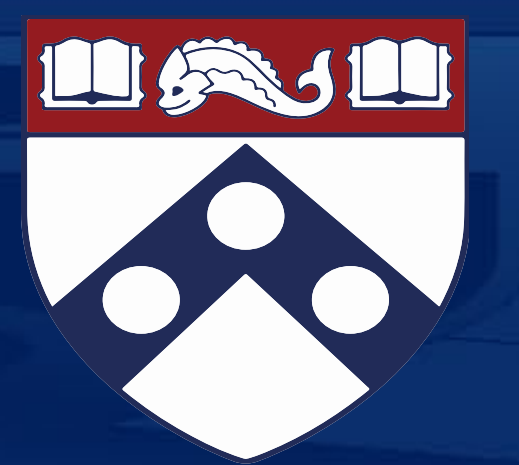


Comparative Effectiveness Analysis of Ventral Hernia Repair with Panniculectomy: Evaluating Efficacy with and without External Oblique Release



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Background

As global obesity rates continue to rise, surgical approaches to address complications associated with excessive adiposity are becoming increasingly complex and necessary. Ventral hernia repair (VHR) combined with panniculectomy is one such approach that has gained prominence due to its potential to significantly improve patient outcomes by addressing both the hernia and the excess skin. Anterior component separation, particularly involving the release of the external oblique (EOR), is a technique that has been adopted to facilitate the closure of large ventral hernias in the context of panniculectomy. However, despite the growing adoption of these combined procedures, comprehensive data evaluating the long-term outcomes and effectiveness of these surgeries, particularly with and without EOR, remain sparse. This study aims to fill this gap by assessing the long-term efficacy and safety of VHR with panniculectomy, examining both with and without the use of external oblique release.

Methods

A retrospective review from 2016-2022 was done on patients who underwent VHR with EOR and panniculectomy. Propensity-scored matching considered age, BMI, comorbidities, and mesh type. Exclusions were made for parastomal hernias.

Results

In the comparative analysis of 223 patients undergoing ventral hernia repair (VHR) with panniculectomy, a propensity score matching process resulted in a balanced selection of 156 patients for the study, divided evenly into two cohorts: 78 patients underwent VHR with the additional technique of bilateral external oblique release (EOR), while the remaining 78 underwent VHR without EOR. The median age across the groups was uniformly 58 years, and the body mass index (BMI) was consistent at 37.8 kg/m², indicating a demographic similarity that strengthens the comparative analysis. The majority of patients were female in both cohorts (70.5% vs. 75%, $p > 0.05$). There was a significant difference in hernia defect size ($409.1\text{cm}^2 \pm 188.5\text{cm}^2$ vs. $268.2\text{cm}^2 \pm 192.4\text{cm}^2$), procedure duration (min; 270 ± 92 vs. 240 ± 132), and number of drains utilized (2.7 vs 2.4) ($p < 0.05$). There were no differences between the groups regarding type of mesh used, hernia recurrence, surgical site occurrences, emergency department visits, or reoperations ($p > 0.05$). However, patients who underwent VHR with EOR demonstrated a significant association with VTE (14.3% vs. 3.8%, $p < 0.05$) and readmissions (38.5% vs 20.8%, $p < 0.05$). This group also demonstrated to be an independent predictor of readmissions (AOR 6.9, $p < 0.05$) with a mean follow up of 53 months.

Conclusions

The findings of this study suggest that combining VHR with EOR and panniculectomy is generally effective, with low rates of hernia recurrence and other major complications over an extended follow-up period. Importantly, this procedure appears to maintain structural integrity and patient functionality. However, the increased duration of surgery in patients who underwent EOR highlights the need for enhanced perioperative care to mitigate associated risks, particularly venous thromboembolism (VTE) and hospital readmissions, which were significantly more common in this group. These risks underscore the necessity for rigorous patient selection and possibly more intensive postoperative surveillance and management strategies to improve overall safety and outcomes in this population. Given the complexity of the procedures and the serious nature of the potential complications, our results indicate that while effective, these combined surgeries require careful consideration of patient-specific risk factors and detailed preoperative planning.

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