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Original Article

OUTCOME OF TENSION FREE OPEN MESH REPAIR OF INGUINAL HERNIA

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Abstract

Background: In the practice of General Surgery, hernia repair is the second most common procedure after appendicectomy. Several methods have been developed over the years to try to improve hernia repair. Good result can be expected using Bassini's, McVay's, Shouldice's techniques provided the exact nature of hernia is recognized and the repair is done without tension using healthy tissue. The introduction of synthetic mesh started a new era in hernia surgery. The use of synthetic mesh repair of primary and recurrent hernias has gradually gained acceptance among surgeons.

Objective: To find out the outcome and complications of open inguinal hernia repair with prolene mesh.

Methods: This is a prospective cross sectional study conducted at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, from December, 2011 to May, 2012. One hundred patients of inguinal hernia admitted in different surgical units of BSMMU, Dhaka for elective surgery were studied. We have given 1 gm i/v Cephradine per operatively and then 500 gm cephradine i/v 6 hourly for 24 hours followed by oral form of Cephradine for next 5 days. Polypropylene mesh of 11 cm × 7 cm size was used in all cases. All the operations were done by open tension free prolene mesh repair technique. Patients were followed for one year to see the outcome.

Results: Out of 100 cases of inguinal hernia, 71 patients (71%) had indirect inguinal hernia and 29 cases (29%) had direct inguinal hernia; 90 cases (90%) were primary hernia and only 10 cases (10%) were recurrent hernia; 58 cases were right sided, 34 cases (34%) were left sided and 8 cases (8%) were bilateral. Complications of mesh repair of groin hernia in this study included wound infection (5%), scrotal oedema (2%), mesh infection (0%), scrotal hematoma (2%), echymoces of peri-incisional skin (5%), early wound and groin pain (7%), chronic inguinodynia (2%), hernia recurrence (1%).

Conclusion: In the present study an attempt is made to evaluate the outcome of patients undergoing inguinal hernia repair by prolene mesh. The results confirm that Lichtenstein tension free mesh repair of inguinal hernia is safe and reliable for both primary and recurrent groin hernia, with less recurrence rate. Patient's compliance was good with minimum morbidity.

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Introduction

A hernia is a protrusion of a viscous or part of viscous through an abnormal opening in the walls of its containing cavity [1]. The external abdominal hernia is the most common form, the most frequent varieties being the inguinal, femoral and umbilical. About 75% of hernias occur in the groin (indirect inguinal, direct inguinal, femoral) as it is one of the natural weak areas in the abdominal wall[2]. Both sexes of all ages are affected but men are more likely to have an inguinal hernia than women.

Hernia repair is one of the most commonly performed procedure in general surgical practice. Several methods have been developed over the years to try to improve hernia repair. From the past century, following the lead of Bassini , surgeons around the world, have repaired groin hernia by lowering a musculoaponeurotic and fascial curtain over the defective posterior aspect of the inguinal canal and anchoring it to the aponeurotic structures close to the superior pubic ramus. In fact good results can be expected using Bassini's, McVay's, Shouldice's techniques provided the exact nature of hernia is recognized and the repair is done without tension using healthy tissue.

Synthetic mesh in the 1950's started a new era in hernia surgery. The use of synthetic mesh repair of primary and recurrent hernias has gradually gained acceptance among surgeons. The technique of repair championed by Lichtenstein consists of suturing without tension an adequate piece of mesh to the conjoined muscle and tendon superiorly and the inguinal ligament inferiorly.

Materials and Methods

This is a prospective cross sectional study conducted at Bangabandhu Sheikh Mujib Medical University, Dhaka, from December, 2011 to May, 2012. One hundred patients of inguinal hernia which were primary or recurrent admitted in different surgical unit of BSMMU, Dhaka for elective surgery were studied. We have given 1 gm i/v Cephradine per operatively and then 500 gm cephradine i/v 6 hourly for 24 hours followed by oral form of Cephradine for next 5 days. Poly propylene mesh of 11 cm × 7 cm size was used in all cases. All the operations were done by open tension free prolene mesh repair technique. Male patients within 20-80 years of age, admitted with inguinal hernia and selected for open tension free prolene mesh repair technique under regional anaesthesia were included in the study. Age below 20 years and above 80 years, female sex and patients with inguinal hernia presented as emergency- obstructed or strangulated were excluded from the study. Subsequently the patients were followed up after 1 week, 4 weeks and then 6 monthly for 1 year to see the outcome.

Results

The age of the patients ranged from 20 years to 80 years; maximum between 31 to 40 years.

Table 1: Age distribution of patients (n=100)

Age(years)	Number of patients	Percent (%)
21-30	02	02%
31-40	56	56%
41-50	09	09%
51-60	23	23%
61-70	06	06%
71-80	04	04%

Table 2: Types of inguinal hernia (n=100)

Types	Number of patients	Percent (%)
Indirect inguinal	71	71%
Direct inguinal	29	29%
Primary inguinal	90	90%
Recurrent inguinal	10	10%
Right sided	58	58%
Left sided	34	34%
Bilateral	8	8%

Table - 3: Complications of mesh repair of inguinal hernia (n=100)

Complications	Number	Percentage
Wound infection	5	5%
Scrotal oedema	2	2%
Mesh infection	0	0%
Scrotal Hematoma	2	2%
Skin echymosed	5	5%
Bleeding fro m wound	0	0%
Early wound/ groin pain	7	7%
Chronic inguinodynia	2	2%
Hernia recurrence	1	1%

Follow up visit	Problems	Number(%)	Measures undertaken	Outcome
After first week	1.Wound infection	5(5%)	Dressing+Antibiotic.1 case required secondary suture	Wound healed
	2.Scrotal edema	2(2%)	Testicular edema, hematoma and echymosis treated conservatively, 1 hematoma was explored.	Resolved
	3.Scrotal hematoma	2(2%)		
	4.Chronic echymosis	5(5%)		
After 4 weeks	Early wound and groin pain	7(7%)	Treated symptomatically assurance	Resolved
6 months to 1 year	Chronic inguinodynia	2(2%)	Treated by analgesics	Resolved
Upto 1 year	Recurrence	1(1%)	Still unresolved	

All wound infections were superficial involving subcutaneous tissues treated by dressing and antibiotic, one case required secondary suture. Hospital stay ranged from 2 days to 6 days, with mean of 3 days.

Discussion

Inguinal hernia repair is one of the oldest operations ever documented in fact; the first record of it dates prior to the Middle Ages. Numerous studies have detailed the historical basis for the use of mesh[3-5]. Billroth prophetically dreamed of artificial materials to replace fascia. Numerous materials were tried, but they fall victim to the triple headed monster of infection, rejection and recurrence. However after Francis Usher of Germany introduced polypropylene mesh in 1962, a new era begun during which this prosthesis, in uncontaminated groin hernias, began to overcome the current objections to mesh[6-7]. Over the past decades, true tension free mesh repair of primary inguinal hernias without suture closure of hernial margins has been examined and clarified and technique has been perfected, mainly by Lichtenstein, who began to use this tension free mesh repairing technique in 1984 and first published his results in 1986[8]. Others who have used the mesh repair for primary hernias include Martin [9] and Tincler [10].

Although age of the patients ranged from 20 to 80 years, overwhelming majority were 31 years to 40 years, (55%), the most active part of one's life where sound repair of hernia and prevention of recurrence is of paramount importance.

Although in Lichtenstein series, over 99% patients were operated on under local anesthesia. In our series none of the cases (n=100) were done under local anesthesia. Most of the patients in our series (n=100) were primary hernia (90%). Indirect inguinal hernia was 71%, direct inguinal hernia 29%. We encountered only 10 patients with recurrent hernia in our series. Out of 10 patients of recurrent hernia 7(70%) appeared within 1 year of primary surgery and 2 cases within 2 years and 1 case within 3 years.

Complications of surgery in this series included wound infection, scrotal edema, scrotal hematoma, skin ecchymoses, early and late inguinodynia and recurrence of hernia. Incidence of other complications in our series is similar to those in other western series[9-10]. Inguinal hernia repair is the most frequently performed operations in general surgery. The aims of the surgical repair are to eliminate swelling, to relieve the discomfort, pain and to remove the risk of strangulation, the probability of strangulation of an inguinal hernia has been estimated to be 2.8% at 3 months and 14% after 2 years[11] and this complication carries a significant morbidity and mortality particularly in the elderly.

Standard polypropylene has tensile strength much greater than is required and the majority of patient should be able to return to the routine activity at the end of one week after open mesh repair. Chronic mesh infection is rare with an estimated incidence of 1 in 1000 under proper sterilization.

In case of infection long term antibiotics and attempt to save the mesh are ineffective. However prophylactic antibiotic reduces the risk of infection. Added advantage of open mesh repair is cost effective and more easily learned.

Lichtenstein technique and its modifications have become some of the most popular and frequently performed surgeries. In an attempt to reduce the incidence of recurrence following the repair of inguinal hernia, various techniques have been used including autologous tissue techniques and a variety of biomaterials. In our series, the recurrence rate within one year was 1% which is slightly higher than that in the Lichtenstein series. We had no mesh rejection.

Conclusion

It may be concluded that that open tension free mesh repair of inguinal hernia is safe and reliable for both primary and recurrent groin hernia, with extremely low early and late complications and low recurrence rate. Patient's compliance were good with minimum morbidity.

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