

Sutureless Sublay Mesh Hernioplasty in Incisional Hernia Repair, A new gold standard in Herniology

SIKANDAR HAYAT GONDAL, INAYAT HUSAIN ANJUM, RAI AHMAD KHAN KHARAL, BABAR USMAN, SARAH SALEEM

ABSTRACT

A prospective study of 48 (100%) cases of incisional hernia repair, including 28 females (58.4%) and 20 males (41.6%), was carried out at surgical Unit-III of Lahore General Hospital, Lahore, from Dec.2007 to Nov. 2009. Mean ages for male and female patients were 36.85 ± 7.03 and 38.5 ± 6.62 years respectively. 13(65%) of the male patients were smokers. Among all, 7(14.5%) were morbidly obese and 5(10.4%) were diabetic. Mean hospital stay remained 2.25 ± 0.80 days. Hematoma formation was noted in 4(8.3%) cases, while wound infection was seen in 3(6.25%) patients. Whereas complications like sinus formation and mesh rejection or recurrence were not observed during one year follow up. It is concluded that sutureless sublay technique in incisional hernioplasty is acceptable when it is compared to national and international study in similar setups.

Keywords: Sutureless sublay mesh repair; hematoma formation, wound infection, sinus formation, mesh rejection and recurrence.

INTRODUCTION

In 1970, French surgeons Stoppa and Rives, for the first time placed mesh in sublay position without suturing the mesh at the edges of the defect. Since then surgeons of the whole world have been making attempts to use Stoppa and Rives techniques with certain modifications to achieve acceptable results in hernia repair. Because the high recurrence rates ranging from 3.81% to 15%, with traditional techniques of hernioplasty, the purpose of this study was to evaluate the usefulness of sutureless sublay technique in incisional hernia repair in our set up.

METHODS AND MATERIALS

This study was carried out at Surgical Unit-III of Lahore General Hospital, Lahore. All the patients, with diagnosis of incisional hernia, fulfilling the inclusion and exclusion criteria, admitted from the out patient department from Dec. 2007 to Nov.2009, were included in the study. After taking detailed history, performing clinical examination and required investigations, informed written consent was taken and the patients were submitted for surgery on elective list. The operative notes, postoperative hospital stay and complications were entered into the Performa. Follow up was carried out in the out patient department for one year. The results were analyzed by the SPSS version 10.

*Department of Surgery, Lahore General Hospital, Lahore
Correspondence to Dr. Inayat Husain Anjum Email:
drinayatanjum@hotmail.com 03334349360*

RESULTS

A total of 48(100%) patients enrolled in the study, including 28(58.4%) females and 20(41.6%) males. Mean ages for male and female patients were 36.85 ± 7.03 and 38.5 ± 6.62 years respectively. 13(65%) of the male patients were smokers. Among all, 7(14.5%) were morbidly obese and 5(10.4%) were diabetic. The mean hospital stay was 3.25 ± 0.80 days. Hematoma was seen in 4(8.3%) patients. There were 3(6.25%) cases who had wound infection in our study group. During follow up, at 1st visit wound infection was seen in 2(6.25%) patients. On 2nd visit, the wound infection was noted in only one patient. At 3rd and 4th visit none of the patient was observed having wound infection. Sinus formation, mesh rejection and recurrence were not seen in any patient during one year follow up.

DISCUSSION

Incisional hernia results primarily from poor wound healing, faulty surgical techniques, under nutritional status, smoking, infection, pulmonary disease, steroid usage, malignancy, and morbid obesity. Incisional hernia repair had an unacceptable recurrence rates up to 30-40%, when tissue repair alone was used. This much recurrence rate is thought to be associated with increased tissue tension, resulting into tissue ischemia and consequently generation of weaker scar (Robert, 2003; Burger, 2004; Korenkov, 2001). The attempt to reduce the tissue tension started in 1962 by FC Usher, when he used Polypropylene mesh for hernia repair. Since then the

surgeons from the whole of the globe have been extensively engaged to find out the best type of prosthesis and its best site of placement to achieve the acceptable recurrence rates. As a number of workers worldwide are of the opinion that sublay technique is superior, effective and acceptable as for as post operative hospital stay, infective complications and recurrence rates are concerned. (Khaira, 2001; Langer, 2003; Hamilton, 2005; Martin, 2008; Mehmat, 2010). The purpose of our study therefore was to evaluate the usefulness of sutureless sublay technique in our setup according to the variables described like hospital stay, hematoma formation, wound infection, sinus formation, mesh rejection and recurrence.

In our study, the hospital stay of 2.25 ± 0.80 days is comparable to a figure of 2-4 days mentioned in a study by Memon et al in 2009, in 200 cases of incisional hernia repair by sublay technique. R Godara et al, in 2006, observed a relatively higher value of 6.8 ± 1.5 days in his study of 100 cases with defects less than 4 inches. This short hospital stay in this technique has reduced the cost of treatment that is particularly important in the countries with poor economies like Pakistan.

Hematoma is a pocket or localized collection of blood usually in liquid form within the tissue. These collections, hematomas or seromas, should not be mistaken for recurrence of the hernia which may often present similarly. These fluid collections resulted from both the porous property of the mesh, the discharge in the potential space created during surgical manipulation or from the puncture of the blood vessels, if meticulous hemostasis is not achieved. Generally none of these patients require drainage since such collections usually disappear spontaneously (Wedro, 2011). In this study, only 3(4.69%) patients developed this complication. All of them were managed conservatively. In another study, Memon et al, in 2009, depicted a value of 4.2% at Ghulam Mohammad Mehar Medical College/Hospital, Sukkar, in patients managed with sutureless sublay method of incisional hernia repair (Memon, 2009). Peter Nau et al, in 2009 in America, observed 4.7% hematoma formation in his study of 64 cases of incisional hernia repair with sublay technique. These results are very well comparable to our study.

Wound infection is invasion by and multiplication of pathogenic microorganisms at wound site which may produce subsequent tissue injury and progress to overt disease through a variety of cellular or toxic mechanisms. In mesh hernioplasty, it is a terrifying complication, which sometimes can be severe enough to necessitate removal of mesh (Kingsnorth, 2004) but fortunately superficial, relatively minor wound infections are more commonly observed as

people like Pillay et al, in 2007 and Zarin et al, in 2008, reported a figure of 10% and 14% in their studies respectively. While most of the local studies recorded a comparatively lower values ranging from 5-10% (Waqar, 2005; Javid, 2006; Memon, 2009). According to our study, an overall wound infection rate was 6.25%.

Sinus is a track leading to cavity which may be filled with pus. Persistent infection or foreign body results in sinus formation. During the course of follow up, none of the patients suffered from sinus formation. In a local research, Hameed et al, in 2009, noted 0% sinus formation (Hameed, 2009). Peter Nau et al in 2009, noted 0% sinus formation in his study of 64 cases of hernia repair by sublay technique. Our results are comparable to all the studies as far as the sinus formation is concerned in the management of incisional hernia.

No mesh rejection or recurrence was noticed during the follow up of the cases which also signifies that sutureless sublay method of hernioplasty is superior, safe and economical in our setup.

CONCLUSION

Patients with sutureless sublay mesh hernia repair have short hospital stay, low infective complications and zero recurrence, making this technique a new gold standard in the treatment of incisional hernia.

REFERENCES

1. Burger JW, Luijendijk RW, Hop WC, Halm JA, Verdaasdonk EG & Jeekel J, 2004. Long term follow-up of a randomized controlled trial of suture versus mesh repair of incisional hernia, *Annals of Surgery*, vol. 240, pp. 578-83.
2. Godara R, Garg P, Raj H & Singla SL, 2006. Comparative Evaluation of sublay versus only Meshplasty in ventral hernias, *The internet Journal of Surgery*, vol. 8.
3. Hamilton LE & Bender JS, 2005. Retrofascial mesh repair of ventral incisional hernia, *American Journal of Surgery*, vol. 189(3), pp.373-5.
4. Hameed F, Ahmed B, Ahmed A, Dab RH & Dilawaiz, 2009. Incisional hernia repair by preperitoneal (Sublay) mesh implantation, *APMC*, vol. 3(10), pp. 27-31
5. Javid S, 2006. Incisional hernia - 10 years experience, *Pakistan Journal of Surgery*, vol. 22, pp. 146-9.
6. Kahira HS, Lal P, Hunter B & Brown H, 2001. Repair of inguinal hernia, *Journal of Royal College of Surgery Edinburgh*, vol. 46, pp. 39-43.
7. Kingsnorth AN, Sivarajasingham N, Wong S & Butler N, 2004. Open mesh repair of incisional hernias with significant loss of domain, *Annals of Royal College of Surgery England*, vol. 86, pp. 363-6.
8. Korenkov M, Paul A, Sauerland S, Neugebauer E, Arndt M, Chevrel JP, et al, 2001. Classification and surgical treatment of incisional hernia. Results of an

- experts' meeting, *Langenbeck's Archives of Surgery*, vol. 386, pp. 65-73.
9. Langer C, Liersch T, Kley C, Flosman M, Süß M, Siemer A, et al, 2003. Twenty five years of experience in incisional hernia surgery: a comparative retrospective study of 432 incisional hernia repair, *Chirurgie*, vol. 74(7), pp. 638-45.
 10. Martin-Duce A, Noguerales F, Villet AR, Hernández P, Lozano O, Keller J, et al, 2001. Modifications to Rives technique for midline incisional hernia repair, *Hernia*, vol. 5, pp. 70-2.
 11. Mehmet Y, Engin O, Karademir M, Hoser A & Calik B, 2010. Is Repair of Incisional Hernias by Polypropylene Mesh a Safe Procedure? *Medicine Principals and Practice*, vol. 19(2), pp.129-132.
 12. Memon W, Khanzada TW, Abdul Samad & Kumar B, 2009. Incisional hernia with polypropylene mesh, *Journal of Pakistan Medical Institute*, vol. 23(2), pp. 159-63.
 13. Pillay Y, Naidoo NM & Madiba TE, 2007. Incisional hernia: Experience in a single surgical unit, *East and Central African Journal of Surgery*, vol. 12, pp.42-6.
 14. Robert M, Zollinger Jr, Robert M & Zollinger SR, 2003. *Zollinger's Atlas of surgical operations*, 8th ed. USA, McGraw Hill, pp. 406-9.
 15. Waqar T & Aslam HS, 2005. Complications of repair of incisional hernia using polypropylene mesh, *Annals of King Edward Medical College*, vol. 11, pp. 319-22.
 16. Wedro B, Nettleman MD. Hematoma. [Online]. 2011. Available from: <http://www.medicinenet.com/hematoma/page2.htm#causes>
 17. Zarin M, Afridi MR, Saeed T, Muqim R, Aurangzeb M & Wazir MA, 2008. Outcome of mesh repair for incisional hernia, *Pakistan Journal of Medical Sciences*, vol. 24(2), pp. 213-16.