

Two Year Audit of Lichtenstein Mesh Hernioplasty for Inguinal Hernia at Gulab Devi Teaching Hospital

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ABSTRACT

Aim: To evaluate the rate of infection and other outcomes after mesh hernioplasty in patients at Gulab Devi Hospital.

Methods: The present descriptive cross sectional study was carried out at Gulab Devi Teaching Hospital Lahore. Sixty subjects were included in the study through non-probability sampling methods.

Results: All subjects were male. The mean age was 43.68±12.13 yrs. The associated comorbid illnesses were present in 36.7% but the rate of mesh related infection was only 5% of the total study population.

Conclusion: The elective procedures such as mesh hernioplasty for inguinal hernia repair are the safest procedures. This is evident by the lowest frequency of infection (5%) in elective mesh hernioplasty for Inguinal Hernia. However, this percentage can further be reduced by adopting advance level of sterilization and post-operative care.

Keywords: Inguinal hernia, Mesh hernioplasty, mesh related infection

INTRODUCTION

Hernia is an abnormal protrusion of a normal content through a normal or abnormal opening in a cavity¹. Usually it is caused by the weakness or disruption of the fibro muscular tissues of the body wall. It is also called anatomical weakness or defect. Most commonly hernias are seen in the groin. 75-85% of abdominal wall hernias are groin hernias and these are more prevalent in male as compared to female².

Inguinal hernia is the most common hernia because muscular anatomy in the inguinal region is weak due to the presence of natural weakness like deep inguinal ring and cord structures. According to types of inguinal hernia; Indirect inguinal hernia occurs by processes vaginalis which usually closes around the time of birth, remains open. This allows a portion of peritoneal contents to slip through the inguinal canal. These hernias often are diagnosed within the first year of life, but may not show up until adulthood.

Direct inguinal hernia occurs when peritoneal contents protrude through a weakness in the abdominal muscles along the wall of the inguinal canal. It is common in adults, but rarely occurs in children. In adults, direct and indirect inguinal hernias symptoms are same but signs are little bit different

For hernia surgery there are different options including herniorrhaphy and hernioplasty³. Herniorrhaphy which involves tissue repair is the oldest type of hernia surgery and is still being used. In hernioplasty, mesh is applied and stitched to the patch into the healthy, intact surrounding. These mesh are usually made of flexible plastics, such as polypropylene tissues. Friable or weak

tissues surrounding the hernia will use the mesh, as a supportive, strengthening scaffold as they regrow.

In past many surgeons were reluctant to use mesh for hernia surgery because of its postoperative complications but these days use of a mesh has become the standard in hernia repair surgery all over the world and is considered safe procedure due to reduced rates of recurrence and post-surgical complications⁴. But even then the mesh-related complications have become increasingly more frequent. These can be classified as non-infectious and infectious complication. Non-infectious complications include seroma formation, mesh migration, persistent postop pain, recurrence and foreign body reaction. Postsurgical mesh-related infections are rare but troublesome complications. Its treatment includes antibiotic cover and removal of mesh which causes hernia recurrence and re operation. These all prove to be a burden on hospital resources, increase in morbidity and not less than a psychological trauma for the patients and their families.

We planned a research project to evaluate the rate of infection and other outcomes after mesh hernioplasty in our patients at Gulab Devi Hospital Lahore so that if these complications are more in our patents than in literature, we can rectify our technique and on the other hand if these are fewer in our patients than in literature we can recommend our suggestions to the surgical community for the betterment of humanity.

MATERIAL AND METHODS

The present descriptive cross sectional study was carried out at Gulab Devi Teaching Hospital Lahore. Sixty subjects were included in the study through non-probability sampling methods.

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All patients undergoing inguinal hernia repair were included except patient with recurrent inguinal hernia. After approval by institutional ethical review committee of the hospital, the patients were recruited from hospital. Informed consent was also taken from patients. Both qualitative and quantitative data was collected from patients and entered in a questionnaire. The infection was defined as patient having fever, pain, swelling, hematoma or obvious wound infection. The collected data was entered and analyzed by using SPSS version 25. The qualitative data like gender was presented in the form of pie chart and quantitative data with its frequency.

RESULTS

A total of sixty subjects were studied out of which 59 (98.3%) were male and only 01(1.6%) was female. (Figure 1) The mean age was 43.68±12.31years with a range from 25 to 74 years. Mean weight was 70.41±15.08kg with range from 40 to 90kg. In 38(63.3%) patients hernia was on right side while in 22(36.6%) patients it was on left side. In 41 (68.3%) patients indirect hernia was present, 16(26.6%) patients were having direct hernia and only 03(5%) had both direct and indirect inguinal hernia.

Table 1: Association of gender and comorbidities with pain

Parameters	Pain		P value
	Yes	No	
Gender			
Male	7(11.7%)	52(86.7%)	0.133
Female	1(1.7%)	0	
Hypertension			
Yes	3(5.0%)	15(25.0%)	0.686
No	5 (8.3%)	37 (61.7%)	
Diabetes Mellitus			
Yes	0 (0.0%)	14 (23.3%)	0.179
No	8 (13.3%)	38 (63.3%)	
Hepatitis B			
Yes	0 (0.0%)	7 (11.7%)	0.578
No	8 (13.3%)	45 (75.6%)	
Hepatitis C			
Yes	1 (1.7%)	10 (16.7%)	1.000
No	7 (11.7%)	42 (70.0%)	

Table 2: Association of gender and comorbidities with wound infection

Parameters	Pain		P value
	Yes	No	
Gender			
Male	4 (6.7%)	55 (91.7%)	1.000
Female	0 (0.0%)	1 (1.7%)	
Hypertension			
Yes	2 (3.3%)	16 (26.7%)	0.576
No	2 (3.3%)	40 (66.7%)	
Diabetes Mellitus			
Yes	0 (0.0%)	14 (23.3%)	0.567
No	4 (6.7%)	42 (70.0%)	
Hepatitis B			
Yes	0 (0.0%)	53 (88.3%)	1.00
No	4 (6.7%)	53 (88.3%)	
Hepatitis C			
Yes	1 (1.7%)	10 (16.7%)	0.566
No	3 (5.0%)	46 (76.7%)	

The frequency distribution of patients with comorbidities were hypertension 18(30%), diabetes mellitus 14(23%), hepatitis B 7(11.67%) and Hepatitis C 9(12.86%). Similarly,

8(13.33%) had complain of postoperative pain, 5(8.33%) patients had postoperative fever. 5(8.33%) had complain of surgical site swelling, 2(3.33%) had hematoma formation, whereas 3(5%) have complain of obvious wound infection. (Figure 2) The association of pain, fever, swelling, hematoma and obvious infection with age and other comorbidities were also seen (Table 1-3). Only statistically significant association was found between males and hematoma formation with p value 0.05. Other associations were statistically not significant.

Table 3: Association of gender and comorbidities with hematoma

Parameters	Pain		P value
	Yes	No	
Gender			
Male	2 (3.3%)	57 (95.0%)	0.050
Female	1 (1.7%)	0 (0.0%)	
Hypertension			
Yes	0 (0.0%)	18 (3.0%)	0.547
No	3 (5.0%)	39 (65.0%)	
Diabetes Mellitus			
Yes	0 (0.0%)	14 (13.3%)	1.000
No	3 (5.0%)	43 (71.7%)	
Hepatitis B			
Yes	0 (0.0%)	7 (117%)	1.000
No	3 (5.0%)	50 (80.3%)	
Hepatitis C			
Yes	0 (0.0%)	11 (18.3%)	1.000
No	3 (5.0%)	46 (76.7%)	

Figure 1: Gender distribution

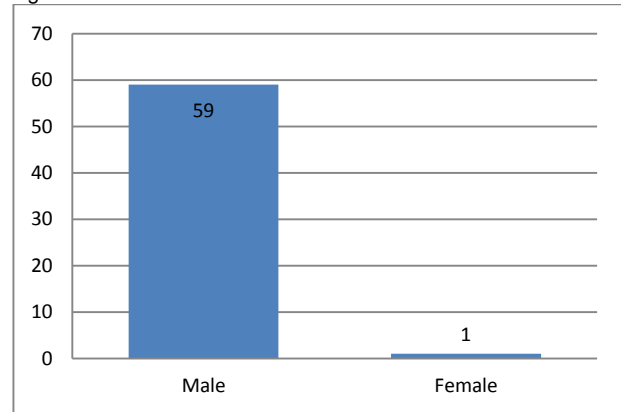
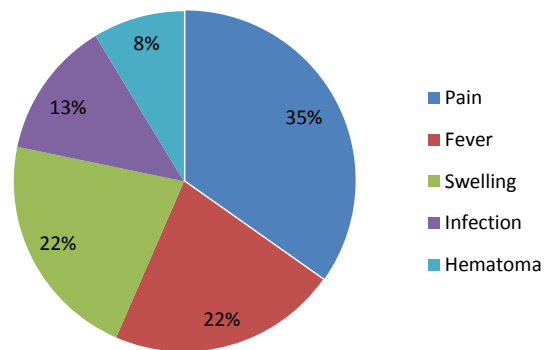


Figure 2: Complication distribution



DISCUSSION

In our study, the mesh related complications after inguinal hernia repair surgery is far less than other published studies at national and international level. Demetrashvili, et al. reported that 31.8% of patients in their research project had pain after inguinal hernia repair surgery while it was 13.3% in our study.⁵

Baptiste ML, in their study mentioned that 83% patients had scrotal swelling after mesh inguinal hernia repair surgery, which was 8.3% in our study. Wound infection frequency in local and international studies ranges from 7-18% which is higher than our study.⁶⁻⁹ In our study, the wound infection after the inguinal hernia repair surgery was 5%.

The lowest values of complications in our study as compared to other studies may be associated with use of international approved operating protocols, excellent post-surgical care and use of proper antiseptic procedure. We can also relate these low values to small sample size. Another limitation to our research project is that it was a single center study. Further multicenter studies with more sample size are needed to make these suggestions as a policy on national and international surgical platforms.

CONCLUSION

We conclude that mesh related infections after inguinal hernia repair surgery are not uncommon however the use of appropriate surgical techniques, proper facial closure of post site wound and sterilization of instruments clearly limit the frequencies of post-surgical infections. We recommend

the larger scale studies on this topic in rural and urban settings.

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