

COMPARISON OF SIMULTANEOUS AND SEQUENTIAL REPAIR OF BILATERAL INGUINAL

Rana Hassan Javed, Nauman Anwar Rana*, Asma Afzal Kiani, Ahmed Waqas**

CMH Rawalpindi, *CMH LLora Lai, **CMH Peshawar

ABSTRACT

Objective: Comparison of morbidity and short term complications of simultaneous bilateral inguinal hernia repair with sequential repair of bilateral inguinal hernia.

Study Design: Quasi-experimental study.

Place and Duration of Study: Surgical department of CMH Rawalpindi from 19-8-2005 to 11-6-2006.

Patients and Methods: In the study 50 patients underwent inguinal hernia repair, 25 underwent simultaneous bilateral repair (Group I) while the other 25 patients underwent sequential repairs with a variable time duration in between (Group II). Results were recorded on a pre designed proforma.

Results: The number of days spent in the hospital by patients in group I was significantly less (4.8 days) than patients in group II (9.6 days). The need for narcotic analgesics was also significantly increased in group II patients (19 as compared to 8). The post operative complications were comparable in both the groups (6 in group I and 9 in group II).

Conclusion: A tension free technique allows bilateral inguinal hernias to be repaired during one operation with similar outcomes as unilateral tension free repair and less hospital stay than sequential repair.

Keywords: Inguinal hernia, bilateral inguinal hernia, tension free repair.

INTRODUCTION

A hernia is protrusion of a viscus or part of a viscus through an abnormal opening in the walls of its containing cavity.

Seventy-five percent of all abdominal wall hernias occur in the groin. There are approximately 750,000 inguinal herniorrhaphies per year in the United States [1]. In 1996, 176000 bilateral inguinal hernia repairs were performed in the United States [2]. Laparoscopic studies have reported rates of contralateral defects as high as 22%, with 28% of these going to become symptomatic in the short term follow up [2].

The cause of an inguinal hernia especially bilateral inguinal hernia is far from completely understood, but it is undoubtedly multifactorial. Familial predisposition plays a role [3]. Cannon and Read pointed out the importance of defective collagen metabolism in cigarette smokers that causes hernia formation, and coined the term metastatic

emphysema [4]. A higher prevalence of inguinal hernias is well known among patients suffering from certain congenital connective tissue disorders.

Operation is the treatment of choice for both unilateral and bilateral hernias. Various methods of repair are practiced worldwide but the most popular is the mesh repair due to its short learning curve and the least recurrence rate.

Bilateral hernias can be repaired one at a time (i.e., one side repaired at the first admission and the second after a specific interval), or at the same time through a large single incision (Stoopa's repair), simultaneously through separate incisions or simultaneously by laparoscope.

There is a belief by some surgeons that simultaneous bilateral inguinal hernia repairs should not be done because of increased postoperative pain, wound complications, or recurrences. A retrospective study showed no difference in complications with simultaneous repair versus sequential repair of bilateral inguinal hernias [5]. Our study is a

Correspondence: Maj Rana Hassan Javed, Graded Surgeon, Combined Military Hospital Rawalpindi
Email: me_hassan@hotmail.com

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prospective study comparing unilateral hernia repair versus simultaneous bilateral inguinal hernia repair through separate incisions.

Our study attempts to refute the surgical bias that open simultaneous bilateral (SB) inguinal hernia repair should not be done at the same setting because of prolonged recovery and increased complications.

Bilateral inguinal hernia is more common in our hospital than previously thought so, especially in the elderly males. It usually causes discomfort and if operated in a sequential manner leads to substantial morbidity and time off work. We conducted this study to compare the results of the two procedures for repair of bilateral inguinal hernias so that the better procedure with the least morbidity and complications can be adopted for our routine surgical practice.

PATIENTS AND METHODS

This quasi experimental study was carried out in the surgical department of Combined Military Hospital Rawalpindi, over a period of 09 months and 20 days from 19-08-2005 to 11-06-2006. The total number of patients in the study was 50. Only male patients above 18 years of age having bilateral inguinal hernia, consenting for surgery were included in the study. All those patients who had a recurrent hernia on any one side and patients presenting with symptoms of obstruction or strangulation were excluded from the study. All those patients who had a unilateral hernia were not included in the study.

The patients were divided into two groups. Group I included 25 patients, who underwent simultaneous inguinal hernia repair (tension free mesh repair) with separate incisions. Group II included patients who underwent repair of the larger hernia first and sequentially underwent the repair of the other side. The two sides were operated upon at an interval of at least 3 weeks. All patients were admitted a day before surgery. Pre-anesthesia assessment was done. Patients were operated in a supine position under either general or spinal anesthesia. A

preoperative dose of intravenous Augmentin 1.2gm was given at the time of induction. All patients were given three doses of injection Dicloran 75mg intramuscular postoperatively each twelve hours apart. If a patient required a narcotic analgesic, it was administered and recorded. Post operative pain was measured by Visual Analogue Scale at 12, 24 and 36 hours post operatively. Intravenous Augmentin 1.2gm eight hourly was used for the first twenty four hours.

In addition all patients were examined for haematoma formation, superficial surgical site infection and scrotal edema on the first post operative day, on discharging the patient and at the first follow up visit. The first post operative visit was scheduled on the day the patient came for removal of stitches. This procedure was carried out for each side in patients who underwent sequential repair. If no wound complication occurred, the stitches were removed on the seventh post operative day. A proforma including all the above information was filled out for every patient.

Data was analyzed using SPSS version 10. Mean and Standard Deviation (SD) were calculated for numeric variables. Frequency and percentages were calculated for categorical variables. Independent samples' t-test was used to compare numeric variables. Chi-square test was used to compare categorical variables.

P-value <0.05 was considered as significant.

RESULTS

Hundred first time inguinal hernias were repaired in fifty patients. The demographic data is listed in fig. 1. The mean age for patients in group I was 59 years (SD =10) and 61 years (SD =11.7) for patients in group II ($P > 0.05$) (Fig. 1). The youngest patient in group I was 38 years old and in group II was 30 years old. The oldest patient in group I was 75 years old and in group II was 78 years old. All patients were males.

In group II ten (40%) patients had their left sided inguinal hernia operated first, as it

was either the larger hernia, or/and was symptomatic.

Out of fifty hernias in group I seven (14%) were bubonocoeles, twenty seven (54%) were funicular while sixteen (32%) were complete. In group II eleven (22%) were bubonocoele, twenty nine (58%) were funicular and ten (20%) were complete.

The average number of days spent in the hospital by patients in group I were 4.8 (SD =3.24). The patients in Group II spent on the average 5.04 days (SD =2.68) in the hospital for the first operation and 4.56 days (SD =1.81) for the repair of the other side making it 9.6 days (SD =3.16) of hospital stay. This means there was significantly less time spent in the hospital by group I patients (P < 0.05) (Fig. 2).

Most of the patients remained well after surgery. Haematoma was noted in two (8%) of the Group I patients and four (16%) of the group II patients. Two patients in each group developed scrotal edema. All four were managed conservatively and none of the patients had prolonged hospital stay due to scrotal edema. Two (8%) patients in group I and three (12%) patients in group II developed wound infection. All five were superficial surgical site infections. Second were managed conservatively in the outdoor department (Table). Patients in group I required a total of eight narcotic analgesic injections post operatively. While patients in group II required a total of nineteen narcotic analgesic injections post operatively (Fig. 3).

DISCUSSION

Operations for hernias constitute approximately 10-15 % of all surgical procedures performed in a general surgical unit and about 80% of these operations are performed for inguinal hernias [6, 7]. Bilateral inguinal hernias occur in 17% of patients presenting to surgeons for treatment [8, 9].

Its peak incidence is seen at the two extremes of life. In our study most of the patients (64%) were in the 6th and 7th decade, which corresponds with other reports [7, 10, 11].

Many methods of bilateral inguinal

Table: Post operative complications

Complication	Group i, n=25	Group ii, n=25
Hematoma	2 (8%)	4 (16%)
Scrotal edema	2 (8%)	2 (8%)
Wound infection	2 (8%)	3 (12%)
Did not develop Complications	19 (76%)	16 (64%)
Total	25	25

Group I: Simultaneous Repair
 Group II: Sequential Repair
 P Value > 0.05

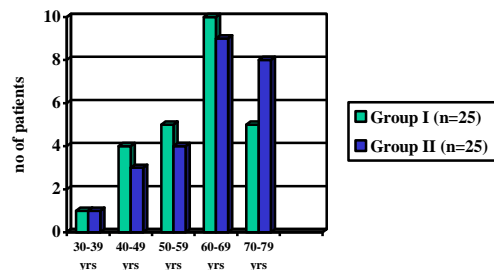


Fig. 1 Age distribution of patients

Group I: Simultaneous Repair
 Group II: Sequential Repair

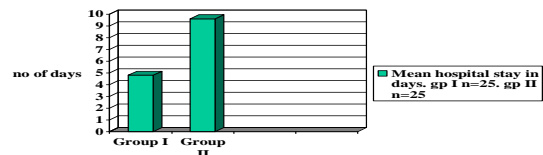


Fig. 2 Mean hospital stay in both groups

Group I: Simultaneous Repair
 Group II: Sequential Repair,
 P Value < 0.05

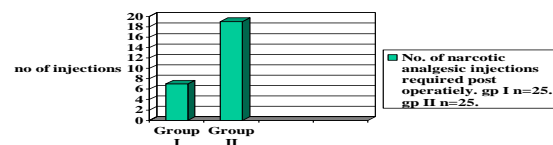


Fig. 3 Comparison of post operative analgesia

Group I: Simultaneous Repair
 Group II: Sequential Repair

hernia repair have been described in literature and practiced worldwide. Both sides can either be operated upon simultaneously or one side first and the other side later on.

Among simultaneous repairs Stoppa's giant prosthesis mesh repair is famous [12]. The Stoppa procedure is a very safe repair of bilateral inguinal hernia, but it requires a learning period to achieve optimal results, requires longer hospital stay and has a high wound infection rate (nearly 4.5%) [10-14]. While elderly patients benefit from a large prosthetic repair which can be done quickly [15]. A study conducted at Department of Surgery, Seth G. S. Medical College and K. E. M. Hospital, Parel, Mumbai, India concludes that GPRVS provides a definitive and safe cure for repair of complex bilateral and recurrent inguinal hernias because of its simplicity, ease of the procedure, good results and low recurrence rate [16]. Further more in a study conducted at Service de chirurgie digestive, endocrinienne et générale, CHRU Dupuytren, France, the laparoscopic approach appears to be preferable to Stoppa's technique in the treatment of bilateral inguinal hernia [17].

A study carried out by Ahmed and Munir at Combined Military Hospital Rawalpindi, Pakistan evaluated early postoperative complications of Stoppa's pre peritoneal repair for bilateral inguinal and recurrent hernias. Out of thirty patients three had superficial wound infection and three developed wound hematoma [18]. These results are comparable to our study. Laparoscopic total extra peritoneal simultaneous repair of bilateral inguinal hernias can also be done with either a single or double mesh [19]. The laparoscopic Total Extra Peritoneal (TEP) repair of bilateral inguinal hernia with a large, single prosthetic mesh is a technically simple and safe procedure, which offers clear cost savings and a potentially shorter operating time over the double mesh repair [20]. Pain after laparoscopic surgery is less pronounced than after open surgery [21-23].

Another option is simultaneous mesh repair with separate incisions, but it remains controversial for most. Many surgeons continue to have the opinion that simultaneous repair increases recovery time

and recurrence rate [24]. The reasons advanced for sequential repair of bilateral hernias have been the lower risks of infection and recurrence [25]. This bias is from the experience in the era when tension free hernia repairs were not popular. A study carried out at Department of Biomedicine and Surgery, Linköping University Hospital, Sweden by Kald et al concludes that simultaneous repair of bilateral hernias does not increase the risk of reoperation for recurrence and there is no significant difference in the risk of reoperation after bilateral repair using open or laparoscopic techniques [26]. The current study confirms our clinical impression that patients who have simultaneous bilateral inguinal hernia repair do not have a prolonged recovery, increased use of narcotic pain medication, or wound problems. A study carried out by Serpell at Department of Surgery, Kingston Hospital, Kingston upon Thames, Surrey describe similar results as our study regarding no increase in number of wound problems in patients who underwent simultaneous repair of bilateral inguinal hernias [27]. It also concludes that bilateral simultaneous hernia repair can be carried out with no greater morbidity than a unilateral repair and that bilateral hernia should be repaired simultaneously rather than sequentially.

A study carried out by Tarar and Hanif at Combined Military Hospital Rawalpindi, Pakistan showed a complication rate of 14% for unilateral mesh repair which is less than our study which shows a complication rate of 24% in patients who underwent simultaneous repair of bilateral inguinal hernia [8]. In both studies the number of patients was too small to make a significant conclusion.

Regarding stay at the hospital after simultaneous repair the mean hospital stay was 4 days in a study conducted at Department of Visceral and Transplantation Surgery, Inselspital, University of Bern, Switzerland [28] which is similar to our results (4.8 days). As seen in our study the hospital stay is reduced to nearly half (from

9.6 to 4.8 days) when both the sides are repaired simultaneously.

The procedure time and the operating cost were not calculated in our study. But clearly if the unilateral procedure was done twice on separate occasions (sequential) the total procedure times and costs would favor the simultaneous versus the sequential repair. A study conducted in Virginia Medical Centre, Seattle, USA [29] calculated the operating time and costs, respectively, for a person in need of a bilateral hernia repair as follows: simultaneous bilateral inguinal hernia repair, 114 minutes and \$1793; staged bilateral repairs 152 minutes and \$3,026. Simultaneous bilateral inguinal herniorrhaphy is economical in terms of both operating time and duration of hospital stay, and that this economy is not bought at a cost of increased short term morbidity or long-term recurrence rate. Our study agrees with one of the conclusion of this study that simultaneous repair is economical in terms of duration of hospital stay.

A study carried out at Lichtenstein Hernia Institute, Los Angeles [30] over twenty five years confirms the advantages of simultaneous repair of bilateral inguinal hernias, and suggests that when an open tension-free technique is used, the results are superior to those of laparoscopic repair of bilateral inguinal hernias.

In literature, studies show that the recurrence rate is not significantly increased with simultaneous inguinal hernia repair. A study was done at Department of Biomedicine and Surgery, Linköping University Hospital, Sweden [31] to find out whether simultaneous repair of bilateral hernias increases the risk of recurrence compared with unilateral repair. In the study prospective data was collected from 1992-1999 and 33416 unilateral and 1487 bilateral operations on 2974 groin hernias were found. The cumulative incidence of reoperation at three years for groin hernias after bilateral and unilateral repair was 4.1% (95% confidence interval 3.1% to 5.1%) and 3.4% (95% CI 3.1% to 3.7%) respectively. Thus it

concluded that simultaneous repair of bilateral hernias does not increase the risk of re-operation for recurrence.

A study carried out by Amid at Lichtenstein Hernia Institute, Los Angeles, California, USA from 1971 to 1995 on 2953 men concludes that uncomplicated bilateral inguinal hernias in adults are best treated simultaneously [30].

CONCLUSION

A simultaneous bilateral inguinal hernia repair, if done in a tension free manner, does not result in any increase in short term complications and therefore appears to be safe and time effective (in terms of hospital stay) for the patient with bilateral inguinal hernia. The underlying factors responsible for bilateral inguinal hernias were not evaluated in our study. A study which also takes this variable into account should be conducted, so that a hospital policy regarding the simultaneous or sequential repair of bilateral inguinal hernias can be formulated.

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