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Quality of Life and Functional Outcomes after Lichtenstein Inguinal Hernia Repair: A Prospective Comparative Study of Cyanoacrylate Adhesive (Histoacryl®) vs. Suture Mesh Fixation and Questionnaire Validation

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Abstract

Background: Chronic post-herniorrhaphy pain remains a significant clinical challenge, often attributed to nerve entrapment by traditional suture fixation. This study evaluates the impact of mesh fixation techniques on patient quality of life (QoL) using both generic and disease-specific instruments.

Methods: A prospective, randomized study was conducted on 167 patients undergoing Lichtenstein tension-free repair. Patients were divided into two groups: Group Cy (N= 81, Histoacryl glue fixation) and Group Su (N= 86, non-absorbable monofilament sutures). Quality of Life was assessed preoperatively and at 1, and 12, postoperatively using the EuraHS-QoL score and a newly developed disease-specific instrument (RoHeQ – Romanian Hernia Questionnaire). Long-term surveillance up to 24 months was maintained to assess recurrence rates and chronic pain. Statistical analysis included ROC curve analysis to determine pain predictability and the Intraclass Correlation Coefficient (ICC) to assess concordance between the two QoL instruments.

Results: The Glue group demonstrated significantly lower acute pain scores (VAS) during the first 7 days, and a shorter mean operative time with statistical significance ($p < 0.01$). EuraHS-QoL scores showed superior results for the glue group regarding "pain in the groin" and "restriction of activities" at the 1-month follow-up. ROC curve analysis identified an early pain threshold (VAS > 4 at day 1) as a strong predictor of diminished QoL at one year (AUC = 0.82). A substantial agreement was found between the domains of EuraHS-QoL activity scores and RoHeQ (ICC =0.74, $p < 0.001$). At 24 months, a total of three late recurrences occurred (two in the Glue group and one in the Suture group; $p > 0.05$).

Conclusions: Mesh fixation with Histoacryl in Lichtenstein repair significantly improves early postoperative quality of life and reduces acute pain compared to suture fixation. Early pain intensity serves as a reliable prognostic factor for long-term outcomes, while adhesive fixation maintains a safety and recurrence profile comparable to traditional sutures.

Keywords: inguinal hernia, Lichtenstein repair, Histoacryl, Quality of Life, EuraHS-QoL, suture fixation, chronic pain