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Original Research Article

Quality of life post laparoscopic repair of inguinal hernia: a prospective study at a tertiary care centre in Nepal

Santosh Bajagain[1]*, Suresh Prasad Sah[2], Bhawani Khanal[2], Manoranjan Dwa[1]

[1]Department of Surgery, Nepal Armed Police Force Hospital, Kathmandu, Nepal
[2]Department of Surgery, B.P. Koirala Institute of Health Sciences, Dharan, Nepal

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***Correspondence:**
Dr. Santosh Bajagain,
E-mail: insomniac1054@gmail.com

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ABSTRACT

Background: Post-operative quality of life, the most important outcome measure in inguinal hernia repair, has limited study in South Asian countries where laparoscopic inguinal hernia repair is relatively new. The study aimed to evaluate the outcome of laparoscopic hernia surgery in terms of Quality of life with a 6 months follow-up.
Methods: 50 patients who underwent laparoscopic totally extra peritoneal (TEP) or laparoscopic trans-abdominal pre peritoneal (TAPP) inguinal hernia repair were prospectively evaluated till 6 months post-operation using the Carolinas Comfort Scale in this study after Institutional Review Committee's approval and consent from patients.
Results: Mean patient age was 49.68±16.69 years. 96% were males The overall mean operating time was 88.70±11.94 min (Range: 70 to 115 min). The mean length of hospital stay was 28.16±8.66 hours. At three weeks post-operation, the percentage of patients indicating no or mild but non-bothersome symptoms was 93% for sensation of mesh, 88% for pain, and 88% for movement limitation, which improved to 94% for sensation of mesh, 92% for pain and 94% for movement limitation at six months. Chronic pain, persistent for more than 3 months, was present in 10% patients.
Conclusions: The quality of life during post-laparoscopic hernia repair was similar to other published literatures.

Keywords: Chronic pain, Inguinal hernia repair, Quality of life

INTRODUCTION

Inguinal hernia repair (IHR), probably the most common procedure in general surgery, has many merits and potential risks when performed laparoscopically. Cochrane review has shown that recovery is quicker with less persisting pain and numbness. However, laparoscopic repair takes longer and has a more serious complication rate in respect of visceral (especially bladder) and vascular injury.[1] Previously, the recurrence rate was a key outcome measure in studies on inguinal hernia repair (IHR). However, advancements in surgical techniques have significantly reduced recurrence rates, with around 90% of procedures now addressing newly developed hernias.[2] Consequently, the focus of outcome measures has shifted toward adverse effects of IHR. Chronic post-surgical pain has become a prevalent and sometimes severe issue, substantially impacting patients' health-related quality of life (QOL).[3,4] It has been demonstrated that generic QOL indicators have a limited sensitivity and specificity in determining hernia surgery outcomes between patients or changes in QOL during the postoperative period.[5] The literature strongly supports the notion that disease-specific questionnaires like the Carolinas Comfort Scale (CCS) are more likely than generic QOL tools to detect change caused by treatment.[6-8] It has been well established that disease-specific questionnaires provide more precise and pertinent metrics than generic QOL questionnaires for assessing the effects of an intervention.[9] Thus, we studied the outcome of laparoscopic hernia surgery using Carolina Comfort Scale®, to study the effect, the surgery has on patients' health-related quality of life.

METHODS

Study design

This research was conducted as a prospective, longitudinal, single centre based (hospital based) study in the B.P. Koirala Institute of Health Sciences to evaluate the Quality of life during the first six months of post-operative period following laparoscopic inguinal hernia repair.

Patient selection

All patients admitted in the Department of General Surgery at B.P. Koirala Institute of health sciences from 1st January 2019 to 31st December 2019 with inguinal hernia, planned for laparoscopic repair fulfilling inclusion criteria and willing for consent were included in this research. Patients with age less than 18 years, with complicated inguinal hernia, pregnancy and those unfit for general anaesthesia were excluded from the study. A prior informed written consent was taken from each patient after explaining in detail about the hernia, available treatment choices, advantages and disadvantages of available surgical procedures, possible complications and outcomes.

Data collection

Three different aspects, pain, mesh sensation and movement limitation were assessed during three weeks, three months and six months of post-operative period for determining the quality of life, using the Carolina Comfort Scale questionnaire. Using a 6-point Likert scale, patients rated 3 common hernia-related symptoms: pain, mesh sensation and limitation of movement during 8 activities of varying intensity. Chronic pain was considered if pain was persistent for more than 3 months. 0: no symptoms and 1: mild but not bothersome were categorized as non-bothersome; while 2: mild and bothersome, 3: moderate and or daily issues/problems, 4: severe, and 5: disabling were categorized as bothersome.

Ethical considerations

The study protocol was reviewed and approved by the Institutional Review Committee (IRC) of B.P. Koirala Institute of Health Sciences, Dharan, Nepal (Registration number: 362/075/076-IRC). All the collected data were anonymized to ensure the confidentiality.

Statistical analysis

Different graphical methods were to used describe different categorical variables. Frequency, percentage, mean, standard deviation was calculated. Data was entered in Microsoft Excel and analysed by SPSS version 26. Whenever appropriate, 95% confidence intervals were used and $p<0.05$ was considered statistically significant.

RESULTS

A total of 76 patients agreed to be enrolled in our prospective study. Among these, 64 were planned to undergo laparoscopic totally extra peritoneal (TEP) inguinal hernia repair. Only 60 patients met the inclusion criteria. Final sample size was reduced to 50 when two cases in which surgery was converted to open technique due to technical reasons and 8 patients lost to follow up were also excluded.

Among them, 96% of the patients were male. Most of the patients were of advanced age i.e. 32% in the 60-69 years' age group with a mean age of 49.68±16.69 years. Hernia was found to be common (64%) in the normal BMI (18.5 to 24.9 Kgm^{-2}) age group followed by 22% in overweight age group (25 to 29.9 Kgm^{-2}) and least i.e. 4% in underweight (<18.5 Kgm^{-2}) group. 58% were indirect inguinal hernia and 64% on right side. Among pre-operative aggravating factors, 26% had lower urinary tract symptoms (LUTS) followed by chronic cough in 24% and chronic constipation in 18%. The Mean operative time in case of unilateral TEP was 80.00+/-5.88 min and in case of bilateral TEP was 98.193±8.65 min. The overall mean operative time was 88.70±11.94 min.

Table 1: Demographic characteristics of patients in the study.

Characteristics	Categories	No. of patient	%
Gender	Male	48	96.0
	Female	2	4.0
Age group in years	20-29	6	12.0
	30-39	11	22.0
	40-49	3	6.0
	50-59	10	20.0
	60-69	16	32.0
	70-79	4	8.0
Mean age in years SD	49.68±16.69		
Body mass index in Kgm^{-2}	<18.5	2	4.0
	18.5-24.9	32	64.0
	25-29.9	11	22.0
	>30	5	10.0

Continued.

Characteristics	Categories	No. of patient	%
Hernia type	Direct	16	32.0
	Indirect	29	58.0
	Both (Pantaloon)	5	10.0
Hernia side	Right	32	64.0
	Left	10	20.0
	Bilateral	8	16.0
Pre-operative aggravating factors	Chronic cough	12	24.0
	Chronic constipation	9	18.0
	Lower urinary tract symptoms	13	26.0
Mean operating time (min)	Unilateral	80.00±5.88	-
	Bilateral	98.19±8.65	-
	Overall	88.70±11.94	-
Occult hernia	15 out of 50		

There was peritoneal tear or breach in 2 (4%) cases, for one of which was converted to TAPP and for the other TEP was completed after intra-corporeal suture was taken for the breach. Four (8%) patients developed mild pneumoscrotum after surgery that needed compressive scrotal support and resolved by the day of discharge. Small hematoma was formed in 2 (4%) of patients. There was Urinary retention post-operatively in 7 (14%) of patients for which urinary bladder catheterization was done. Post-operatively, 2 (4%) of patients presented with seroma, over lower abdomen on 2nd post-operative week that was managed by serial aspiration under sonographic guidance. Mean length of hospital stay was 28.16±8.67 hours, including time of surgery. Majority of cases 35 (70%) were discharged on 1st post-operative day (<20 hours). Twelve (24%) of cases were discharged on 2nd post-operative day (<44 hours). Three (60%) of cases were discharged on 3rd post-operative day (<60 hours). Five patients returned to the surgery OPD with post-operative complaints however none of these warranted readmissions. Post-operative complications are shown in Figure 1.

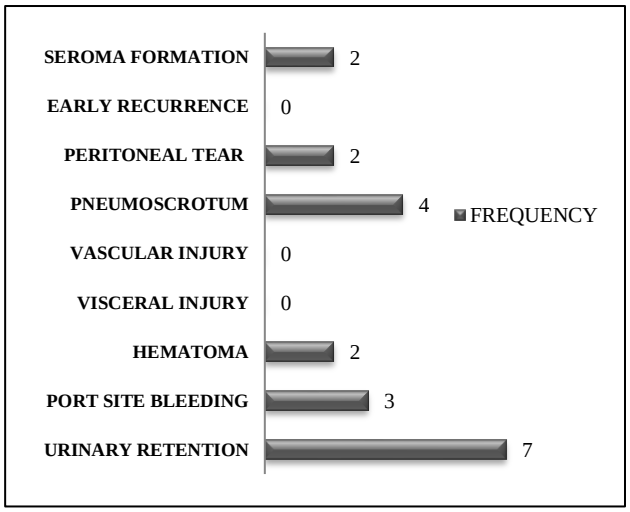

Figure 1: Intra-operative and early post-operative complications.

Quality of life instrument data

At three weeks post-operatively, the percentage of patients indicating non-bothersome symptoms were 93% (84+9) for sensation of mesh, 88% (66+22) for pain and 88% (70+18) for movement limitation.

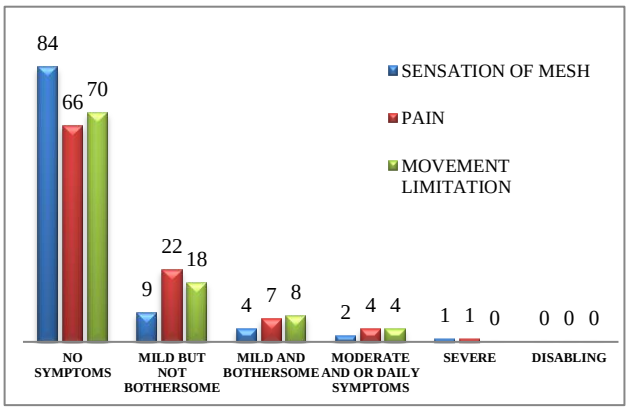

Figure 2: Percentage of patients indicating symptoms after laparoscopic inguinal hernia repair, 3 weeks postoperatively.

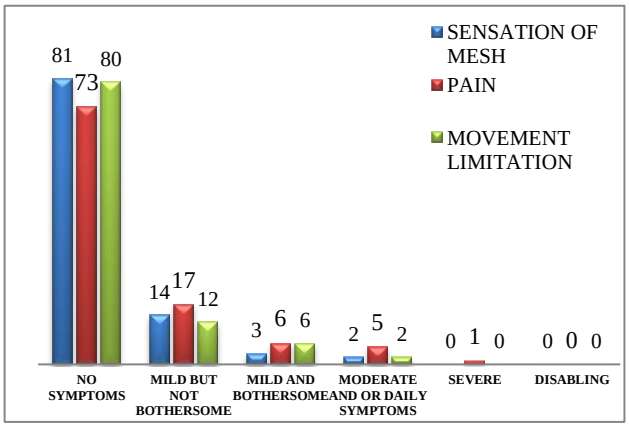

Figure 3: Percentage of patients indicating symptoms after laparoscopic inguinal hernia repair, 3 months postoperatively.

At three months post-operatively, the percentage of patients indicating non-bothersome symptoms were 95% (81+14) for sensation of mesh, 90% (73+17) for pain and 92% (80+12) for movement limitation.

At six months post-operatively, the percentage of patients indicating non-bothersome symptoms were 94% (82+12) for sensation of mesh, 92% (81+11) for pain and 94% (86+8) for movement limitation.

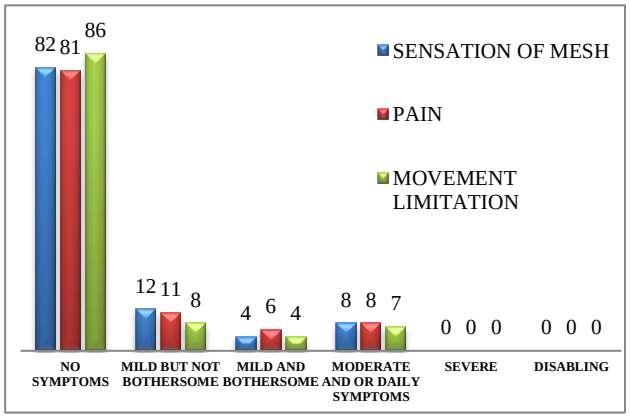

Figure 4: Percentage of patients indicating symptoms after laparoscopic inguinal hernia repair, 6 months postoperatively.

Chronic pain

In our study, chronic pain (more than 3 months) was observed in 10% of all patients who underwent Laparoscopic inguinal hernia repair.

Relation to 8 different activities

While lying down, none had bothersome issues (i.e. score≥2) even as early as 3 weeks. While bending over, 10 had bothersome issues at 3 weeks, 5 had at 3 months while only 3 had it beyond 6 months. While sitting up, none had bothersome issues even as early as 3 weeks. While performing activities of daily living (getting out of bed, bathing, getting dressed), 5 had bothersome issues at 3 weeks and 3 months, while only 3 had it over 6 months' period. When coughing or deep breathing, 14 had bothersome issues at 3 weeks and 11 had it by 3 months, while only 7 had it beyond 6 months. When walking or standing, 1 had bothersome issues at 3 weeks but none beyond 3 months. When walking up or down stairs, 5 had bothersome symptoms at 3 weeks, 4 had it till 3 months while none had them at 6 months. When exercising (other than work-related), 20 had bothersome issues at 3 weeks and 12 had it by 3 months, while only 8 had it beyond 6 months.

DISCUSSION

The mean age of 49.68±16.69 years was similar to the study done by Gitelis ME et al in 2016, where mean age was 56±15 years and Prasad et al in 2005 where mean age was 46.40 years.[1,10] Hernia occurs mostly after 4th decade of life or people are more concerned in this age group for its treatment. The overall mean operative time was 88.70±11.94 min was similar to that of Lal et al in 2003, where the mean operative time was 76.66±15.92 min.[10] In another study done by Murthy et al mean operating time was 92.25 min.[11] The reason for longer operative time could be the learning curve of the procedure in our setting which can decrease overtime. There was no vascular injury or visceral injury during this study. TEP is performed in extra peritoneal space without entering abdominal cavity. The seroma formation was seen in only 2 patients (4%). All the seroma, were managed conservatively, with serial aspiration under sonographic guidance under aseptic condition. In a study done by Garg et al in 2003, seroma was present in 3 (12%) patients.[12] Mean length of hospital stay was 28.16±8.69 hours, including time of surgery. 35 (70%) were discharged on 1st post-operative day (<20 hours). It was similar to study conducted by Garg et al in 2011 showed 1.12±0.3 days in fixation group and 1.12±0.4 days in non-fixation group.[12] Among 50 inguinal hernia repairs, presence of occult hernia was found in 15 cases (30%). A study done by Bochkarev V et al in 2007, showed 22% occurrence of bilateral defects in patients with unilateral inguinal hernia at TEP.[13] Hernia recurrence was one of primary end point of the study. There was no early recurrence in 6 months follow up period in our study.

The CCS, a validated procedure specific assessment tool for patients undergoing hernia repairs mesh hernia repairs, when used showed that the percentage of patients indicating non bothersome symptoms were 93% for sensation of mesh, 88% for pain and 88% for movement limitation at three weeks post-operation.[14] Gitelis et al in 2016 also reported similar results at three weeks post-operatively, where the percentage of patients indicating non bothersome symptoms were 96% for sensation of mesh, 89% for pain and 89% for movement limitation.[1] Three months post-operatively, the percentage of patients indicating non bothersome symptoms were 95% for sensation of mesh, 90% for pain and 92% for movement limitation. In a study done by Mc Cormack et al after three months' post-operative period, the percentage of patients still indicating pain was 10%.[15] The EU hernia trialist's collaboration reviewed all the randomized and quasi-randomized controlled trials examining IHR and found out chronic pain (>3 months) had a prevalence of approximately 13.8%, which is similar to 10% in our study.[2] At six months post-operatively, the percentage of patients indicating non bothersome symptoms were 94% for sensation of mesh, 92% for pain and 94% for movement limitation. In a study done by Gitelis et al in 2016, at six months post-operatively, the percentage of patients indicating non bothersome symptoms were 96% for sensation of mesh, 89% for pain and 89% for movement limitation. This result is similar to that of our study population.[1]

CONCLUSION

With the advantages like excellent visualization of anatomy, visualization and repair of all defects like direct, indirect, and femoral, reduced postoperative pain and need of analgesics, less wound infection, reduced length of hospital stays, early return to normal activity, less scar and more patients' satisfaction, laparoscopic repair of inguinal hernia is a very useful modality of inguinal hernia repair. Our study shows that the quality of life during post-laparoscopic hernia repair was similar to other published literatures. More studies focusing on patients' perception after an inguinal hernia repair are needed, as the measures of outcome have shifted from post-operative morbidity and recurrence to improvement in quality of life.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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