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RESEARCH ARTICLE
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OUTCOME ANALYSIS OF MODIFIED GROIN HERNIOPLASTY- A TERTIARY CARE CENTRE STUDY.

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Abstract
Background: In developing countries, even in tertiary care hospitals, groin hernia constitues a major group of surgical patients. With a long waiting list of these cases, there is scope of time saving procedures.
Objective: To evaluate the impact of modified groin hernioplasty in terms of variables like operative time, time taken to return to work.
Materials and Methods: Two groups of groin hernias, the suture group and staple group were compared.
time and time taken to return to work.
Conclusions: The results of this study suggest that the technique of mesh fixation has an important advantage of significant reduction in the operative time.

Keywords: Staple mesh hernioplasty, modified groin hernioplasty.

INTRODUCTION

Operative time is a critical comparable variable for inguinal hernia repair techniques. A reduced operative time is associated with its own inherent advantages in terms of exposure to anesthesia and a reduced burden of waiting list of inguinal hernia cases. Besides a reduced operative time and ability to perform inguinal hernia repairs under spinal anesthesia / local anesthesia enables inclusion of these cases as day care surgical procedures. The implications of day care treatment and early ambulation are considerable. This led us to explore whether it was possible to anchor the mesh in position with skin staples which are quick to use and should reduce operating time, minimizing the risk of wound colonization.

MATERIALS AND METHODS

This study was a prospective randomized study and comprised of Eighty (80) patients admitted for elective surgery for groin hernia.

INCLUSION AND EXCLUSION CRITERION: The patients were selected unbiased from either sex and were above 18 years of age. High risk patients (ASA III or IV), patients with coagulation disorders, irreducible, congenital and massive scrotal or sliding hernias were excluded from the study.

Also excluded were the patients who presented in emergency as obstructed, strangulated inguinal hernias.After proper randomization, patients were divided into two (2) groups.

Polypropylene Suture Group
This group comprised of 40 patients and the surgical procedure employed was open Lichtenstein tension free mesh hernioplasty. A 7.5x15cm polypropylene mesh was used in this group and it was secured in place using interrupted sutures of 2/0 prolene.

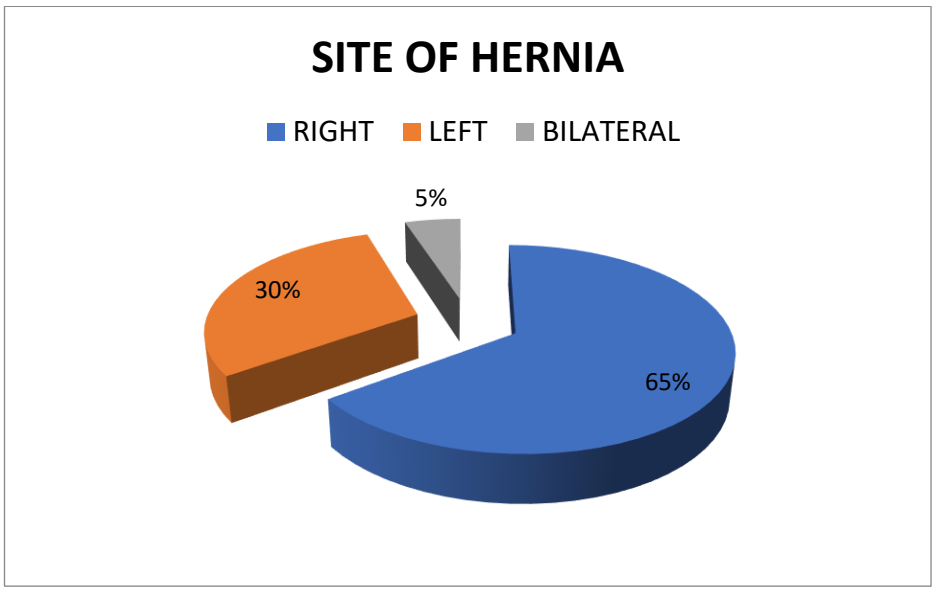
Stapler Group
This group comprised of 40 patients. The positioning of the mesh was identical to the other group but a skin stapler containing 35 preloaded staples was used to secure the mesh. The difference between the two groups was thus accounted by the manner in which mesh was secured.
In both the groups external oblique aponeurosis was closed with a continuous suture of 2/0 prolene. The subcutaneous tissues were then approximated with plain catgut. Skin closure in the polypropylene suture group was done using interrupted silk sutures (2/0). In the stapler group, however, skin closure was completed using staples from the same staple gun, as used for securing the mesh.

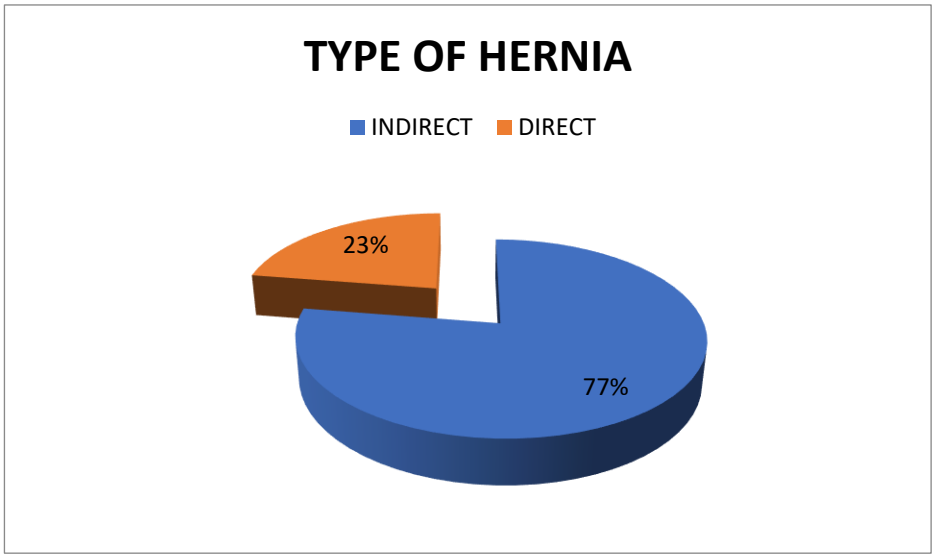
RESULTS AND OBSERVATIONS
Distribution of cases with respect to type of hernia in polypropylene suture group (PPSG) and stapler group (SG)

TYPE OF HERNIA	POLYPROPYLENE SUTURE GROUP				STAPLER GROUP				COMBINE			
	frequency		%		Frequency		%		Frequency		%	
	R	L	R	L	R	L	R	L	R	L	R	L
INDIRECT	32		80		30		75		62		77.5	
	21	11	52.5	27.5	22	8	55	20	43	19	53.75	23.75
DIRECT	5		12.5		9		22.5		14		17.5	
	4	1	10	2.5	5	4	12.5	10	9	5	11.25	6.25
FEMORAL	-		-		-		-		-		-	
	-	-	-	-	-	-	-	-	-	-	-	- -
RECURRENT	-		-		-		-		-		-	
	-	-	-	-	-	-	-	-	-	-	-	- -
BILATERAL	3		7.5		1		2.5		4		5	

	1	2	2.5	1	0	2.5	0	2	2	2.5	2.5
TOTAL	40		100	40		100		80		100	

Total Cases-80





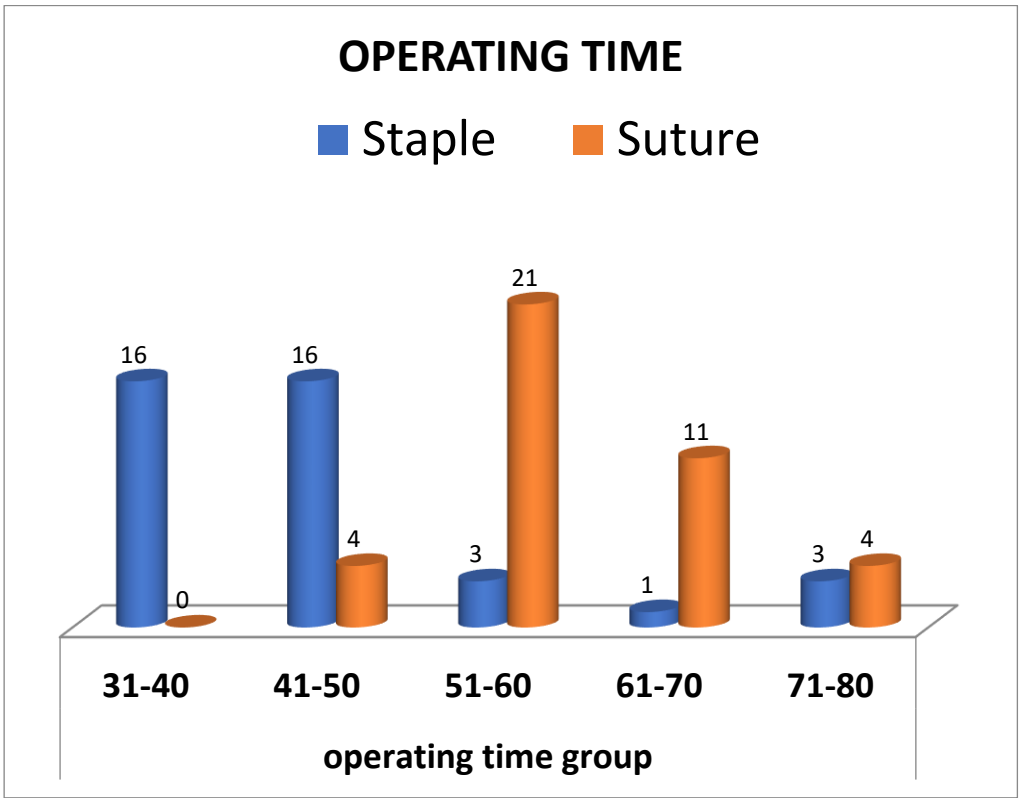
Diagnosis	STAPLE	SUTURE	Total
RIIH	22	21	43
RDIH	6	5	11
LIIH	8	11	19
LDIH	4	3	7
Total	40	40	80

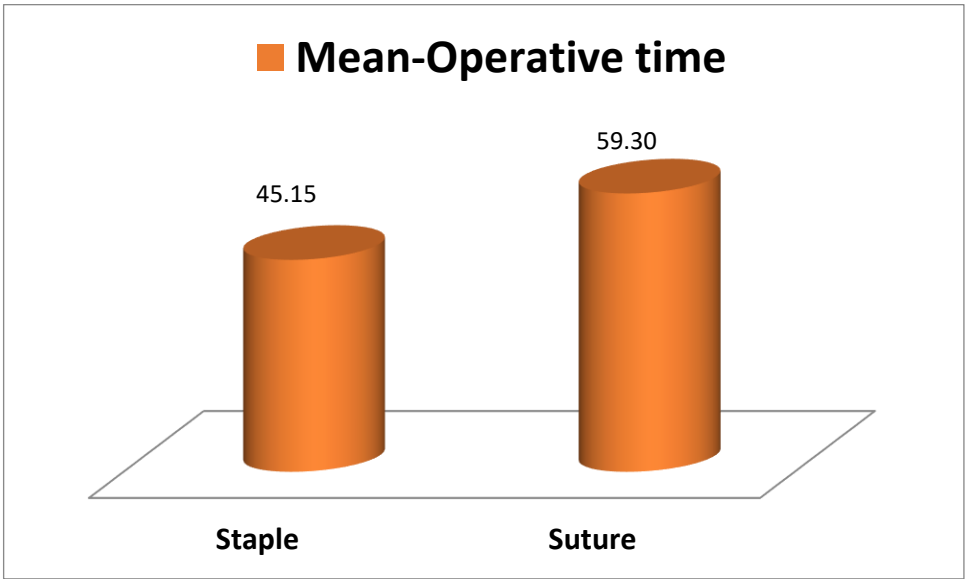
* Bilateral hernias were operated only on one side, and allotted to a single group.

OPERATING TIME

The range of operating time in polypropylene suture group (PPSG) was 41 to 75 minutes with mean of 59.30 minutes. While as the range was 30 minutes to 75 minutes and mean being 45.15 minutes in case of staple group (SG).

Operating time (MINUTES)	Staple	Suture	Total
31-40	16	0	16
41-50	17	4	21
51-60	3	21	24
61-70	1	11	12
71-80	3	4	7
Total cases	40	40	80

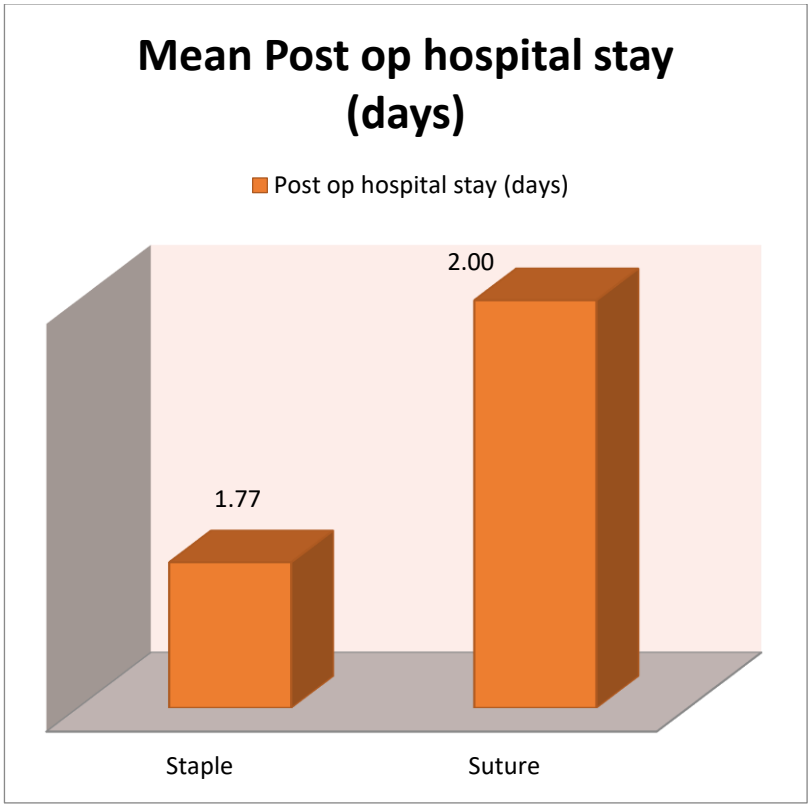




HOSPITAL STAY

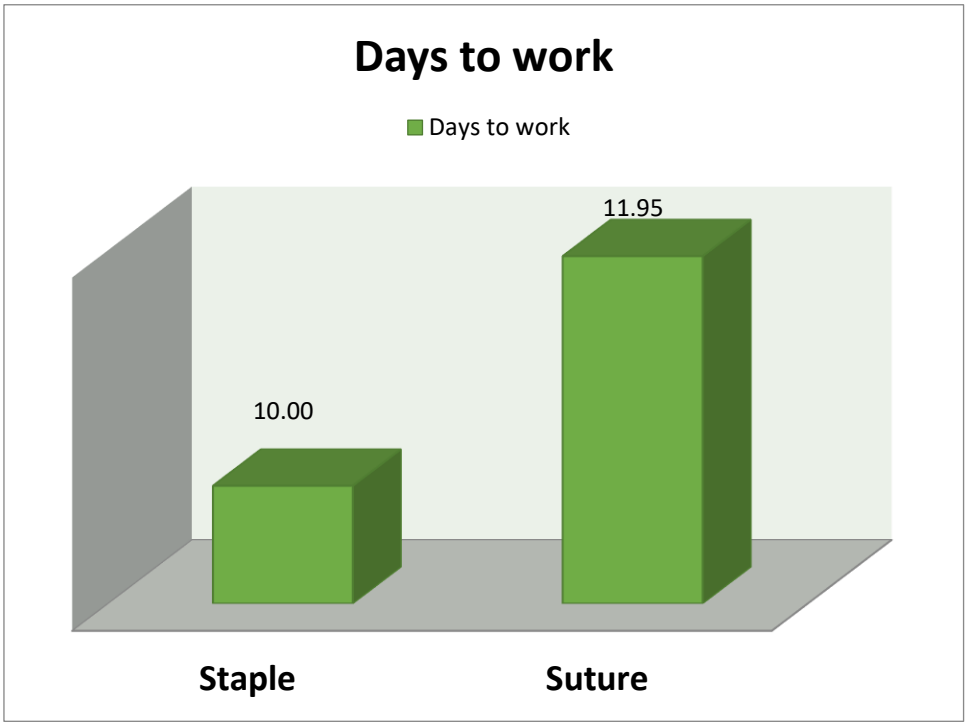
Patients were discharged from hospital as soon as they became ambulant and tolerated orals. Patients in both the PPSG (polypropylene suture group) and the (SG) stapler group were advised early ambulation usually after 6-8 hours in patients done under local anesthesia.

POST OP HOSPITAL STAY(DAYS)	STAPLE GROUP	SUTURE GROUP
	NO. OF CASES %	NO. OF CASES %
1	15 (37.5)	12 (30)
2	20 (50)	16 (40)
3	4 (10)	12 (30)
4	1 (2.5)	0
Total	40 (100)	40 (100)



Time Taken to Return to Work

The patients belonging to the staple group (SG) returned to work (routine work) earlier as compared to the patients in the suture group (PPSG). The average time to return to work was 10 days (mean number of days) in the staple group (SG) and 11.95 days in the suture group (PPSG).



DISCUSSION

The Lichtenstein technique involves total reinforcement of the inguinal floor with a sheet of mesh (e.g., Marlex/polypropylene), employing a "tension-free" approach under local anesthesia on an outpatient basis. Since 1984, thousands of repairs have shown extremely low recurrence rates, making it a gold standard for avoiding suture tension and tissue approximation issues common in traditional methods.(1)

A classic anatomical study of 500 groin dissections detailed variations in the inguinal region, including the transversalis fascia, iliopubic tract, and structures like Cooper's ligament. It provided foundational insights into hernia pathogenesis, emphasizing the importance of precise anatomical understanding for effective surgical repair.(2)

New criteria for evaluating prosthetic materials in hernia repair, focus on tissue tolerance, resistance to infection, and mechanical strength. Now being highlighted is the need for biomaterials that integrate well without excessive inflammation or failure, paving the way for modern mesh selection.(3)

Arregui etal approach reinforced the posterior inguinal floor without anterior dissection, reducing tension and setting the stage for minimally invasive techniques.(4)

Laparoscopic preperitoneal mesh repair has demonstrated feasibility with reduced postoperative pain and early recovery. It has marked an early shift toward endoscopic methods for tension-free reinforcement.(5)

This chapter covers principles of sterilization (complete elimination of microorganisms, including spores) versus disinfection (reduction of pathogens). It emphasizes methods like autoclaving, chemical agents, and the Spaulding classification for surgical instruments, crucial for preventing infection in hernia procedures involving implants.(6)

Edoardo Bassini's physiological reconstruction of the inguinal canal , marked the start of modern hernia surgery, dramatically reducing recurrences compared to prior methods.(7)

Chronic postoperative pain is a significant complication following inguinal hernia repair, affecting quality of life. This underscores the need for tension-free techniques and careful nerve handling to minimize long-term neuralgia.(8)

Open tension-free mesh hernioplasty in elderly patients has showen favorable outcomes, with low recurrence and complication rates despite comorbidities. This suppors the safety and efficacy of mesh-based repairs in older populations.(9)

Laparoscopic approaches to inguinal and femoral hernias, including inspection and repair of bilateral defects have contributed to the emergence of minimally invasive hernia surgery.(10)

CONCLUSION

The results of this study and the observations made there in, suggest that the technique of mesh fixation with skin staples in inguinal hernia repair is as effective as conventional fixation with polypropylene sutures in the short term ; with an important added advantage-a significant reduction in the operative time.It also ensures an efficient utilization of time and resources in the current era of fast track surgeries.

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