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A comparative study between TransabdominalPreperitoneal mesh repair and Modified Lichenstein hernia repair of Inguinal hernias

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I. Introduction

Hernioplasty is one of the commonest general surgical procedures performed in a surgical unit. Surgical outcome has improved tremendously due to improvements in surgical techniques, prosthetic materials and a better understanding of how to use them. Post operative pain, prolonged hospital stay and recurrence are a common problem associated with hernia surgery[1]. Modified lichenstein surgery was the default surgery option for the treatment of inguinal hernia for decades[2]. But in recent years surgeons performing laparoscopic hernioplasty claim that there is definite benefits as compared to open hernioplasty[3] which confers a significant advantage in utilising hospital resources. The aim of this study is to look into these differences between the two operative methods to help in deciding which among the two is the better surgical option.

Aim:
To compare the open Lichtenstein repair and laparoscopic mesh repair for inguinal hernias in terms of immediate post-operative pain,return to work& complications.

Materials and methods:

Study setting:
The study was carried out in the Department of General surgery of Mahatma Gandhi Medical College and Hospital,Jaipur.

Study design
The design was a prospective comparitive analytical study.

Study Participants:
The study participants were patients with inguinal hernia who have been operated either by TAPP or by open method in the Department of General surgery fulfilling the following criteria during the study period mentioned.

Study duration:
The duration of study was 1 year from the period of March 2018 to March 2019

Inclusion criteria
Patients operated for inguinal hernia of age more than or equal to 18 years and less than 60 years admitted as inpatients in the General Surgery Department, who were willing to participate inthe study were included.

Sampling method
30 patients who were operated for inguinal hernia by TAPP and 30 patients who were operated for inguinal hernia by open method were included this study.

Study procedure
30inpatients who underwent TAPP hernia repair surgery, and 30 inpatients who underwent open hernia repair in the Department of general surgery during the period of March 2018 to march 2019 were included in the study. These patients were questioned aboutthe pain scores using the Short Form Inguinal Pain Questionnaireand were examined for any seroma formation or stitch abscesson post-operative days and on their review. All these details were entered in the proforma for each patient. And subsequently a comparison was made between the two groups.

Statistics:
The collected data were analysed with IBM.SPSS statistics software 23.0 Version.To describe about the data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and the mean & S.D were used for continuous variables. To find the significant difference between the bivariate

samples in Independent groups the unpaired sample t-test was used. To find the significance in categorical data Chi-Square test was used similarly if the expected cell frequency is less than 5 in 2×2 tables then the Fisher's Exact was used. In all the above statistical tools the probability value .05 is considered as significant level.

II. Results

The mean age of the participants who underwent TAPP repair was 39.6 years, and of those who underwent open method was 47.4 years. The mean BMI of particpants who underwent TAPP and open repair was 26 and 22 respectively (table 1)

Table 1- Age, BMI and return to physical activity in days (n=60)

Method of surgery		N	Mean	Std. Deviation	Std. Error Mean
Age	Lap Tapp	30	39.567	14.8200	2.7058
	Open Method	30	47.400	20.2086	3.6896
BMI	Lap Tapp	30	26.267	4.0763	.7442
	Open Method	30	22.633	2.3706	.4328
Return to Physical activity(in days)	Lap Tapp	30	1.367	.5561	.1015
	Open Method	30	1.200	.4842	.0884
Return to work(in days)	Lap Tapp	30	6.033	1.6501	.3013
	Open Method	30	6.933	2.3479	.4287

Table 2 – Pain grading comparison between lap TAPP and open hernia repair

	Day 1		Day 2		Day 7		Month 1	
	Lap Tapp	Open Method	Lap Tapp	Open Method	Lap Tapp	Open Method	Lap Tapp	Open Method
Nil							96.7%	100.0%
Mild	60.0%	56.7%	83.3%	63.3%	90.0%	96.7%	3.3%	
Moderate	26.7%	20.0%	6.7%	20.0%				
Severe	13.3%	23.3%	10.0%	16.7%	10.0%	3.3%		

There is no significant difference in pain score grading between lap TAPP and open hernia repair in post operative day 1, day 2, day 7 and on followup after 1 month (Figure 1)

Figure 1- Pain score comparison between lap TAPP and open method of hernia repair

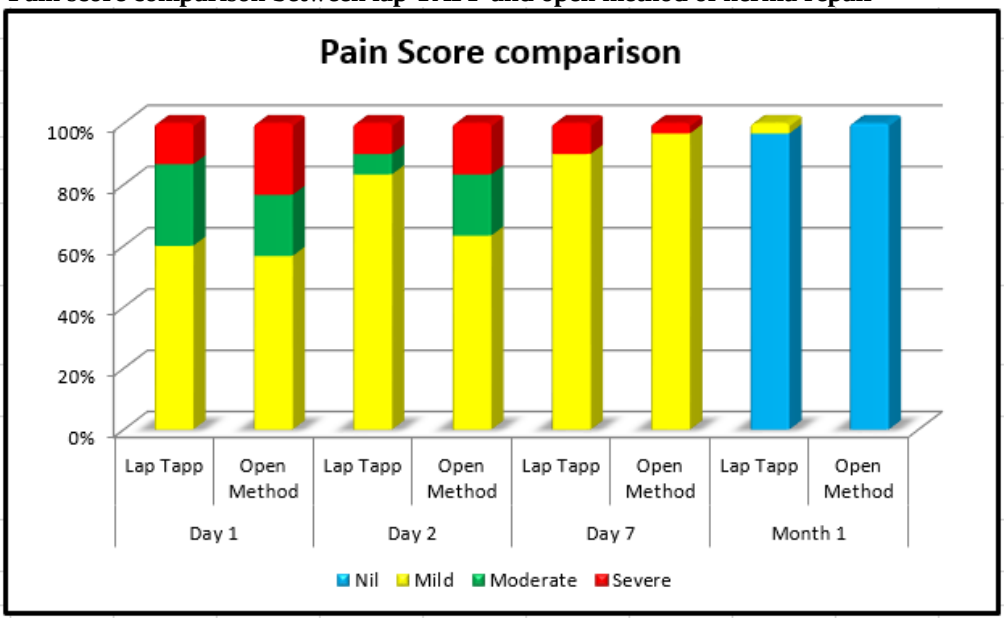
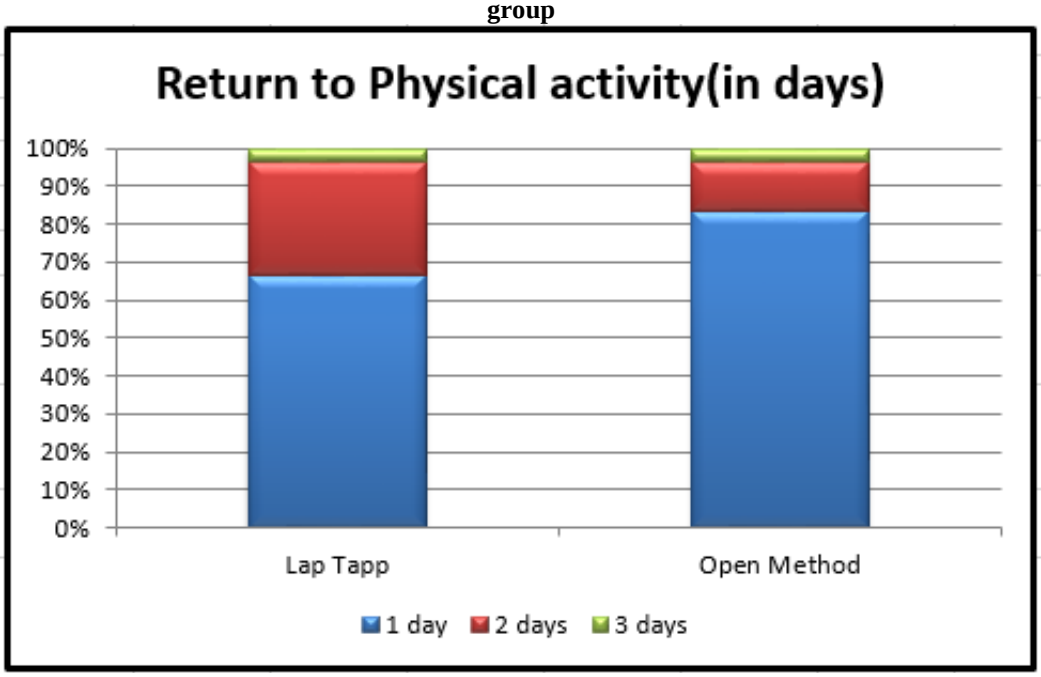


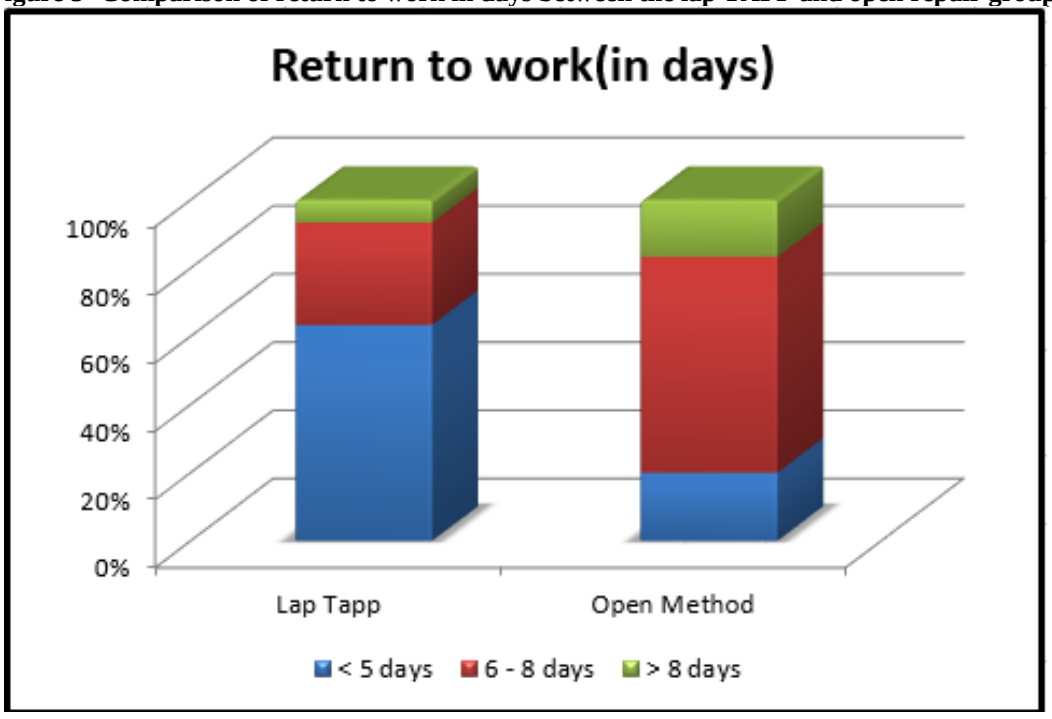
Figure 2 – Comparison of return to physical activity in days between the lap TAPP and open repair group



On comparing the number of days taken to return to physical activity, there is no significant difference (P value =0.290) between the lap TAPP and the open hernia repair groups (figure 2)

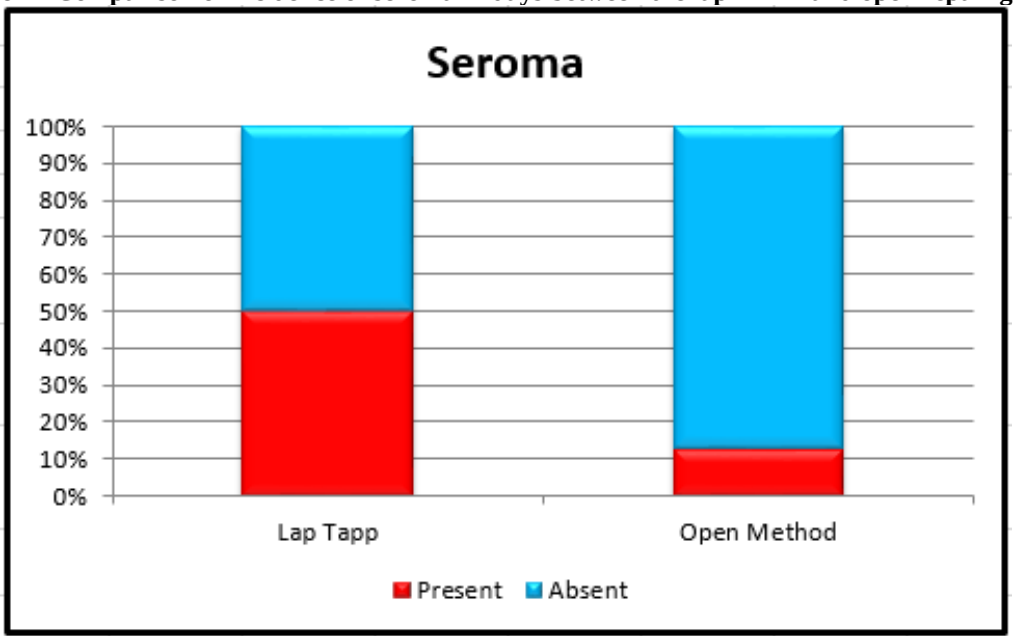
But, there is significant difference (P value = 0.03) in the number of days taken for the patient to resume work. More than 40% of patients who were operated by lap TAPP were able to resume work in less than 5 days. On the contrary, only 20% of patients operated by Lichenstein's repair were able to resume work in less than 5 days. (figure 3)

Figure 3 -Comparison of return to work in days between the lap TAPP and open repair group



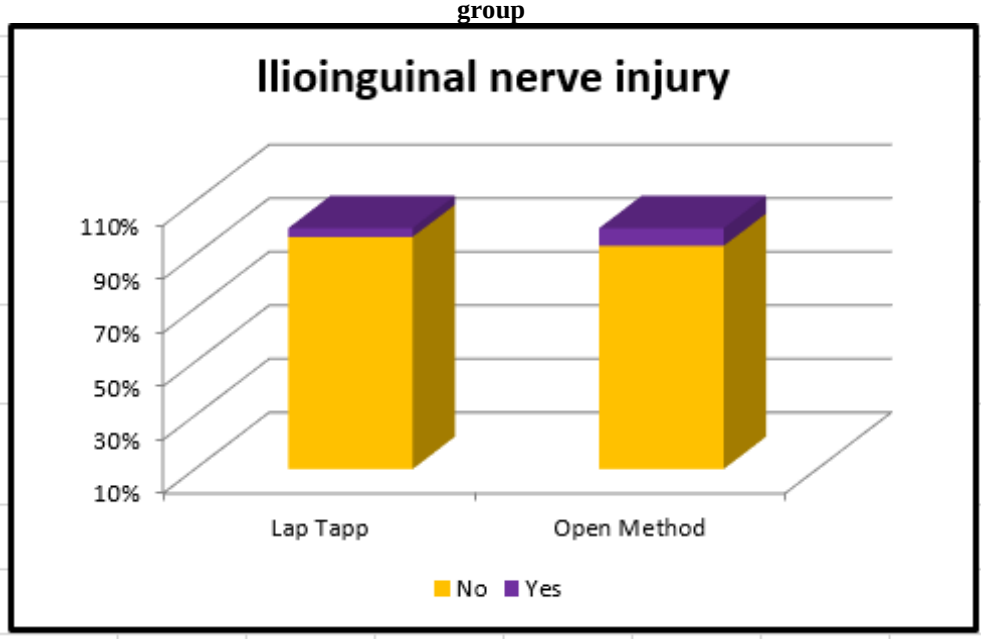
On examination, almost 50% of the patients operated by Lap TAPP were found to have seroma. Whereas only around 10% of patients operated by open repair were found to have seroma as a complication. The difference was significant(P value =0.005) (figure 4)

Figure 4 - Comparison of incidence of seroma in days between the lap TAPP and open repair group



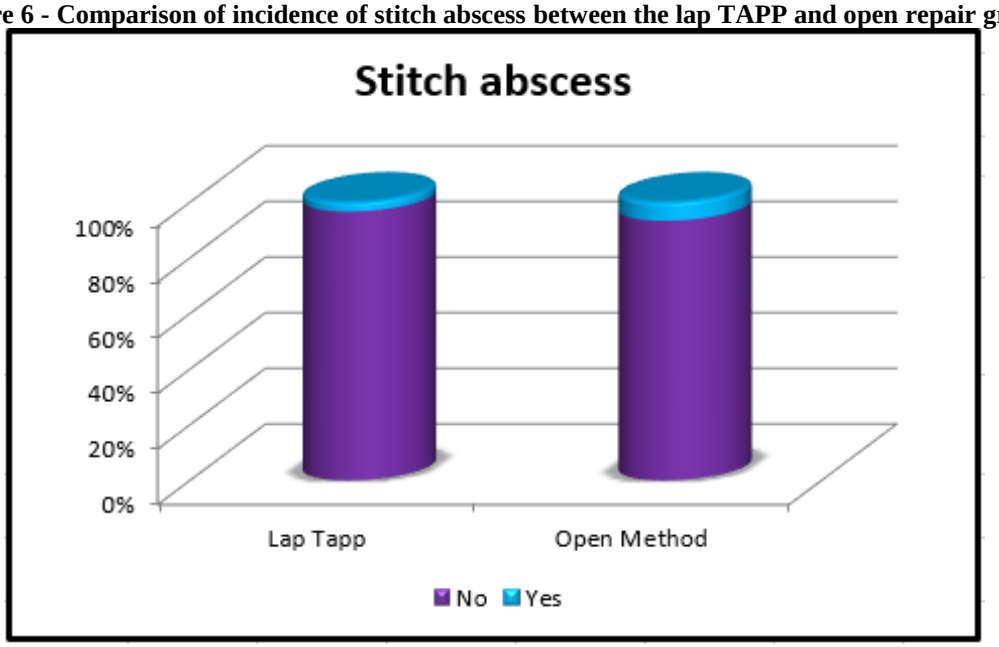
On comparing the incidence of ilioinguinal nerve injury, there was no significant difference (P value =1) between the patients who were operated by lap TAPP and by open hernia repair surgery (figure 5)

Figure 5 - Comparison of incidence of ilioinguinal nerve injury between the lap TAPP and open repair group



On comparing the incidence of stitch abscess, there was no significant difference (P value=1) between the lap TAPP group and the open hernia repair group (figure 6)

Figure 6 - Comparison of incidence of stitch abscess between the lap TAPP and open repair group



III. Discussion

Salma U showed that laparoscopic repair patients had significantly less pain compared to patients who underwent open inguinal repair[4]. But Quispeshowed that there is no difference in the pain scores between lap & open surgeries[5]. Similarly our study shows that there is no significant difference in pain scoring between the two surgeries on any of Day 1,2,7 or after 1 month.

Pokorny*etal* showed that there was no difference in the complication rate between the two surgeries[6]. Our study too showed the same result in that there was no significant difference between the two surgeries on the incidence of complications such as stitch abscess or nerve injury. But Lap hernioplasty patients had a significantly increased incidence of seroma formation which resolved on most cases by conservative management.

There is no clear consensus on the advantage of each surgery vis-à-vis to hospital stay or return to work. Wright D showed no clear difference in hospital stay between the two groups[7]. But Wu showed that patients who underwent lap hernia procedures had faster recovery[8]. Abbas showed better quality of life & faster return to work in lap hernia repair patients[9]. In our study there was no significant difference between the two groups on the length of hospital stay. But there was a significant difference in time taken to return to work. Patients who underwent Lap repair had faster return compared to open hernia repair patients.

IV. Conclusion

Even as Lap hernioplasty appears to hold an edge over open repair the cost of lap repair and the setup required to operate it have ensured that it is not a clear preference for the various stakeholders. Despite several studies done over the years there is still no clear advantage to preferring lap repair to open hernia repair. It is our observation that deciding on the type of surgery on a case by case basis will be beneficial for all patients.

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