

# Relationship between Preoperative Body Composition and Surgical Outcomes Following Laparoscopic Ventral Hernia Repair.

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## INTRODUCTION

- Elevated body mass index (BMI) has been associated with increased complications after laparoscopic ventral hernia repair (LVHR).
- Computerized volumetric analysis and multidimensional visualization can be used in preoperative planning for paraesophageal hernia (PEH) repair.
- Our aim was to describe the characteristics and body composition of patients undergoing LVHR and its association with postoperative outcomes.

## METHODS

- Retrospective review of adults undergoing primary LVHR with mesh between 2007-2011.
- Inclusion Criteria: Pre-op abdominal CT scan
- Exclusion Criteria: Recurrent hernia or concurrent operations
- Pre-op CT scans were analyzed via TeraRecon Aquarius iNtuition software for body composition variables: peripheral fat volume (PFV), visceral fat volume (VFV), and waist circumference (WC).
- Hernia recurrence and surgical site infection were collected at 2-weeks (2-we), 1-month (1mo), 6-months (6mo), 12-months (12mo), and long-term (LT; >15 months).
- Patient demographics and body composition were correlated with post-op complication. Statistical analysis performed using SPSS v.25.0, α=0.05.

## DISCLOSURES

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## Visceral Fat Isolation and Analysis

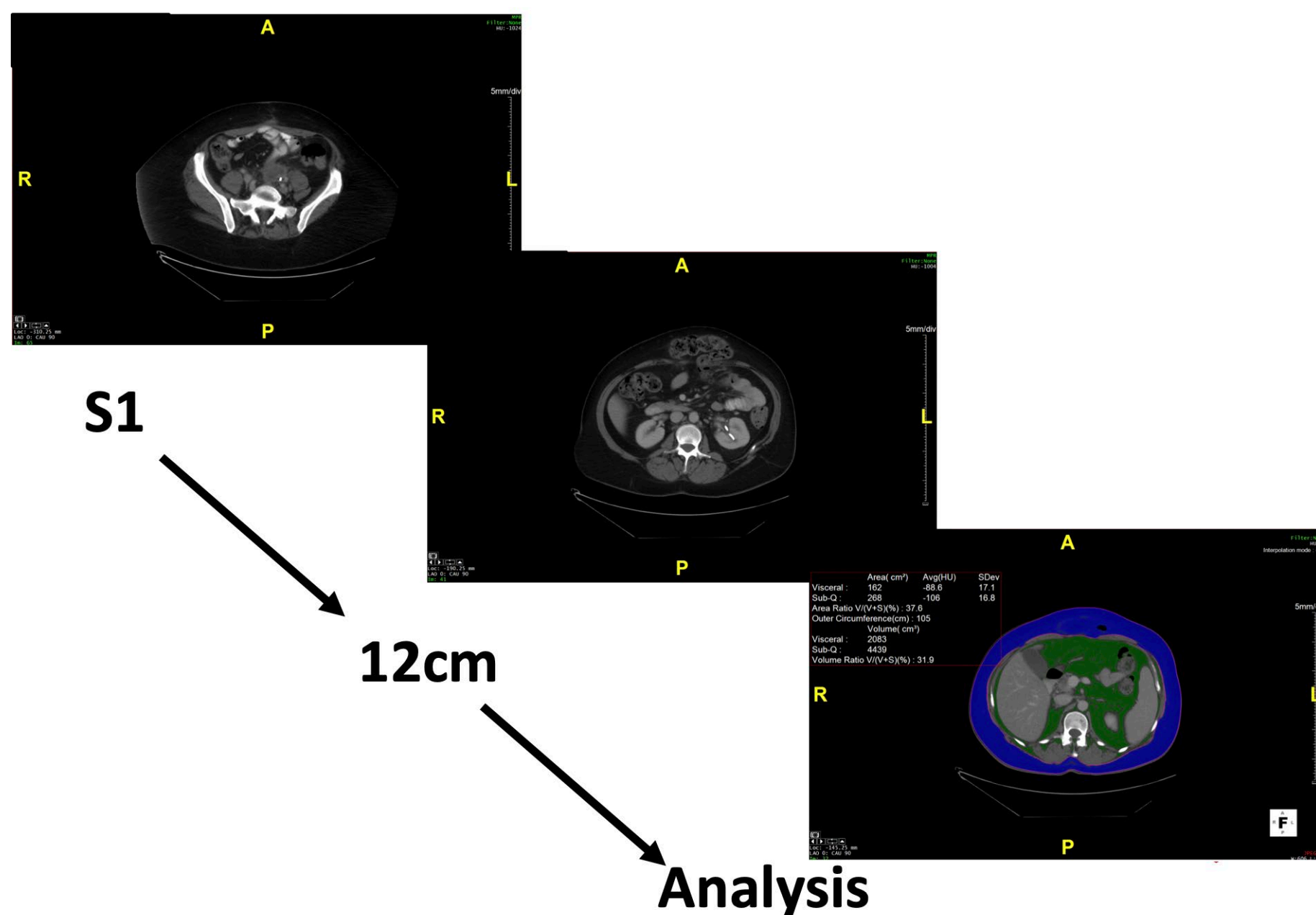


**Figure 1-** VFV, PFV, and TFV calculations using **TeraRecon Aquarius iNtuition** software

## Hernia Sac 3D Volumetric Reconstruction

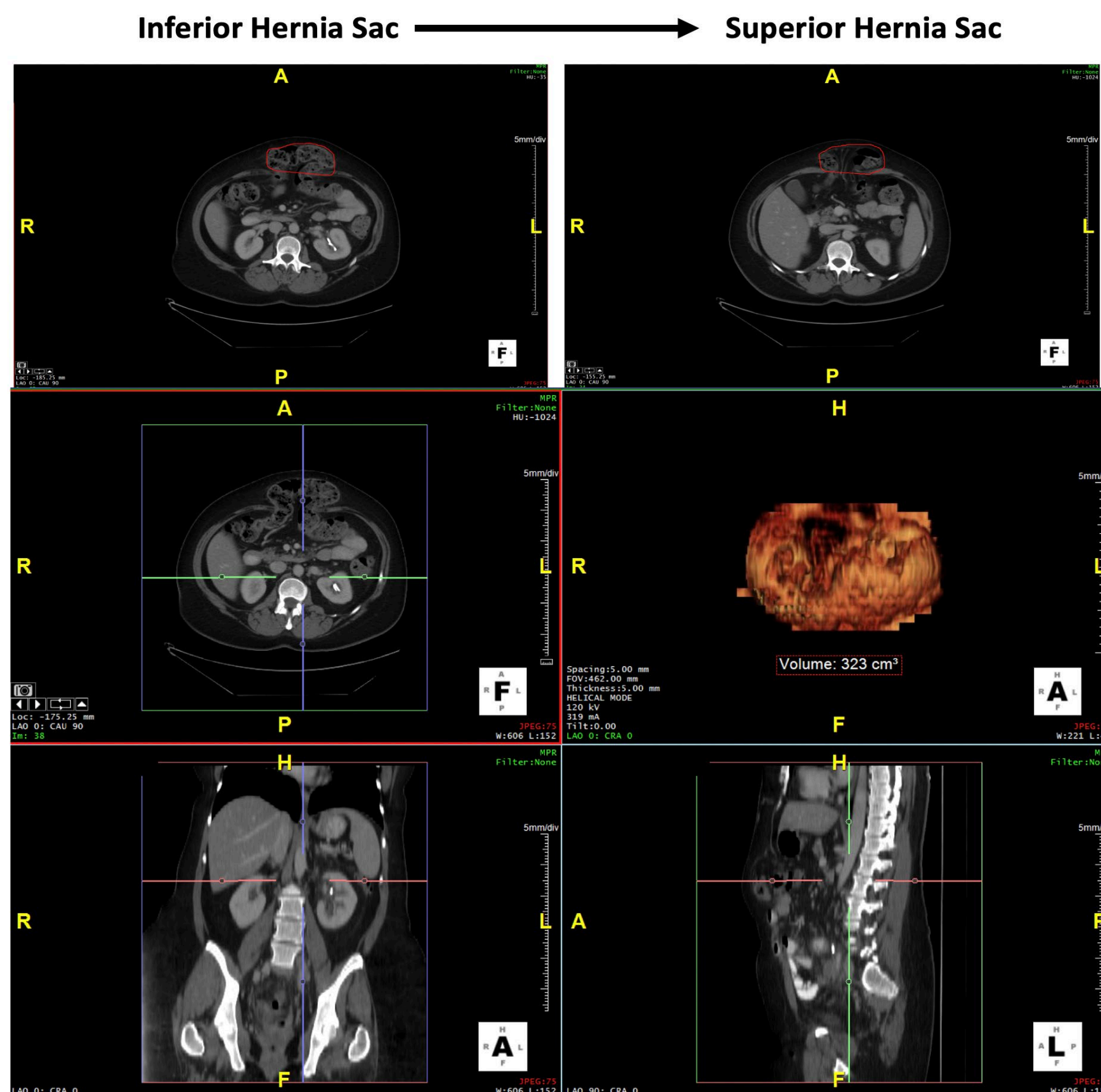


**Figure 2-** 3D Volumetric Reconstruction of the hernia sac using manual isolation methods on **TeraRecon Aquarius iNtuition** software.

## RESULTS

- 33 patients included(female (51.5%), Caucasian (75.8%), with mean age of 54±12.7years)
- Hypertension (36.4%) and diabetes (18.2) were the most prevalent comorbidity
- Pre-op median BMI was 35.2 kg/m<sup>2</sup> [29.65-38.55kg/m<sup>2</sup>]
- 7.1% of patients lost >10% of total body weight.
- Median VFV was 2158cm<sup>2</sup> [1690-2657.5], median PFV was 3859cm<sup>2</sup> [2875-5025], and median VFV/TFV ratio was 36.8 [28.9-46.5].
- Majority (39.4%) had a hernia size between 2.5-5cm.
- Two patients converted to open intraoperatively, mean OR time was 189±103.7min, and 93.4% of patients had minimal blood loss.
- Majority (72.7%) were discharged within 72 hours.
- Median LT follow-up was 46.9 months (16-108months).
- Six patients experienced post-op complications, including incisional hernia (N=3), mesh infection (N=2), and dehiscence (N=1).
- Patients with pre-op higher PVF (4635 vs 2216cm2, p=0.409) and lower VFV (2216 vs 2304cm2, p=0.847) developed higher rates of post-op complications, although not statistically significant.

## CONCLUSIONS

- Our study suggests a correlation between patients with higher PVF preoperatively and higher complication rates after LVHR.
- This information can contribute with preoperative discussions, including benefits of preoperative weight loss, and the risk of postoperative complications and further educate decision making.