-8.
8. Baiomy TA, Ehab MO. Is mesh fixation considered a routine step in transabdominal preperitoneal hernia repair? The Zagazig-Benha experience. Egyptian J Surg. 2017;36(2):168.
9. Kraus K, Jonathan, Franzen. The Kraus project: Essays by Karl Kraus. Macmillan; 2014.
10. Ferzli R, Lina JK. A no-reference objective image sharpness metric based on the notion of just noticeable blur (JNB). IEEE Transactions Image Processing. 2009;18(4):717-28.
11. Coleridge, Samuel Taylor. The Collected Works of Samuel Taylor Coleridge, Volume 4 (Part II): The Friend. Princeton University Press; 2015.
12. Hollinsky C, Sandberg S. Measurement of the tensile strength of the ventral abdominal wall in comparison with scar tissue. Clinical Biomechanics. 2007;22(1):88-92.

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