

RECURRENCE OF HERNIA AFTER MESH HERNIOPLASTY – A STUDY OF 100 CASES

Hossain SMS¹, Rahman MM², Hasan M³**Abstract**

Introduction: Recurrences have been a significant problem following hernia repair. Prosthetic materials are increasingly used in hernia repair to prevent recurrences. Their use has been associated with several advantages, such as less postoperative pain, rapid recovery and low recurrence rates.

Objectives: This study has been done to find out the early and late morbidity specially the recurrence rates of Hernia after mesh hernioplasty.

Methods: This retrospective study, was performed on 100 patients between the periods of October 2007 to October 2012 at Combined Military Hospital, Dhaka, on whom tension free open repair were performed by Rives (Inlay), Lichtenstein (onlay) or Stoppa (GPRVS) technique. Stoppa technique was applied in bilateral cases. Laparoscopic inguinal hernia repair was done by TAPP (Trans Abdominal Pre Peritoneal) approach. All data concerning age, sex, history, and symptoms of patients, as well as the post operative condition of the patients were recorded in predesigned data sheet.

Results: Out of 100 cases 90 (90%) were male and 10 (10%) were female. The overall age ranged between 30 – 80 years with an increased incidence between 5th and 6th decades (50%). Most of the patients were having inguinal Hernia (75%),

followed by incisional hernia in 15 (15%) and paraumbilical hernia in 10 (10%) patients. Among inguinal hernia, direct variety were 53 (58.2%), indirect 29 (31.9%), recurrent 9 (9.9%), right sided 44 (48.3%), left sided 31 (34.1%) and bilateral 16 (17.6%). Fifteen (15%) cases had diabetes mellitus, 10 (10%) cases had hypertension, 12 (12%) cases had been suffering from bronchial asthma and 2 (2%) cases had features of prostatism. Ninety two (92%) patients underwent open surgery and 8 (8%) cases laparoscopic hernioplasty. Among the open procedure done (83 procedures) in inguinal hernias unilateral inlay inguinal hernioplasty (Rives) was done in 47 (56.6%), onlay (Lichtenstein) in 20 (24.1%) and Stoppa procedure was done in 16 (19.3%) bilateral cases. In all 100 cases, a sheet of Polypropylene mesh was given as prosthetic material. Post operatively a few patients developed complication. Ecchymosis of skin in 2 (2%), testicular swelling and orchitis in 4 (4%), wound infection in 3 (3%), retention of urine in 10 (10%) cases. All were treated and improved. 2 (2%) cases developed recurrence after operation as found in follow-up where onlay mesh were given and who had features of prostatism.

Conclusion: Tension-free mesh hernia repair is a simple, safe, comfortable and effective method, with extremely low early and late morbidity and remarkably low recurrence rate and therefore it is a preferred method for hernia repair.

1. Lt Col S.M. Shakhwat Hossain, MBBS, FCPS, D.HBS (China), Graded Specialist in Surgery, CMH, Dhaka;
2. Col Md. Mahbubur Rahman, MBBS, FCPS, Fellow Colorectal Surgery (France), Professor of Surgery, AFMC, Dhaka;
3. Lt Col Masroor Hasan, MBBS, FCPS, MS (Plastic Surgery), Graded Specialist in Surgery, CMH, Ctg.

Key-words: Hernia, Prolene mesh, Inlay, Onlay, Recurrence.

Introduction

The surgical history of inguinal hernias dates back to ancient Egypt. From Bassini's heralding of the modern era to today's mesh-based open and laparoscopic repairs, this history parallels closely the evolution in anatomical understanding and development of the techniques of general surgery¹. Accounting for 75% of all abdominal wall hernias, and with a lifetime risk of 27% in men and 3% in women, inguinal hernia repair is one of the most commonly performed surgeries in the world². In the United States, inguinal herniorrhaphy accounts for approximately 800,000 cases yearly³. The lifetime risk rate of inguinal hernia is 25% in males and 2% in females⁴. The risk of inguinal hernia increases with age, and the annual incidence is around 50% by the age of 75⁵. Approximately two-thirds of inguinal hernias are indirect, and one third is direct⁶. For many decades, patients underwent the traditional tissue approximation repair. In a Cochrane review comparing mesh to nonmesh open repair, evidence was sufficient to conclude that the use of mesh was associated with a reduced rate of recurrence³. An incisional hernia develops in 3-13% of laparotomy incision⁷. Unfortunately, primary repair of incisional hernias often yield un-satisfactory results; reported recurrence rates have ranged from 25-52%^{8,9}. Similarly no consensus on the best techniques for the repair of paraumbilical hernia in adult is present¹⁰. Recently, open and laparoscopic tension free mesh hernioplasty procedures have widely replaced the tissue approximation repair.

Materials and Methods

This study includes 100 cases of hernias, treated in the department of surgery, Combined Military Hospital, Dhaka Cantonment during the period of October 2007 to October 2012. Detailed history was taken with special emphasis on previous operation, medical conditions such as bronchial asthma, diabetes mellitus, hypertension, constipation, difficulty in micturition.

The patients were investigated thoroughly to exclude predisposing factor that may require operative treatment in near future. All the patients underwent surgery. They were positioned supine on operation table. In some cases a catheter was inserted to decompress the bladder. Gastric decompression was accomplished by placement of a naso-gastric tube in few cases. Access to the abdomen was obtained by means of an open technique in 92 cases and laparoscopic technique in the reminder. The hernia sac contents were reduced, but the peritoneal sac itself was left in situ. Dissection was carried out in most of the cases under fascia transversalis (inlay) and in a few cases over transversalis fascia (onlay). Prolene mesh was positioned and secured by nonabsorbable suture. In most of the cases of inguinal hernia, posterior wall of inguinal canal was strengthened by Bassini method with non absorbable suture. After that wounds were closed in layers.

Result

The total number of patients was 100. Of them 90(90%) were male and 10(10%) were female with a ratio of 9:1. Table-I shows the age ranging from 30 years to 80 years with increasing incidence between 5th and 6th decades. Table-II shows location of different types of hernias where inguinal hernia are found in 75(75%) cases, incisional hernia in 15(15%) cases and paraumbilical hernia in 10(10%) cases. Table-III shows that direct inguinal hernia were maximum in number i.e. in 53(58.2%) cases, there after indirect inguinal hernia were found in 29(31.9%) cases and recurrent inguinal hernia in 9(9.9%) cases. Table-IV shows the procedure of prosthetic repair; polypropylene mesh was applied on preperitoneal space i.e. Rives (Inlay) method in 60(65.5%) cases followed by Lichtenstein (Onlay) in 15(16.5%) and stoppa (GPRVS) in 16(17.6%) cases. Table-V shows the post operative complications; ecchymosis of skin in 2(2%) patients, testicular swelling in 4(4%), wound infection in 3(3%), retention of urine in 10(10%) and recurrence in 2(2%) cases. Table-VI shows the final outcome of the treatment. In our study 98 patients were completely cured. Two patients developed recurrence after hernioplasty where onlay hernioplasty was done and patients had features of prostatism.

Table-I: Age distribution in patients of operated group (n=100).

Age in years	No of cases	Percentage
30	2	2
31-40	10	10
41-50	15	15
51-60	50	50
61-70	18	18
71-80	5	5

Range = 30 – 80 yrs

Mean Age: 53.5 yrs

Increasing incidence between 5th and 6th decades

Table-II: Location of hernia (n=100).

Location	No of cases	Percentage
Inguinal	75	75
Incisional	15	15
Paraumbilical	10	10

Table-III: Types of inguinal hernia (n=91).

Types	No of cases	Percentage
Direct	53	58.2
Indirect	29	31.9
Recurrent	9	9.9

Table-IV: Procedure of prosthetic repair (n=116).

Procedure	No of cases	Percentage
Rives (Inlay)	47	40.5
Lichtenstein (Onlay)	20	17.24
Stoppa (GPRVS)	16	13.8
TAPP	8	6.9
Inlay Mesh in Incisional Hernia	15	12.9
Inlay Mesh in paraumbilical Hernia	10	8.6

Table-V: Post operative complication (n=100).

Complication	No of cases	Percentage
Ecchymosis of skin	2	2
Testicular Swelling/ Orchitis	4	4
Wound infection	3	3
Retention of urine	10	10
Recurrence	2	2

Table-VI: Final outcome after operation (n=100)

Result	No of cases	Percentage
Complete cure	98	98
Recurrence	2	2

Discussion

The true incidence of inguinal hernia is not known, although fairly accurate estimates are available, based on different survey¹¹. The overall incidence in adults in western hemisphere varies between 10-15%¹¹. The incidence in our country is not known. The male to female ratio is similar to our study¹¹. The repair of these hernias represent as challenging surgical problem. Because primary repair with suture alone can yield failure rates of 10% to 30%¹¹. A variety of open and laparoscopic techniques using prosthetic mesh have been developed. Placement of mesh has been shown to reduce long term failure rate to 11% to 21%⁸. In our study, the recurrence rate is 2% during a mean follow-up time of 24 months. This correlates with other studies⁹.

In our study it is evident that inlay hernioplasty has better result than onlay hernioplasty. Post-operative recovery was uneventful in most of the cases except a few who developed minor complications after undergoing open surgical hernioplasty. These patients were later treated and they got improved. Laparoscopic surgical approaches have several advantages over traditional open operations, including reduction in hospital stay, post-operative pain and time required for convalescence. The increasing interest in minimally invasive surgery has encouraged development of techniques for performing hernia repair laparoscopically. Overall long term result of laparoscopic hernia repair is expected to be better than conventional mesh repair.

Conclusion

A decline in muscle strength and walking ability was evident after conventional hernia repair but not after mesh hernioplasty specially after laparoscopic hernioplasty. With careful patient and procedure selection, surgery is associated with less morbidity and thereby improves quality of life. This procedure is safe, well tolerated and well accepted by the patients.

References

1. Lau WY. History of treatment of groin hernia. *World J Surg.* Jun 2002; 26(6):748-59.
2. Awad SS, Fagan SP. Current approaches to inguinal hernia repair. *Am J Surg.* Dec 2004; 188(6A Suppl):9S-16S.
3. Scott NW, McCormack K, Graham P, Go PM, Ross SJ, Grant AM. Open mesh versus non-mesh for repair of femoral and inguinal hernia. *Cochrane Database Syst Rev.* 2002; CD002197.
4. Nicks BA, Askew K. Hernias. In: *eMedicine* [Internet]. Omaha (NE): eMedicine.com; 2010 Jan 25 [accessed 2010 Jul 14].
5. Inguinal hernia: epidemiology. [Internet]. San Mateo (CA): Epocrates, Inc.; 2010 [accessed 2010 Jul 14]. [1 p].
6. Nicks BA, Askew K. Hernias. In: *eMedicine* [Internet]. Omaha (NE): eMedicine.com; 2010 Jan 25 [accessed 2010 Jul 14] .
7. Park A, Birch DW, Lovrics P. Laparoscopic and open incisional hernia repair : a comparison study. *Surgery* 1998 ; 124 : 816-822.
8. Lichtenstein IL, Shulman AG, Amid PK. The tension free hernioplasty. *Am J surg* 1989 ; 157 : 188-193.
9. Wantz GE. Preperitoneal hernioplasty with unilateral giant prosthetic reinforcement of the visceral sac. *Contemp Surg*, 1994; 44 :83-89.
10. Lau H, patil WG. Umbilical hernia in adult. Department of Surgery, University of Hong Kong Medical Centre, Tung wah Hospital, HongKong. *Surg Endosc*, 2003: 2016-2020.
11. Seymour I, Schwart Z and Ellis H. *Maingot's Abdominal operations.* 9th ed. USA : Jack Abrahamson; 1990:215-296.