

# Sarcopenia as Evaluated by Psoas Cross-Sectional Area is a Predictor of Complication Following Treatment of Lower Extremity Metastatic Disease

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## BACKGROUND & METHODS

### Background

Surgical decision-making in patients with metastatic disease is multifactorial and made on an individual basis. Previous studies have evaluated the role of sarcopenia as measured by psoas cross sectional area (PCA) as a predictor of complication following orthopaedic surgery. The objective of this study was to evaluate if psoas cross sectional area serves as a reliable predictor of risk for non-oncologic complication following treatment of metastatic disease at the lower extremity.

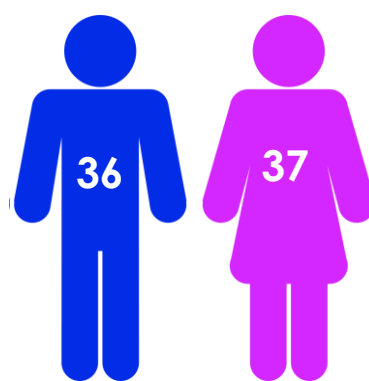
### Methods

Patients (104) treated surgically for metastatic disease to the femur or tibia from 2001-2017 were retrospectively reviewed. Patient information including age, gender, diagnosis, method of surgical treatment, and complication type was collected for analysis. Psoas cross-sectional area was measured on axial CT cuts at the L4-L5 disc level which were obtained perioperatively.

## HYPOTHESIS

Decreased psoas cross sectional area is associated with increased complications following treatment of metastatic disease

## 74 Patients



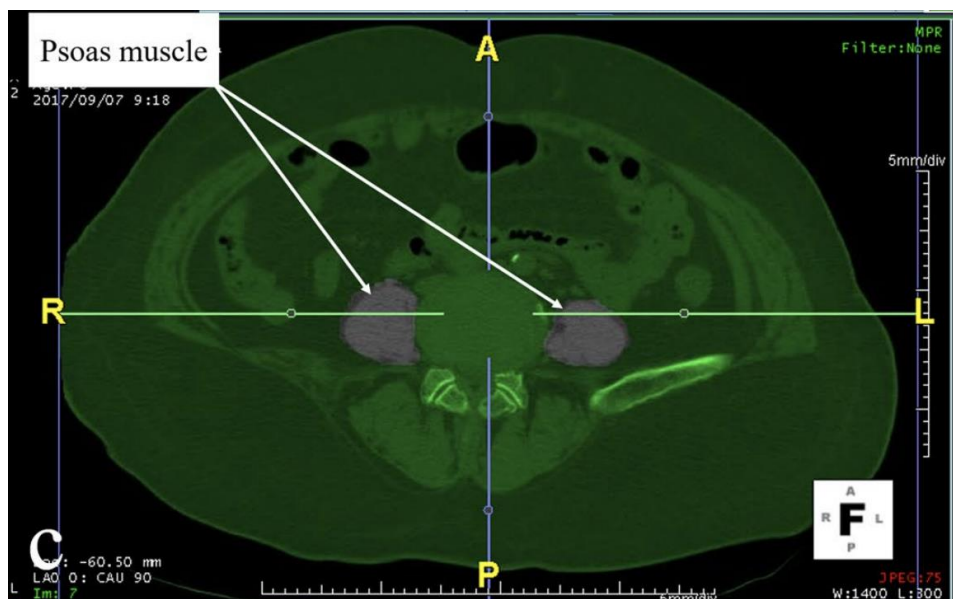
Mean Age 61.8 Y  
Mean F/U 22 mo.

### Most Common Diagnoses

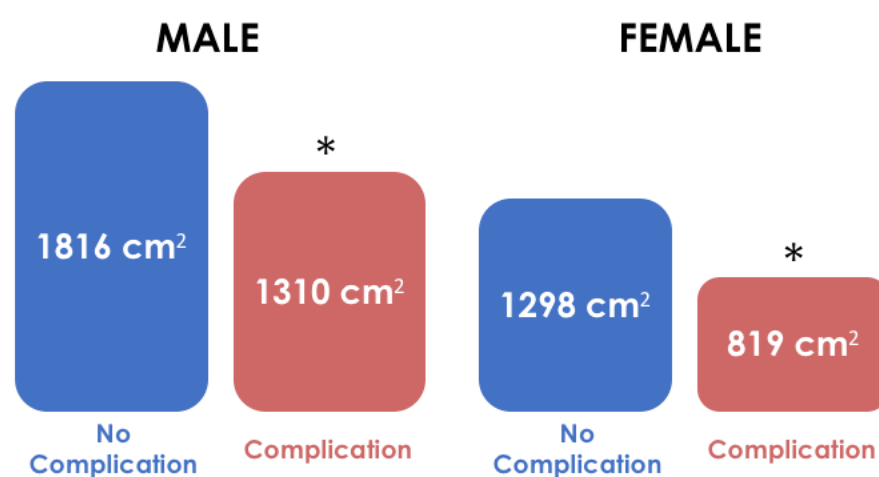
- Breast – 24
- Renal – 15
- Prostate – 8
- Lung – 7

## RESULTS

Seventy-three (36 male, 37 female) patients had perioperative CT scans reviewable to assess psoas cross-sectional area and were treated by endoprosthesis (41) or plate/nail fixation (32) at the femur (70) or tibia (4). Mean age was 61.8±14.4 years old. Mean follow-up was 21.5± 27.1 months. Most common diagnoses were breast (24), renal (15), prostate (8), and lung (7) cancer. Nearly half of patients (46%) presented with displaced pathologic fractures. Overall complication rate was 16% and comparable following endoprosthesis or plate/nail fixation (p=0.455) and by pathologic diagnosis (p=0.977). Psoas cross sectional area was significantly smaller in patients who sustained non-oncologic complications for both males [1310cm<sup>2</sup> vs. 1816cm<sup>2</sup>; p=0.024] and females [819cm<sup>2</sup> vs. 1298cm<sup>2</sup>; p<0.001].



### Psoas Cross Sectional Area and Complications



Psoas cross sectional area was significantly smaller in patients who sustained non-oncologic complications for both males [p=0.024] and females [p<0.001].

## CONCLUSION

Patients with sarcopenia as measured by psoas cross sectional area may be at increased risk for complication post-operatively and should be counseled accordingly. Future larger scale studies to investigate the utility of psoas cross sectional area as a measure of sarcopenia are warranted prior to the broad application of these findings.