

VISCERAL ADIPOSITY MEASUREMENTS AS PREDICTORS OF POST-OPERATIVE COMPLICATIONS IN PATIENTS UNDERGOING PANCREATIC SURGERY

R. Muyoka Maina, MD, MHS¹, Weng Choy, BA², Denise Wong¹, MD, Paxton Dickson, MD¹, Jeremiah Deneve, DO¹, David Shibata, MD¹, Evan S. Glazer, MD, PhD¹

¹University of Tennessee Health Science Center, Department of Surgery, Memphis TN

²University of Tennessee Health Science Center, College of Medicine, Memphis, TN

Introduction: Visceral obesity is a well-known risk factor for various cancer types and post-operative complications. Several visceral adiposity measurements have been proposed as markers of visceral obesity however there is no consensus as to which is the most accurate in predicting post-operative morbidity. In this study, we investigate the correlation between different visceral adiposity measurements and post-operative complications in patients undergoing pancreatic surgery.

Methods: A retrospective review of patients undergoing pancreatectomy between 2013 – 2020 was conducted. CT scans of the abdomen and pelvis performed within 3 months of surgery were reviewed by an independent radiologist. Five measurements of visceral adiposity were done: visceral fat area (VFA), subcutaneous fat area (SFA), psoas area (PSA), L3 vertebral body muscle area (L3VB) and perinephric fat thickness (PNF). Post-operative complications were evaluated and graded using the Clavien-Dindo classification system.

Results: A total of 78 patients were identified. The median age was 57.5 years. Indication for surgical resection was malignant disease in 59% of the cases and benign disease in 41% of cases. The rate of post-operative morbidity was 56.4%. The most common type of complication was Clavien-Dindo III (requiring surgical, endoscopic, or radiologic intervention) while the least common was Clavien-Dindo V (death). Pearson correlation analysis showed that VFA and SFA were statistically significant predictors of post-operative morbidity ($p=0.04$, $p=0.03$ respectively). There was no statistically significant correlation between post-operative complications and PSA, L3VB or PNF.

Conclusion: Visceral adiposity as measured by VFA and SFA, is a value that can routinely be obtained on pre-operative CT scan. It is a significant predictor of surgical outcome in patients undergoing pancreatectomies and can be used to not only improve patient selection but also assist in providing informed surgical consent and appropriate prehabilitation in this patient population.

Take home point: Visceral fat area and subcutaneous fat area are accurate predictors of post-operative complications in patients undergoing pancreatic surgery.

Table 1: Demographic Data

Gender	Male	35 (45%)
	Female	43 (55%)
Race/ethnicity	White	37 (47.4%)
	Black or African-American	37 (47.4%)
	Hispanic/Latinx	3 (3.85%)
	Other	1 (1.26%)
Indication for surgery	Benign disease	32 (41%)
	Malignant disease	46 (59%)