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An Evaluation of Quality of Life after Ventral Hernia Repair Using the EuraHS-QoL Score: a Cross-Sectional Survey

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Abstract. *Introduction.* Recurrence rates for ventral hernia repairs are practically negligible because of advancements in surgical procedures. Pain and suffering, which significantly lowers patients' quality of life, are currently the main concerns with ventral hernia repair rather than the possibility of recurrence. This study used "EuraHS-QoL" score for evaluating the quality of life of patients before and after ventral hernia repair. *Methods.* A prospective observational study involving patients with ventral hernias receiving surgery from May to December 2023. Using the EuraHS-QoL questionnaire, patients' quality of life was evaluated both before and after surgery. *Results.* Of the 53 patients, 17 (32%) were men and 36 (68%) women, with a mean age of 49.71±10.9 years (range, 32–68 years). BMIs averaged 25.4±3.4 kg/m^2, range (21.25 to 35.4 kg/m^2). The majority of pain was from regular duties. By frequency, umbilical (22%), infraumbilical (43.3%), supraumbilical (5.7%), and numerous (19%) hernia sites exist. Three patients suffered surgery site infections and one had skin dehiscence. All patients showed overall improvement of QoL at the end of 90 days.

Keywords: EuraHS-Quality-of-Life score, ventral hernia, Quality-of-Life assessment.

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Introduction

When considering the ramifications of surgical intervention in addressing medical ailments, the pivotal metric of concern is the impact on the patient's quality of life. While the surgical procedure may be executed with precision and efficacy, paramount significance lies in the postoperative experience and the resultant alterations in the patient's daily functioning. Evaluating the holistic improvement in patient well-being necessitates a meticulous examination of the balance between therapeutic benefits and procedural complications.

In recent years, the methods of hernia repair have undergone notable evolution, transitioning from conventional tissue restoration techniques to encompass a spectrum of methodologies including mesh augmentation, prosthetic incorporation, bio-prosthetic utilization, and component separation procedures. Nevertheless, the optimal surgical approach for hernia repair remains elusive. The intricate nature of addressing sizable ventral midline hernias presents a formidable challenge, as the tension-induced approximation of fascial structures may precipitate heightened intra-abdominal pressures, potentially culminating in the onset of abdominal compartment syndrome.

Since incisional hernias affect physical functioning and role functioning in later life, patients who develop incisional hernias have lower overall quality of life (QoL). Moreover, they land up in many late complications like pain, restriction of activities, skin dehiscence, ulcerations, abdominal loss of domain and cosmetic problems. Within the purview of this investigation, the evaluation of patient-reported outcomes is facilitated by the utilization of the EuraHS quality-of-life (QoL) scoring system, enabling a comprehensive appraisal of the lived experiences of individuals who have undergone ventral hernia repair procedures [1–3].

Materials and Methods

The Department of Surgery, Armed Forces Medical College, Pune, conducted a prospective observational research from May 2023 to December 2023. The study comprised all patients with a midline ventral hernia who reported to the surgical out patient department and subsequently received surgical repair. The exclusion criteria were age less than 18 years, pregnant women, multiple previous abdominal surgeries, recurrent ventral hernias and complicated hernias. Base line and demographic parameters were noted. All eligible individuals had a thorough evaluation consisting of a comprehensive history and clinical examination. Surgeons with at least 10 years of experience performed all operations. The protocol received approval from the institute's ethical review board along with Informed consent taken from the participating patients.

Through the use of pertinent incisions, the ventral defect was examined while under general anaesthesia. The fascia was approximated with continuous 1.0 Loop Nylon (ETHILON™ Ethicon – J&J MedTech, USA) suture after the hernia was reduced. After the abdomen was closed, a non-absorbable polypropylene mesh (PROLENE™ Ethicon – J&J MedTech, USA) of sufficient size was applied over the defect. Extraperitoneal securing of the Mesh was accomplished via transfascial sutures. The mesh dimensions were determined intraoperatively in accordance with the magnitude of the defect. Subcutaneous polyglactin 2.0 suture (VICRYL™ Ethicon – J&J MedTech, USA) was utilised to close the subcutaneous tissue in layers, and skin staplers (PROXIMATE™ Plus MD, Ethicon – J&J MedTech, USA) were subsequently affixed to the skin. To prevent seroma or collections, the vacuum suction tube drain (Romo Vac Set™, Romsons Inc, India) was installed.

The quality of life was assessed using the EuraHS-QoL Scale. All patients received a EuraHS-QoL assessment prior to surgery and again ninety days later. The EuraHS-QoL Scale consists of nine questions. On an 11-point rating system, with 0 being the best and 10 representing the worst, the patient gave it a score. Three categories of items were included: those concerning pain (0–30), limited tasks (0–40), and aesthetic discomfort (0–20). The overall score was assigned a range from 0 to 90, where lower scores indicated higher performance.

Statistical analysis

Data were entered and coded in MS Excel, and analysis was done using the SPSS version 26.0 (IBM Inc, USA). Mean, standard deviation, and percentages were employed for descriptive analysis of continuous and categorical variables. To determine the difference between groups, the mean independent t-test was employed. The group means were compared using a paired t-test. Descriptive analysis was presented as mean, and standard deviation was used for continuous variables and percentages for categorical variables. To find out the difference between the two groups, either paired t-test or Wilcoxon Signed-Rank Test was used. A *p* value of less than 0.05 was considered to be significant.

Results

Of the 53 patients, 17 (32%) were men and 36 (68%) were women. The majority of the patients were between the ages of 31 and 50, with a mean age of 49.71±10.9 years (range, 32–68 years). The patients' body mass indexes (BMIs) ranged from 21.25 to 35.4 kg/m^2. The BMI averaged 25.4±3.4 kg/m^2. 62% of the patients had pain-associated swelling, compared to only 38% with painless swelling. In majority of the cases, pain was associated with routine tasks. The distribution of hernia sites, ranked by frequency, includes umbilical (22%), infraumbilical (43.3%), supraumbilical (5.7%), and multiple (19%). Out of the 53 patients, three unfortunately experienced surgical site infection, while one patient suffered skin dehiscence. The patients received conservative treatment, starting with oral antibiotics and then undergoing secondary suturing once healthy granulation tissue was present. All the patients remained free of recurrence, and there were no deaths. Assessment of quality of life is summarised in Table 1 which showed all parameters with a statistically significant result. The detailed analysis is shown in Figures 1–3.

Table 1. EuraHS-QoL parameters and the scores as evaluated. Preoperative and 6 weeks postoperative. A *p* value of 0.05 is significant

Variabble	Pre Op (n=53) Mode (Range)	Post OP (n=53) Mode (Range)	P value
PAIN			
At rest (while lying down)	3 (2-5)	1 (1-2)	0.00010
During activities (walking, biking, sports)	3 (3-5)	1 (1-4)	0.00078
Worst pain felt during the last week	6 (3-7)	1 (1-4)	0.00010
Restriction of activities			
Daily activities (inside the house)	2 (2-5)	1 (1-3)	0.00010
Outside the house (walking, biking, sports)	3 (2-5)	1 (1-3)	0.00010
During sports	4 (3-7)	1 (1-4)	0.00010
During heavy labour	5 (4-7)	2 (2-4)	0.00010
Cosmetic discomfort			
The shape of your abdomen	3 (2-5)	1 (1-3)	0.00010
At the site of your hernia	4 (3-7)	2 (2-3)	0.00010

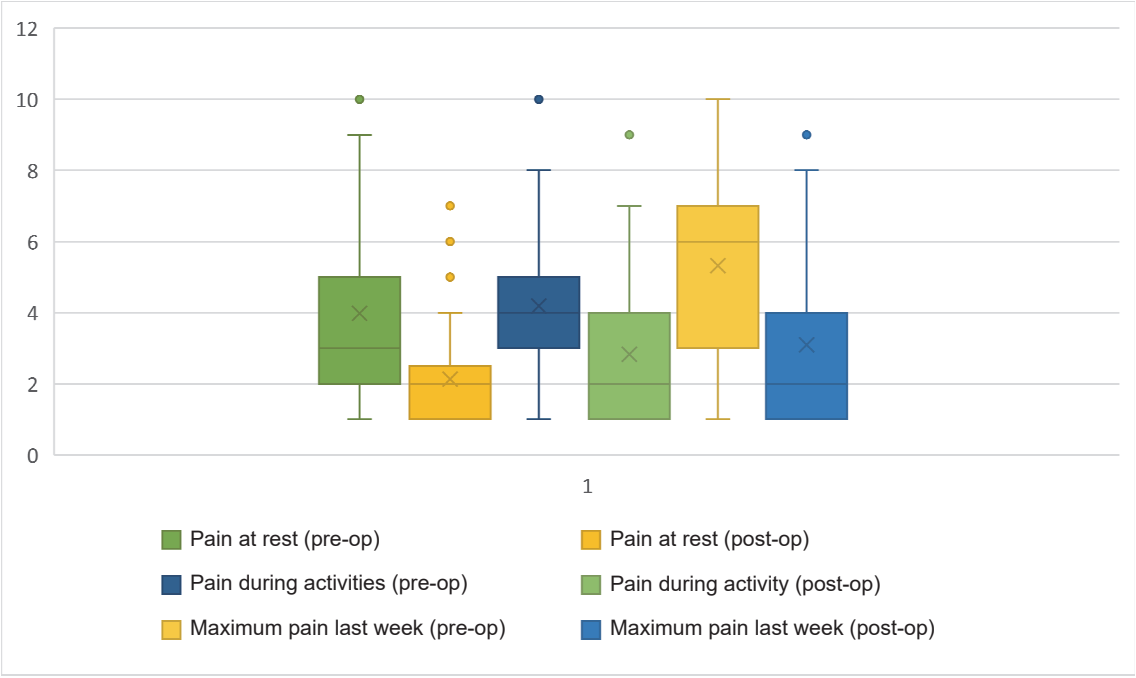

Figure 1. EuraHS-QoL pain scores pre- and post- mesh hernioplasty

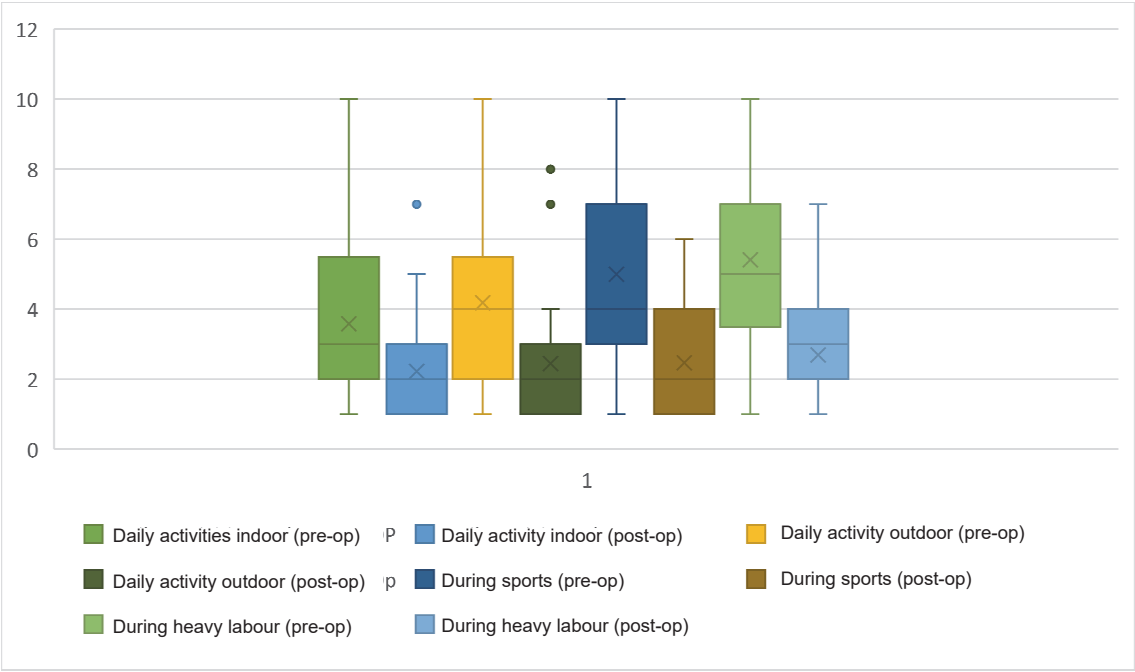

Figure 2. EuraHS-QoL restriction of activities scores pre- and post- mesh hernioplasty

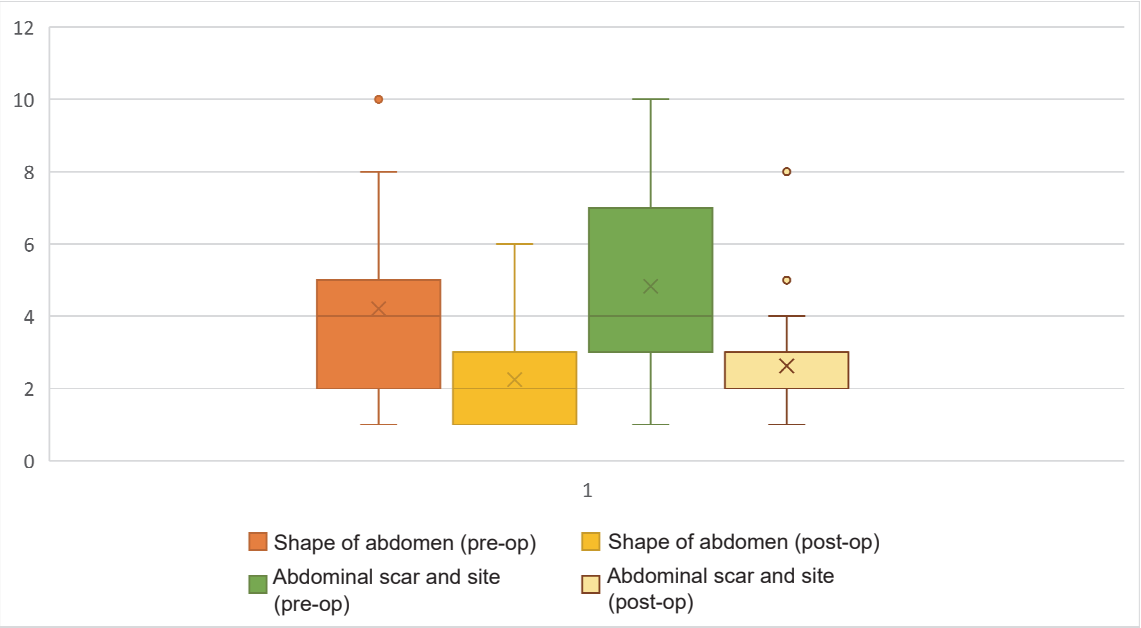

Figure 3. EuraHS-QoL cosmetic outcome scores pre- and post- mesh hernioplasty

Discussion

One of the most prevalent issues associated with ventral hernia repair historically was the high recurrence rate, reaching up to 50% during prolonged follow-up periods. However, recent advancements in surgical techniques tailored to incisional hernias, coupled with the advent of superior mesh materials, have led to a noticeable reduction in recurrence rates [4]. Kokotovic et al. (2016) documented a noteworthy decline in mesh-related complications, reporting incidences of 5.6% (95% CI: 4.2%–6.9%) for patients undergoing open mesh hernia repair and 3.7% (95% CI: 2.8%–4.6%) for those opting for laparoscopic mesh repair over a 5-year follow-up period. Consequently, the evaluation of surgical outcomes has increasingly emphasized the impact on patients' quality of life [5].

Despite the growing recognition of the importance of assessing quality of life (QoL) post-incisional hernia repair, consensus regarding standardized measurement tools remains elusive. While several methodologies for evaluating QoL have been proposed, discrepancies persist regarding the timing, duration, and methodology of assessment. The establishment of international guidelines could facilitate comparative analyses by ensuring methodological uniformity across studies. Consequently, QoL has emerged as a pivotal metric for gauging the efficacy and success of surgical interventions, particularly in the context of hernia repairs.

In response to the need for a comprehensive QoL assessment tool tailored to abdominal wall reconstruction (AWR) patients, the European Hernia Society introduced the EuraHS-QoL in 2016. This initiative aimed to address the inadequacies of existing QoL measurement instruments specific to hernia repair outcomes. The EuraHS-QoL score, characterized by its affordability, patient-centric design, and ease of interpretation, presents a viable option for evaluating postoperative QoL outcomes, albeit challenges persist in long-term patient follow-up. Our study leverages this validated tool to analyse outcomes among our cohort of 53 patients, revealing a significant enhancement in QoL metrics postoperatively [6, 7].

Extensive investigations into the interplay between hernia recurrence rates and QoL have been conducted, as elucidated by Ciomperlik et al. (2020). Their findings underscored the correlation between baseline QoL levels and hernia recurrence risk, with patients exhibiting lower baseline QoL experiencing a greater likelihood

of recurrence and deriving substantial benefits from surgical intervention. Notably, a significant proportion of patients experiencing hernia recurrence still reported notable QoL improvements at the 2-year postoperative mark, echoing our study's findings of overall QoL enhancement following surgery [8].

Recent literature inquiries have unveiled novel dimensions of QoL assessment, as evidenced by Susannah et al. (2023), who explored the impact of hernias on various lifestyle facets including sexual activity, dietary habits, alcohol consumption, and exercise routines. Respondents attributed impediments to sexual intimacy to factors such as aesthetic dissatisfaction, pain, and functional limitations imposed by their hernias, while also noting constraints on physical activity and dietary choices [9].

Acknowledging the limitations inherent in our study, including its nonrandomized prospective observational design and the relatively modest sample size, we advocate for larger-scale investigations encompassing extended follow-up periods and randomized comparative trials to corroborate and juxtapose our findings against alternative hernia repair methodologies.

Conclusion

The EuraHS-QoL score was a user-friendly, more accessible, and more thorough instrument for quantifying patient-related outcome measure after ventral hernia repair.

Declaration of patient consent

The authors confirm they have all patient permission paperwork. The patient(s) consented to the journal publication of their photos and other clinical data in the form. Patients understand that their names and initials will not be published and that efforts will be taken to disguise their identities, but anonymity cannot be guaranteed.

Ethical Approval

Ethical approval was obtained from Institute ethical committee, No. IEC/2023/358, dated on 13/10/2023. All the authors have approved the final version of the manuscript for publication.

Availability of data and materials

Data and material are available based upon request.

Authors contribution

Data collection – Harshit K Prabhakar, Pranay Pratap. Drafting – Vipin V Nair. Data analysis – Vipin V Nair. Critical analysis – Pranay Pratap. Data refining – Sarath Kumar KV. Supervision – Alok Bhalla.

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Conflicts of interest

There are no conflicts of interest.

References

1. Muysoms FE, Deerenberg EB, Peeters E, Agresta F, Berrevoet F, Campanelli G, Campanelli G, Ceelen W, Champault GG, Corcione F, Cuccurullo D, DeBeaux AC, Dietz UA, Fitzgibbons Jr RJ, Gillion JF, Hilgers RD, Jeekel J, Kyle-Leinhase I, Köckerling F, Mandala V, Montgomery A, Morales-Conde S, Simmermacher RKJ, Schumpelick V, Smietański M, Walgenbach M, Miserez M. Recommendations for reporting outcome results in abdominal wall repair: results of a Consensus meeting in Palermo, Italy, 28–30 June 2012. Hernia 2013; 17(4): 423–433.

2. Heniford BT, Walters AL, Lincourt AE, Novitsky YW, Hope WW, Kercher KW. Comparison of generic versus specific quality-of-life scales for mesh hernia repairs. J Am Coll Surg 2008; 206(4): 638–644.

3. Gabriel SE, Normand SLT. Getting the methods right – the foundation of patient-centered outcomes research. N Engl J Med 2012; 367(9): 787–790.

4. Luijendijk RW, Hop WC, van den Tol MP, de Lange DC, Braaksma MM, Ijzermans JN, Boelhouwer RU, de Vries BC, Salu MK, Werwldsma JC, Bruijninckx CM, Jeekel J. A comparison of suture repair with mesh repair for incisional hernia. N Eng J Med 2000; 343(6): 392–398.

5. Kokotovic D, Bisgaard T, Helgstrand F. Long-term recurrence and complications associated with elective incisional hernia repair. JAMA 2016; 316(15): 1575–1582. DOI: 10.1001/jama.2016.15217.

6. Jensen KK, Henriksen NA, Harling H. Standardized measurement of quality of life after incisional hernia repair: a systematic review. Am J Surg 2014; 208(3): 485–493. DOI: 10.1016/j.amjsurg.2014.04.004.

7. Grove TN, Muirhead LJ, Parker SG, Brogden DRL, Mills SC, Kontovounisios C, Windsor ACJ, Warren OJ. Measuring quality of life in patients with abdominal wall hernias: a systematic review of available tools. Hernia 2021; 25(2): 491–500. DOI: 10.1007/s10029-020-02210-w.

8. Ciomperlik H, Dhanani NH, Cassata N, Mohr C, Bernardi K, Holihan JL, Lyons N, Olavarria O, Ko TC, Liang MK. Patient quality of life before and after ventral hernia repair. Surgery 2021; 169(5): 1158–1163.

9. Hill S, Bullock J, Sanders DL. Quality of life with a hernia – a novel patient led study. J Abdom Wall Surg 2023; 2: 11214. DOI: 10.3389/jaws.2023.11214.