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A COMPARATIVE STUDY OF OPEN INGUINAL HERNIAL REPAIR VERSUS LAPAROSCOPIC HERNIAL REPAIR IN RECURRENT INGUINAL HERNIA:

Surgery

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KEYWORDS

INTRODUCTION

Inguinal hernia recurrence is still too frequent in the large published series.[1,2] Incidence is inaccurately recorded because of inadequate follow-up, The rate of recurrence appears to be between 0.2 and 10%; these rates well explain the importance of the problem,[3] considering that hernia is a common problem around the world.

Recurrences occur as a result of different causes and promoting factors: old age, obesity, type of anesthesia, suture material used, way of dealing with the sac, type of repair and postoperative complications.[4] Today, especially in the era when use of prosthesis is common, our attention is as focussed on the anatomical, biological and mechanical factors as it is on the adequacy of repair, choice of technique used and the operative errors.[5,6] . In a long-term Danish observational study, which was published in 2014 showed that the reoperation rate after primary Lichtenstein repair to be 2.4%, and after laparoscopic repair to be 3.3%, which has been ranging from 1–4.3% for trans-abdominal pre-peritoneal repair (TAPP) and from 0–3.5% for total extra-peritoneal repair (TEP) (7-9).

Etiological factors These may be classified into patient-related, surgery/technique-related which are mentioned in various HerniaSurge Guidelines (10).

Patient-related factors- General factors (1).Obesity: obesity has shown a moderate level of link with increased recurrence (2.) Age: increased age has not been consistently associated with increased recurrence . (3.) Chronic constipation has not been consistently proven by studies but this is believed to promote recurrence . (4) Smoking and COPD (chronic cough) although has not been consistently demonstrated in literature, but are often considered risk factors for recurrence. (5) Family history: recurrence has not shown been shown to be affected by positive family history. (6) Social class, occupation, work load and race are incompletely studied factors, which may impact the risk of inguinal hernia recurrence (10).

Local factors (I) Type of hernia: high level of evidence shows that direct hernias are more likely to recur. (II) Sliding hernias: sliding hernias are associated with increased recurrence has moderate level of evidence (10).

Surgical technique factors Paying attention to surgical technique and following standardized surgical steps can contribute to lower recurrence rates. This is due to the fact that incorrect operative technique is one of the most important reasons for recurrence (11). (I) Sac invagination, without ligation in an indirect hernia management by open surgery, is associated with an increased incidence of recurrence (12). (II) Open repairs done under tension are associated with increased recurrence. Thus tension-free mesh repair should always be done (12). (III) Recurrence may increase in a case of inadequate dissection of pre-peritoneal space. An exposure of the entire myopectineal orifice is needed in laparo-endoscopic repair to ensure adequate overlap of the mesh on all potential hernia sites. In a scenario in which an inadequate dissection is done, it may result in the use of either a small mesh customized to fit the available space while on the other hand in case a larger mesh is used, the resultant mismatch between the available inadequate space and a larger mesh may predispose the mesh to fold or roll (12). This occurs due to intra-abdominal shearing forces causing the folded mesh to slide away from the defect or due to migration of a small mesh into the hernia defect by forces responsible for causing the hernia.

I) Mesh size, defect overlap & mesh contraction: All meshes are known to contract and shrink in size. Hence, selection of a mesh size that is too small or that provides inadequate overlap is associated with increased recurrence (13). (IX) Anaesthesia: a moderate level of evidence shows that open hernia repair under local anaesthesia done by general surgeons is associated with recurrence (10). When surgeons inexperienced in its use administer local anaesthesia, more hernia recurrences might result.

MATERIALS AND METHODS

This study was done among patients of recurrent inguinal hernia admitted in the Department of Surgery at S.N. Medical College, Agra during the period from January 2017 to December 2017 with follow up for 3 months Each group consisted of 30 patients. Patients were randomly divided into group A, who will undergo open procedure and group B, those subjected for laparoscopic repair by simple randomization at 1:1 ratio. Laparoscopic hernia repair included both TEP and TAPP methods by a standard port technique(14,15)General anaesthesia was used. Size of mesh used was 10 x 15 cms polypropylene mesh. Tackers were used to fix the mesh. Open hernioplasty included the tension free lichtenstein's hernioplasty. It was done under Spinal anaesthesia using 6 x 11 cm and 7.5 x 15 cm polypropylene mesh depending on the size of the defect and mesh was fixed with 2-0 Polypropylene sutures.



Figure 1 Showing left recurrent direct inguinal hernia with mesh seen displaced laterally.

Parameters assessed were the complication rate, postoperative pain, post-operative hospital stay and time to return to work post-surgery. The pain was measured qualitatively by using a visual analog scale.(16,17)) Duration of hospital stay and time to return to work were also recorded.(18) Data was represented as mean±SD. The differences between the two groups were determined by Chi -square test for categorical variables, Mann – Whitney test and the independent samples test for continuous scale variables. P value less than 0.05 was considered as significant.

RESULTS

Mean age group of patients included in open hernioplasty was 55 whereas in laparoscopic hernia it was 56. No differences were found between the 2 study groups in sex, body mass index

Table 1- Patient Characteristics-

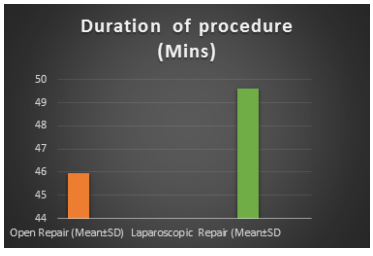
Patient Characteristics	Open Repair	Laparoscopic Repair
Age, mean, yrs	55	56
Weight, mean, kg	80	78
Height, mean, cm	179	178
BMI, mean	25	25

Anaesthesia complications: 6.7% (2 out of 30) of the patients developed spinal headache in open hernioplasty group whereas none of the patients had headache in laparoscopic group.

Table 2: Comparison of Duration of procedure-

	Open Repair (Mean±SD)	Lap Repair (Mean±SD)	P-value
Duration of procedure (Mins)	45.96±4.63	49.60±3.62	0.003

The duration of procedure was significantly more in laprascopic procedure.

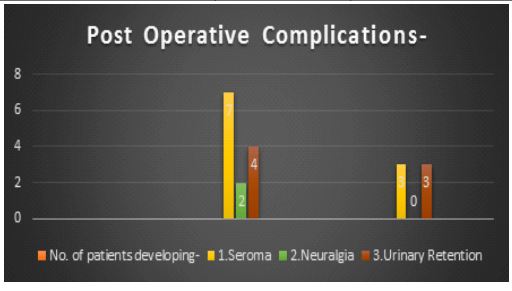


Postoperative complications included, 13.3% of open hernioplasty patients developed urinary retention (4 out of 30 patients) when compared to laparoscopic hernioplasty group where 10% of patients developed urinary retention (3 out of 30).

23.3% (7 out of 30 patients) of the patients in open hernioplasty group developed seroma/hematoma of scrotum whereas in laparoscopic group 10% (3 out of 30 patients) had seroma in scrotum. 6.7% (2 out of 30) of the patients developed neuralgia in open group whereas none of the patients in laparoscopic group had similar complications.

TABLE 3- COMPARISON REGARDING POST OPERATIVE COMPLICATIONS-

No. of patients developing-	Open Repair	Laparoscopic Repair
1.Seroma	7	3
2.Neuralgia	2	0
3.Urinary Retention	4	3

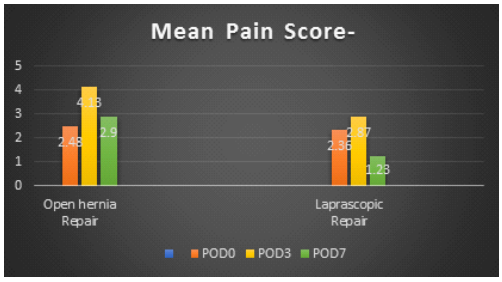


Pain score

Mean pain score on POD 0 between two groups were almost similar. However there was a significant difference in between the two groups on POD 3 and POD 7. Mean pain score was significantly less in laparoscopic hernioplasty groups on POD 3 and POD 7 (POD 3 mean pain score in OH - 4.13 and LH - 2.87, on POD 7 mean pain score in OH - 2.90 and LH - 1.23), which is represented in Table 4.

TABLE 4- COMPARISON REGARDING MEAN PAIN SCORE-

Mean Pain Score	Open hernia Repair	Laprascopic Repair	p-value
POD0	2.48_+ 1.86	2.36+_1.70	>0.05
POD3	4.13	2.87	<0.05
POD7	2.9	1.23	<0.05

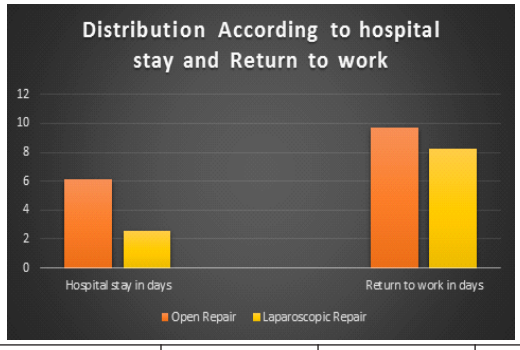


Hospital stay

Mean duration of stay for open hernioplasty patients was 6.1 days as compared to stay for laparoscopic hernioplasty patients, which was 2.6 days.

Return to work

Mean duration of return to work was 8.22 days in laparoscopic hernioplasty when compared with 9.74 in open hernioplasty. Laparoscopic hernioplasty patients were able to return to their work earlier than open hernioplasty patients.



Open Repair	Laparoscopic Repair	Laprascopic Repair	p-value
Hospital stay in days	6.1	2.6	0.0001
Return to work in days	9.74	8.22	0.0001

On a scale of 0 to 10, patient satisfaction with the surgical procedure was significantly higher after laparoscopy compared with Lichtenstein repair (8.5 vs 8.0 points, P=.004). Patients were also more satisfied with their operative scars after TEP (8.8 vs 8.4 points, P=.02).

CONCLUSIONS

Inguinal hernia repair is one of the most frequently performed elective operations today. Recurrence after inguinal hernia surgery remains a clinical problem. The incidence of recurrence after inguinal hernia repair is difficult to estimate accurately since it varies with duration of follow-up, but may be as high as 15%. All the measures to decrease the burden of recurrences should be used which can only be done by getting the knowledge of patient related risk factors along with knowledge of the controllable technical risk factors.

Patients treated with laparoscopic repair had significantly less pain, fewer superficial wound infections, longer operative times, shorter length of time to return to daily activities, significantly fewer hematomas and seromas with laparoscopic repair. No significant difference in early and overall recurrence rate.

The present study supports the view that laparoscopic repair of recurrent inguinal hernia is safe and efficacious and offers definitive advantages over open mesh repair and should be an available option for patients .

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