

# Utilization of CT Scan Data to Determine Risk of Donor Site Complications After Abdominally Based Breast Reconstruction

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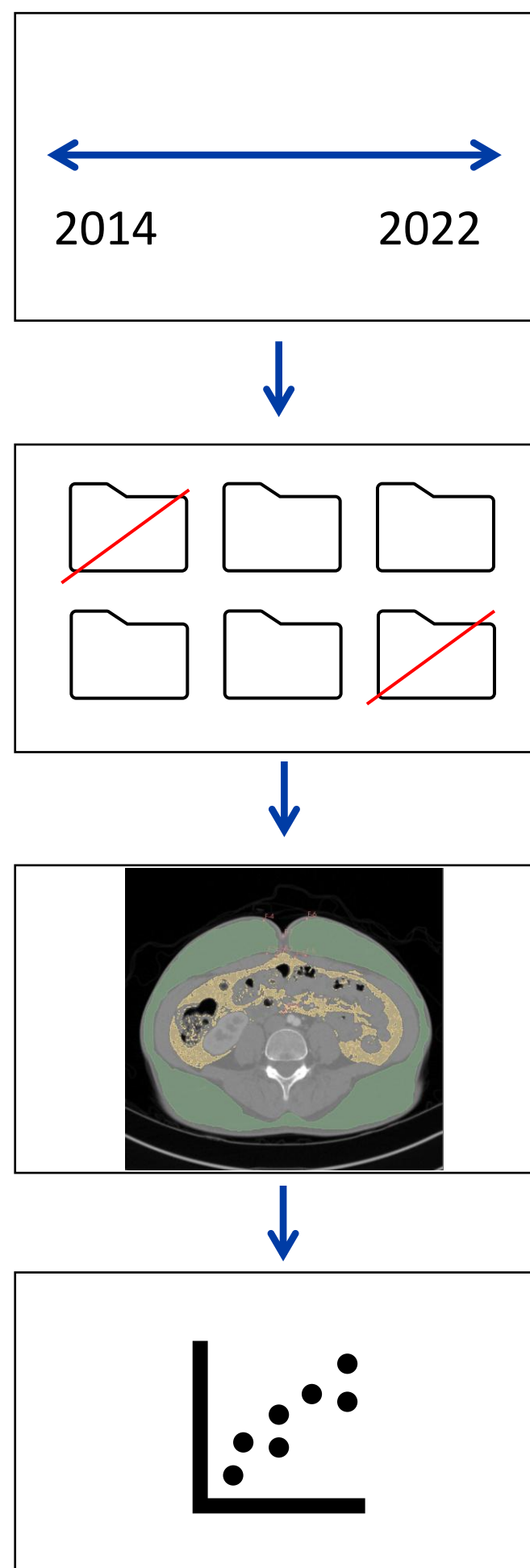
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## BACKGROUND

- The abdomen is frequently the primary donor site for post-mastectomy autologous breast reconstruction
- Data from CT scans may help predict donor site complications
- The purpose of this study is to analyze CT scan data and identify predictive variables for abdominal donor site morbidity

## METHODS

- Retrospectively reviewed patients who received abdominally based free flap breast reconstruction from 2014 to 2022
- Analyzed 142 patient charts after application of exclusion criteria
- Analyzed preoperative CT with quantitative metrics
- Tested CT metrics for correlation with umbilical and abdominal donor site wounds



## RESULTS

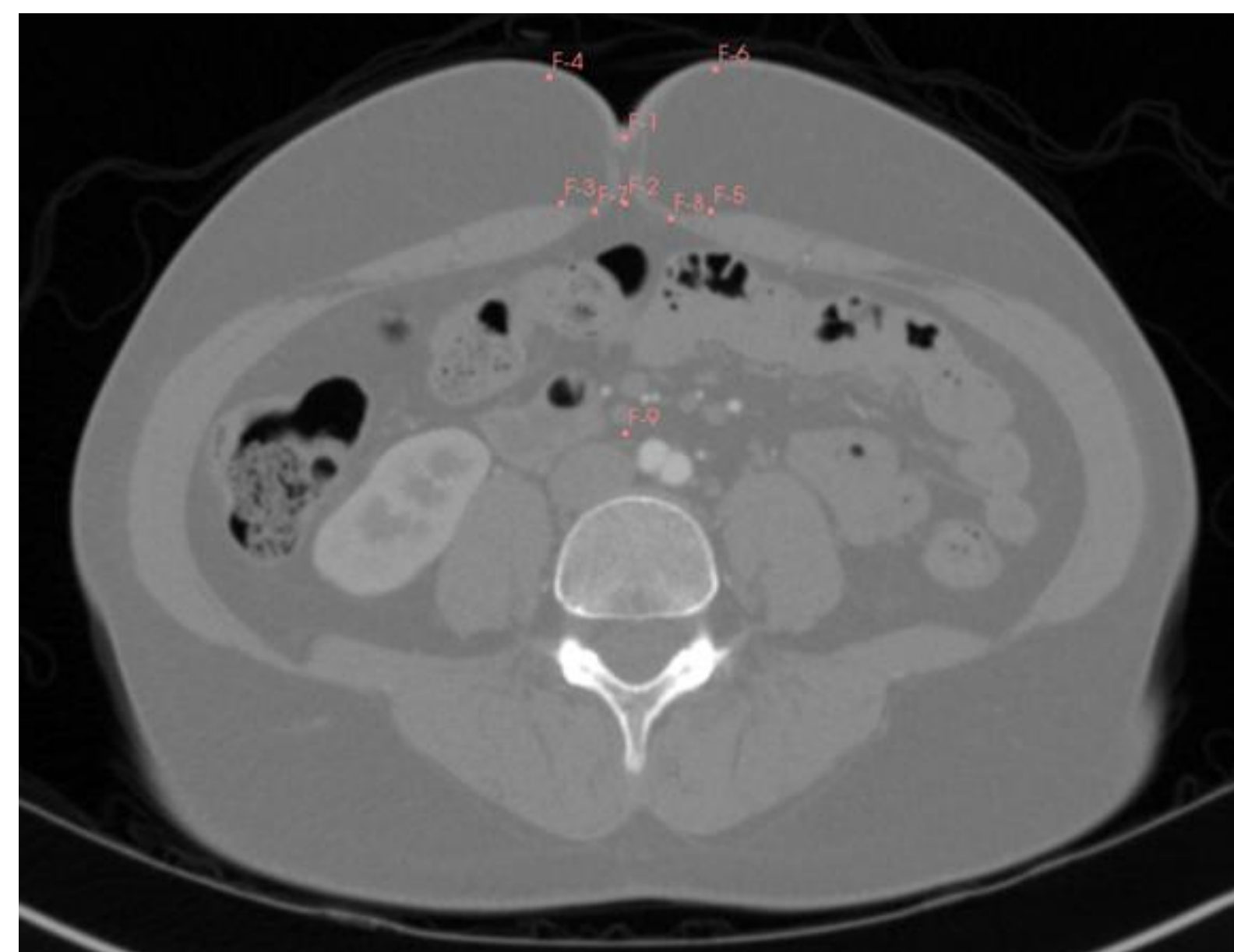


Figure 1. Axial CT slice at L4 showing points F-1 through F-9, each of these dots was used to measure a specific distance

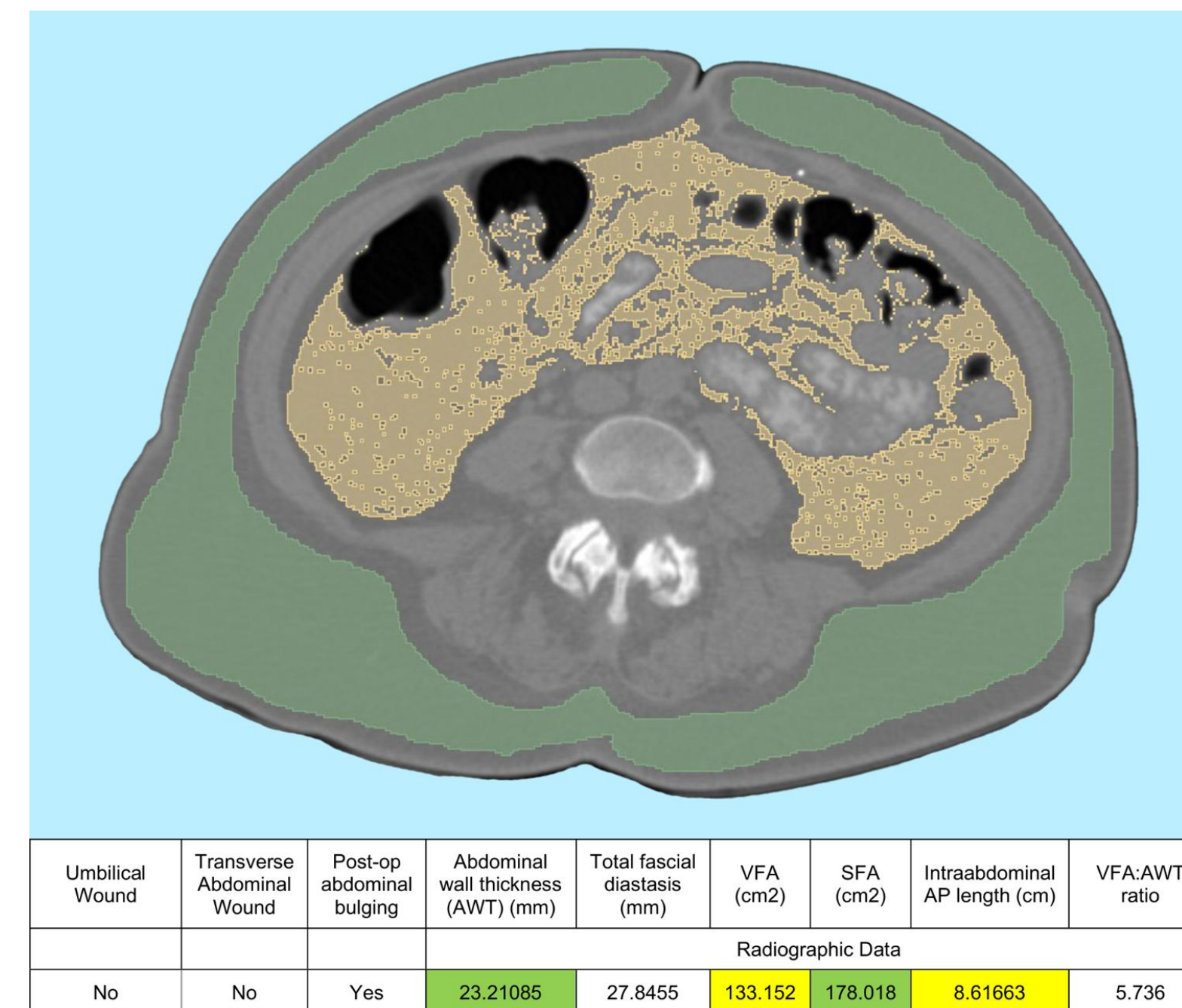


Figure 2. Example axial CT slice at L4 showing quantification of subcutaneous and visceral fat area in 3D Slicer.

Table 1. Truncated multivariate analysis of predictor variables for postoperative complications

Outcome: Variable	Estimate	Odds Ratio	P-value
<b>Umbilical Wound:</b>			
Bilateral flap harvest	2.107	8.222	0.033
<b>Abdominal Wound:</b>			
Smoking	1.446	4.246	0.029
<b>Abdominal and Umbilical Wounds:</b>			
ASA	-1.171	0.310	0.044
<b>Abdominal Bulge:</b>			
Visceral Fat Area (VFA)	0.161	1.175	0.062
VFA/Abdominal Wall Thickness	-0.005	0.995	0.042

## DISCUSSION

- Higher VFA (116.87cm<sup>2</sup>) correlated with the development of:
  - wound healing complications (p=0.042)
  - an abdominal bulge that approached statistical significance (p=0.062)
- Healing complications in isolated umbilical wounds associated with:
  - High VFA (114.33cm<sup>2</sup>) at the level of the umbilicus (p=0.044)
  - Bilateral procedures (p=0.032)
- Suggests that abdominal wall and incisional breakdown may be related to internal pressure on a surgically reconstructed abdominal envelope

## CONCLUSIONS

- This study adds to the literature that uses preoperative CT to better understand patient risk factors
- Higher VFA is likely associated with increased risk of donor site wound healing issues and postoperative bulging
- For patients with high VFA, abdominal-sparing options should be considered if available and clinically appropriate