

Original Article

LONG PERIOD VS SHORT PERIOD DRAIN PLACEMENT IN INCISIONAL HERNIA REPAIR

Javaid-ur-Rehman, Saleem Arif and Yasoob Ali

Objectives: To assess the benefit of the long period drain placement after incisional Hernia repair and abdominoplasty for reducing the seroma complications.

Methods: A total of 100 patients were included in this study which had been performed at services institute of medical sciences Lahore between January 2013 to December 2014. In these patients mesh repair of incisional hernia and abdominoplasty had been performed for their incisional Hernia and hanging abdomen. These patient had been divided into two groups, group (1) include 50 patients in which the drain had been left for 3 to 4 days, group(2) include 50 patients in which the drain had been left for 7 to 15 days.

Results: We found that in the group (1), 20 (40%) patients had develop seroma collections and 8 (21.33%) patients had developed wound infection with this seroma and 5 (13.33%) patients developed hematoma collections.

In group (2) we found that only 3 (9.33%) patients developed seroma collection and 1 (4%) patients developed wound infection with this seroma.

Conclusion: There was significant difference in the incidence of seroma formation or surgical wound infection between the two groups. So we can place drain for long period to prevent seroma formation.

Keywords: Incisional Hernia, drain, mesh repair, abdominoplasty.

Introduction

Hernia is a mechanical defect in the abdominal wall and repair of hernia is one of the commonest procedures performed by general surgeons. Repair of incisional hernia is complex due to recurrent operations and infections. Wound-related complications are common after incisional hernia repair with abnormal fluid collections, seroma being the most frequent problem. The use of mesh increases the risk of seroma formation.^{1,2} The surgeon's choice of mesh and the position of incorporation are critical in reducing the incidence of postoperative seroma by affecting the tissue plane dissection, closure, and subsequent healing process.^{3,4} Most seromas are not clinically relevant because they are asymptomatic and resolve within weeks with expectant management. On the other hand, seromas can become infected and predispose to various wound complications. In many cases of persistent or complicated seromas, fluid aspiration fails to provide final resolution of the collection. Furthermore, fluid aspiration carries the risk of introducing infection, which can be detrimental following mesh placement. The mesh onlay technique, which requires more extensive dissection, is associated with an even greater incidence of seroma formation.

Methods

This is a prospective study conducted at services institute of medical sciences Lahore from January 2013 to December 2014. In this 100 patients were included in which mesh repair of incisional hernia and abdominoplasty was done. We divided the patients into two groups, 50 patients in each groups. All the patients had large incisional hernias due to previous operations and they had given the consent for mesh repair of hernia and abdominoplasty. Unwilling patients, morbid obese patients and high risk patients are excluded from the study. All the patients were operated as lower transverse skin crease incision was made, flaps were raised sac was identified contents were reduced repair of hernia and onlay/sublay mesh applied. Then flaps were cut and wound closed over a two drains. In this we used two drains 18french redivac drains one on each side of the abdomen under the flaps and over the mesh. In group one we removed the drain after 3 to 4 days and in group 2 we removed the drain after 7 to 15 days. These drains were removed when seroma was less 20ml in last 24 hours. The statistics were assessed with spss software version 20.

Results

The demographics were same in both groups with

median age was (39.16 ± 8.9) years). After reviewing the patients we come to know that most common cause of incisional hernias in females were after lower segment caesarian sections, other gynecological surgeries and recurrent Para umbilical hernias. In males the most common cause of incisional hernias was laprotomy, recurrent Para umbilical hernia and sites of stoma. In group 1 seroma occur in 20 patients and haematoma occur in 5 patients and infection occurs in 8 patients. In group 2 seroma occur in 2 patients and haematoma and infection occur in one patient and it is statistically significant.

Table-1: Causes of incisional hernia.

Types of Surgery	Types of surgery	Percentage
Cesarean Sections	21	21%
Hysterectomy	12	12%
Laprotomies	24	24%
Stoma sites	04	04%
Appendisectomies	03	03%
Hernias	36	36%

Table-2: Complications

Groups	Seroma formation	Wound Infection	Haematoma
Group I	20/50	8/20	5/20
Groups II	2/50	0	1/2

Discussion

Incisional hernia is a frequent complication of abdominal surgery and such hernias causes serious morbidity such as incarceration and strangulation. There are different types of repair of incisional hernias and wound-related complications are common after incisional hernia repair with abnormal fluid collections and infection being the most frequent problems. When mesh is used for repair of larger and more complex incisional hernias, the risk of seroma formation increases. The mesh onlay technique, which requires more extensive dissection, is associated with an even greater incidence of seroma formation. Previously reported rates of seroma occurrence with different types of mesh range from 4% to 8% with polypropylene (Prolene, Marlex) grafts and 5% to 15% with PTFE (Gore-Tex) grafts.²⁻⁶ In most instances, these seromas resolve either spontaneously or with the insertion of drains or serial percutaneous aspirations.⁷⁻⁹ In this study we also selected complex incisional

hernias in which repair of incisional hernias and abdominoplasty were also done due to obesity and hanging abdominal wall. Most of our surgeons place drains for short period for 3 to 4 days but I usually place drain for 7 to 15 days. So we come to know that if we place drain for short period there are more chances of seroma formation and more chances of infections and if we place drain for more period then there are less chances of seroma formation and wound infection. There are different types of repairs of incisional hernia, suture repair, component separation and mesh repair. Mesh can be applied in different ways inlay, sublay and onlay techniques.¹⁰⁻¹³

In suture repair there are more chances of recurrences but fewer chances of infection but in mesh repair there are less chances of reoccurrence but there are more chances of infection due to foreign body reaction. Due to this foreign body reaction there is more tissue reaction which leads to more reactionary fluid production and this fluid needs drainage and in study we place drain for long period for drainage of exudative serous fluid. We observe if we remove drain earlier then this fluid will accumulate under the flaps and later on this fluid become infected leading to delayed recovery. In this study we performed abdominoplasty along with hernia repair in obese patients and in these patients there are more chances of seroma formation although seroma again occurred in 2 patients after long period drain placements which was treated with multiple aspirations or again placement of drain in seroma cavity.

From our study we found that there is statistically significant ($p < 0.5$) difference between the complications that happen when the drain is removed early and there is less complications if it is kept for long period. The evacuation of either hematoma & seroma with tight dressing is an important factor to prevent infection and abscess formation which leads to toxicity and weakening of the repair that may be as a predisposing factor for wound dehiscence or late recurrence. Although long term drain placement also increases chances of infection but dressing under aseptic condition reduces this chances of infection.

Conclusion

There was significant difference in the incidence of seroma formation or surgical wound infection between the two groups.

Department of Surgery
SIMS/Services Hospital Lahore
www.esculapio.pk

References

1. Medina M, Sillero M, Martinez-Gallego G, Delgado-Rodriguez M. Risk factors of surgical wound infection in patients undergoing herniorrhaphy. *European Journal of Surgery* 1997; 48: 169-79
2. The American Journal of Surgery comparison between paraumbilical hernia repair by mesh and x nylon (mayo's), volume 198, Issue 5, 583-732 (November 2009).
3. Rodriguez A, Hinder R. Surgical Management of Umbilical Hernia. *Operative Techniques in General Surgery*. 2004; 6(3):15664.
4. Gurusamy KS, Allen VB, Samraj K. Wound drains after incisional hernia repair. *Cochrane Database Syst Rev*. 2012;2:CD005570. PMID: 22336814.
5. Pollock H, Pollock T. Progressive tension sutures: a technique to reduce local complications in abdominoplasty. *Plast Reconstr Surg*. 2000 Jun; 105(7):2583-6; discussion 7-8. PMID: 10845315.
6. Chrysos E, Athanasakis E, Saridaki Z, et al. Surgical repair of incisional ventral hernias: tension-free technique using prosthetic materials (expanded polytetrafluoroethylene Gore-Tex Dual Mesh). *Am Surg*. 2000; 66:679-682.
7. Simchen E, Wax Y, Galai N, Israeli A. Differential effect of risk factors on early and late wound infections in patients undergoing herniorrhaphies. *Ann Epidemiol*. 1992; 2:263272. [PubMed: 1342277]
8. Gurusamy KS, Allen VB, Samraj K. Wound drains after incisional hernia repair. *Cochrane Database Syst Rev*. 2012;2:CD005570. PMID: 22336814.
9. Klink CD, Binnebosel M, Lucas AH, Schachtrupp A, Klinge U, Schumpelick V, Junge K. Do drainage liquid characteristics serve as predictors for seroma formation after incisional hernia repair? *Hernia*. 2010 Apr; 14(2):175-9. PMID: 19998048
10. Klinge U, Klosterhalfen B, Muller M, Schumpelick V. Foreign body reaction to meshes used for the repair of abdominal wall hernias. *Eur J Surg*. 1999 Jul; 165(7):665-73. PMID: 10452261
11. Borile G, Pavelecini M, Dreher R, Chem E, Chem RC. The use of suction drains in abdominal dermolipectomy: a randomized clinical trial. *Plast Reconstr Surg*. 2008 Apr; 121(4):228e-9e. PMID: 18349614.
12. Tsimoyiannis EC, Siakas P, Glantzounis G, Koulas S, Mavridou P, Gossios KI. Seroma in laparoscopic ventral hernioplasty. *Surg Laparosc Endosc Percutan Tech*. 2001 Oct; 11(5):317-21. PMID: 11668229.
13. Memon AA, Khan A, Zafar H, Murtaza G, Zaidi M. Repair of large and giant incisional hernia with onlay mesh: perspective of a tertiary care hospital of a developing country. *Int J Surg*. 2013; 11(1):41-5. PMID: 23178155

CORRIGENDUM

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In an Original Article,

“Mutational Analysis of HCV Gene Encoding E1 Glycoprotein”

By Muhammad Saad Janjua, Rehman Shahzad, Ghazala Jaffery, Faria Malik, Aneeq Waqar and Hina Bukhari was printed Department of Biochemistry on page # 114. The correct department is Department of Pathology.

Now **Volume 12, Issue 03, July to September 2016** page # 114. Should be read as follow:
Department of Pathology, SIMS/Service Hospital Lahore.