

A Prospective Study of Outcome of Laparoscopic and Stoppa Repair for Bilateral Inguinal Hernia

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Abstract

Background-The history of surgical treatment of hernia goes back to 320-250 B.C. so it has said history of hernia surgery is history of surgery itself. Although Lichtenstein's tension free mesh repair is considered gold standard for inguinal hernia at present but it too has its undesirable complications. it does not give mobility and physiologically dynamic posterior wall. The Stoppa's repair and laparoscopic repairs (TEP& TAPP) are surgeries based on this concept. The purpose of this study to compare intra operative and post operative variables and outcomes of Stoppa's repair and Laparoscopic repairs.

Material & methods -This is a comparative prospective study carried out in 50 patients admitted in surgical wards of SMS Medical college & Hospital having Uncomplicated bilateral inguinal hernia.

Observation-The mean age is 58.14 years. Most patients presented with inguinal swelling with or without associated discomfort or pain. For lap. Hernia repair mean duration was 84 minutes whereas for Stoppa's repair mean duration was 82.4 minutes. Overall mobilization was earlier in laparoscopic groups.

Conclusion- Posterior repairs both stoppa's repair and laparoscopic repair are reproducible, reliable and efficient alternatives for bilateral inguinal hernia repair with additional advantage of enhanced mobility and physiologically dynamic posterior wall.

Key words: stoppa's repair, lap hernia repair, TAPP, TEP

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I. Introduction

The history of surgical treatment of hernia goes back to 320-250 B.C. so it has said history of hernia surgery is history of surgery itself(1). Edordo Bassini is considered father of modern hernia surgery but search of ideal surgery for hernia is still on. Although Lichtenstein's tension free mesh repair is considered gold standard for inguinal hernia at present but it too has its undesirable complications. The mesh acts as a mechanical barrier and a scaffold for fibrosis and so the strengthening but it does not give mobility and physiologically dynamic posterior wall so the concept of posterior wall strengthening and posterior repairs came in light. The Stoppa's repair and laparoscopic repairs (TEP& TAPP) are surgeries based on this concept.

In 1975, Stoppa first time described the preperitoneal placement of mesh in the lower part of abdominal wall through a Pfannenstiel incision on skin. This repair is also known as Giant Prosthetic Reinforcement of the Visceral Sac (GPRVS)(2). This is particularly useful for bilateral inguinal hernia, large inguino-scrotal hernias, recurrent hernias where conventional repair is difficult and have high complication and recurrence rates.(3,4,5).

Such another technique of posterior wall repair is laparoscopic hernia repair. Both TEP and TAPP are based on the concept of placing a mesh in preperitoneal space covering the myopectineal orifices.

The purpose of this study to compare intra operative and post operative variables and outcomes of Stoppa's repair and Laparoscopic repairs in terms of operative duration, post operative pain and mobilization time, hospital stay and post operative complications.

II. Material & Methods

This is a comparative prospective study carried out in 50 patients admitted in surgical wards of SMS Medical college & Hospital during year 2019.

INCLUSION CRITERIA

- Uncomplicated bilateral inguinal hernia
- Patient fit for general anaesthesia

EXCLUSION CRITERIA

- Complicated bilateral inguinal hernia
- Previous surgery using lower midline abdominal incision
- Incisional and recurrent hernia
- Patient unfit for general anaesthesia

Patients were distributed using simple randomization in to 2 groups, Stoppa’s repair group and Laparoscopic repair group. Detailed history was taken about age, occupation, previous and present medical and surgical history and bowel and bladder habits. Detailed clinical examination done using and USG was advised wherever needed.

A. METHOD OF STOPPA’S REPAIR-

A midline lower abdominal skin incision was used in all cases of stoppa’s repair. After opening anterior rectus sheath longitudinally both recti retracted laterally and preperitoneal space entered. Space created by blunt dissection. Direct hernia identified and reduced. Indirect sacs divided and peritoneum closed using purse string sutures. After adequate dissection prolene mesh placed in preperitoneal space covering all myopectineal orifices.

B. METHOD OF LAPAROSCOPIC REPAIRS

• **TEP-**

Anterior rectus sheath exposed using infraumbilical skin incision. Anterior rectus sheath opened longitudinally and lower abdominal preperitoneal space entered using blunt trocar by advancing inferiorly between both recti over posterior rectus sheath. Space created either using ballondissecter or by gas insufflations after placing 10 mm camera port. One 5mm port made just above pubic symphysis and third 5mm post in the middle of first two ports. Dissection extended in retropubic space of retzius, anterior superior iliac spines laterally. All myopectineal orifices examined and mesh placed as per guidelines. Mesh fixed to pectineal ligament ,in midline 1 cm above pubic symphysis and laterally 1 cm above ASIS. 5mm tackers used as fixation device.

• **TAPP**

Peritoneal cavity reached through 3 ports, 10 mm camera port at upper umbilical crease and two 5mm ports at the level of umbilicus outside linea semilunaris on both sides. Peritoneum incised and dissected from abdominal wall till ASIS laterally. Peritoneum dissected down and sac pulled inside and dissected off the cord structures. Mesh placed on both sides and fixed to coopers ligament, rectus muscle and transversalis fascia and peritoneum closed.

All patients received preoperative dose of antibiotics. Duration of surgery was noted for all cases. Postoperatively patients observed and assessed for post operative pain using visual analog scale ,duration till mobilization and oral feeds and hospital stay in all cases. Post operative complications such as seroma formation, wound infection , hematoma , wound dehiscence were noted.

All data collected using a predesigned proforma.

III. Observation

This is a prospective randomized comparative study including 50 cases of uncomplicated bilateral inguinal hernia divided into two groups namely laparoscopic repair group (25 patients) and stoppa’s repair group (25 patients). The mean age is 58.14 years which ranged from 21 to 83 years (table 1).

Table no 1: age distribution of patients in both groups-

Age groups (years)	Stoppa’s repair group		Lap. Repair group	
	Male	Female	Male	female
21-30	1	-	1	-
31-40	1	-	4	1
41-50	1	-	3	-
51-60	5	-	8	-
61-70	6	-	6	-
71-80	10	-	1	-
>80	1	-	1	-

Table no 2: prevalent co-morbidities among study population-

Co-morbidity	Frequency	Percentage
Hypertension	06	12
COPD	07	14

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Diabetes mellitus	03	06
CAD	01	02
Hypothyroidism	01	02

Most patients presented with inguinal swelling with or without associated discomfort or pain. 26 (52%) patients were smokers and 14 (28%) patients had associated co-morbidities in the form of diabetes, hypertension, COPD, CAD (table 2).

Table no 3: prevalence of common risk factors for hernia-

Risk factors	Frequency	Percentage
Chronic cough	07	14
Chronic constipation	05	10
Urinary symptoms	02	04

Chronic cough was defined as cough >1 month duration or diagnosed cases of symptomatic COPD. Urinary symptoms were asked in terms of dysuria and frequency which were adequately managed before surgery. Chronic constipation was defined as duration >3 months requiring stool softeners or bulking agents to relieve symptoms (table 3).

Table no 4: Duration of surgery-

Duration of surgery(min.)	Stoppa's repair	Laparoscopic repair
60	05	04
70	07	03
80	03	07
90	03	06
100	03	02
110	02	01
120	02	02
Mean duration	82.4 min	84 min

The duration of surgery was counted in minutes started with skin incision upto closure of skin incision. For lap. Hernia repair mean duration was 84 minutes whereas for Stoppa's repair mean duration was 82.4 Minutes (table 4).

Table no 5: time required for first mobilization-

Time for first mobilization (In hours)	Stoppa's repair	Lap. Hernia repair
6 hrs	16	20
9 hrs	07	04
12 hrs	01	01
18 hrs	00	00
24 hrs	01	00
Mean time in hours	7.8	6.72

The mean duration required for stoppa's repair was 7.8 hours while for lap. Hernia repair was 6.72 hours. Overall mobilization was earlier in laparoscopic groups (table 5).

Table no 6: pain score distribution-

Pain score	Stoppa's repair			Lap. Hernia repair		
	6 th hour	24 th hr	7 th day	6 th hour	24 th hr	7 th day
No pain(0)	0	0	7	0	0	13
Mild pain(1-3)	11	15	16	19	22	10
Moderate pain(4-6)	14	10	02	6	03	2
Severe pain(>7)	0	0	0	0	0	0
total	25	25	25	25	25	25

patients were observed for post operative pain using visual analogue scale at 6 hour, 24 hours and 7 day post operatively on follow up.

At 6 hours, 14 (56%) patients in stoppa's group had moderate pain while in laparoscopic repair group 6(24%) patients had moderate pain which was statistically significant at p value 0.005. At 24 hours 10(40%) patients moderate pain while in laparoscopic group 3(12%) had moderate pain which was statistically significant at p value 0.005.

2 patients still had moderate pain in both groups at 7 days (table 6).

Table no 7: post operative complications-

Complication	Stoppa's repair	Lap hernia repair
Wound infection	1	0
Seroma formation	0	2
Scrotal edema	1	0
Hematoma	0	0
Subcutaneous emphysema	0	1
Pneumoscrotum	0	4

One patients in stoppa's group had wound infection while seroma formation seen in 2 patients of laparoscopic hernia repair. Subcutaneous emphysema and pneumoscrotum were complications limited to laparoscopic groups as both were complications associated with pneumoperitoneum creation. Hematoma was not noted in either groups. 1 patient in stoppa's group had scrotal edema (table 7).

IV. Discussion

Inguinal hernia is most common surgical entity in adults(5). Lichtenstein is used as gold standard surgery but lacks to provide physiologically dynamic posterior wall(6). Posterior approaches such as stoppa's repair and laparoscopic repairs (TEP & TAPP) seems answer to this question. Both procedures provide mobility and dynamic posterior wall along with being reproducible and devoid of complications associated with Lichtenstein repair.

In current study we compared laparoscopic repairs with stoppa's repair in cases of bilateral uncomplicated inguinal hernias.

The mean operative time for stoppa's repair was 82.4 minutes. while for laparoscopic repair mean operating duration was 84 minutes.

Table no 8: comparison of mean operating time for stoppa's repair in different studies-

Similar studies	Mean operating duration for stoppa's repair (min.)
Yousef et al	59.4
Z abbas et al	65.64
Rodriguez et al	39
P gavit et al	64.43
H maknawa et al	92.4
Fernandez lobato et al	~100
<i>Present study</i>	82.4

Table no 9: comparison of mean operating time for laparoscopic repair in different studies-

Similar studies	Mean operating duration for lap. repair (min.)
H maknawa et al	84.4
Pironi et al	92
Bencini et al	~88
<i>Present study</i>	84
Rosy adhaline et al for TEP	101
for TAPP	106

The mean mobilisation time for stoppa's repair was 7.8 hours while laparoscopically treated patients mobilized earlier in 6.72 mean hours. Similar study conducted by H Maknawa et al shows a mean duration of 8.44+₋ 1.17 hours for stoppa's repair and 7.36+₋ 1.25 hours for laparoscopically treated patients.

Post operative complications were seen in 2 patients of stoppa's repair and were in concordance with other studies, while wound related complications were lesser in laparoscopically treated group but it had its own procedure related complications which were unique to this group in the form of subcutaneous emphysema and pneumoscrotum.

Table no 10: Complications of stoppa's repair in different studies

	Wound infection	hematoma	Scrotal edema
Present study	4%	0%	4%
P. gavit et al	3.6%	0%	7.1%
Youssef et al	1.4%	-	7.1%
Rodriguez et al	0.8%	2%	-
Szopinski et al	0.9%	6.8%	-
Z. abbas et al	-	-	2%

Table no 11: Post operative pain -

Post operative pain scores at day 1 in stoppa's repair		
Present study	3.56+ ₋ 1.21	P<0.01
P. gavit et al	4.39+ ₋ 1.03	p<0.0001
Youssef et al	2.4+ ₋ 1.9	p=0.09
Z abbas et al	2.86+ ₋ 0.70	p=0.0004

Table no 12: Hospital stay was shorter in laparoscopically treated patients

Hospital stay in days	Stoppa's repair	Laparoscopic repair
Present study	2.88 days	1.8 days
P gavit et al	3.96 days	-
Bencini et al	-	1.7 days

V. Conclusion

Posterior repairs both stoppa's repair and laparoscopic repair are reproducible ,reliable and efficient alternatives for bilateral inguinal hernia repair with additional advantage of enhanced mobility and physiologically dynamic posterior wall. Overall results of both repairs in terms of chronic pain and recurrence are comparable but in respect of early post operative pain , early mobilization and oral intake and thereby hospital stay laparoscopic repair is better.

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