

Major Thoracic Aortic and Common Iliac Arterial Calcifications Predict Postoperative Intra-Abdominal Abscesses Following Pancreaticoduodenectomy

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BACKGROUND

Preoperative arterial calcifications may reflect systemic atherosclerosis and compromised perfusion, potentially impairing healing after pancreaticoduodenectomy.

AIM

To evaluate whether calcifications in specific arterial beds predict postoperative morbidity and mortality.

METHODS

Study Design

- Single-center retrospective review of pancreaticoduodenectomy from January 2020 - December 2024
- Preoperative CT scans were reviewed for arterial calcifications—graded as absent, minor, or major
- Association between arterial calcifications and outcomes were determined by multivariable logistic regression analysis

Outcomes

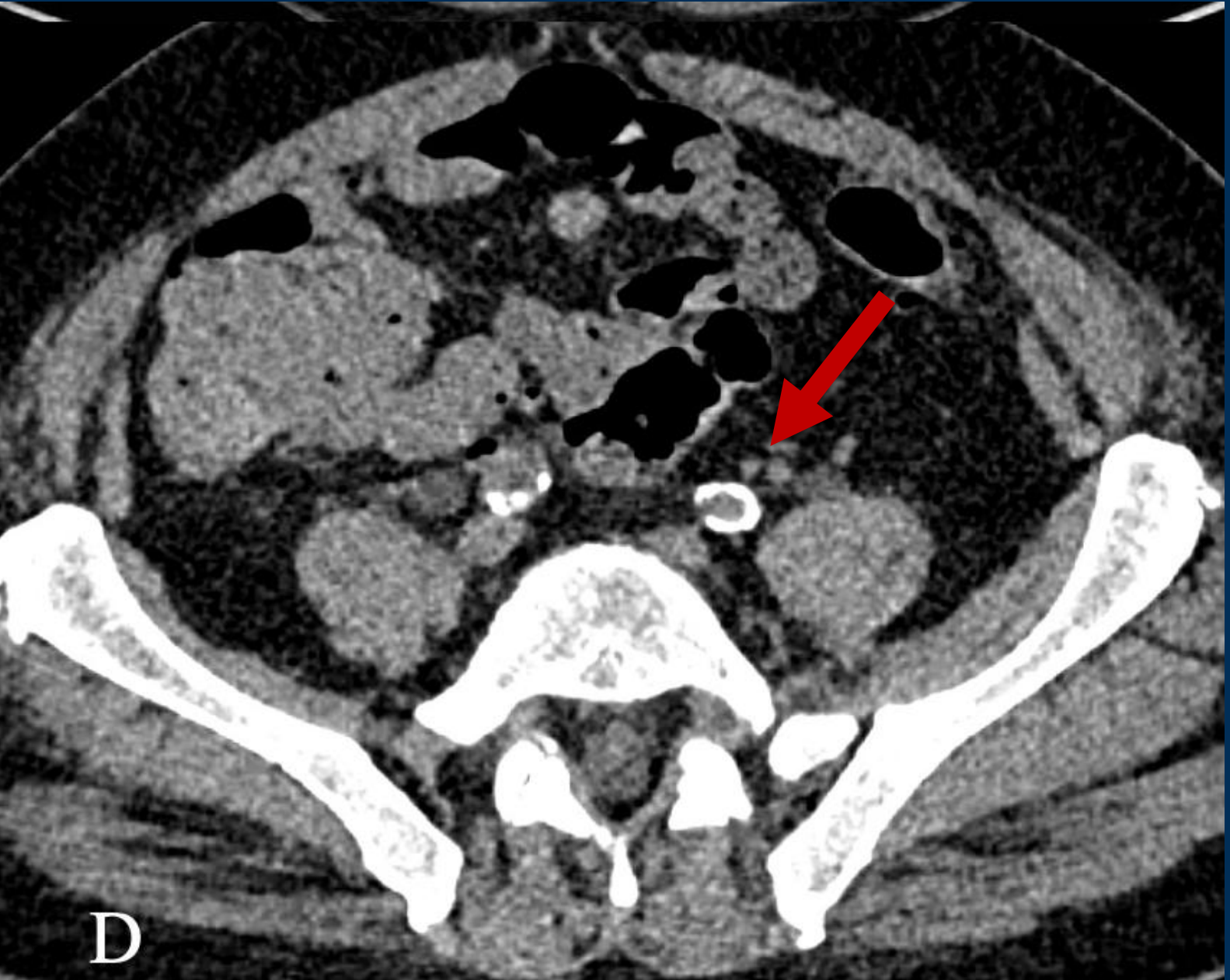
- Primary: 90-day mortality, hospital readmission, reoperation, and Clavien–Dindo major complications
- Secondary: pancreatic leak and intra-abdominal abscess

BASELINE CHARACTERISTICS

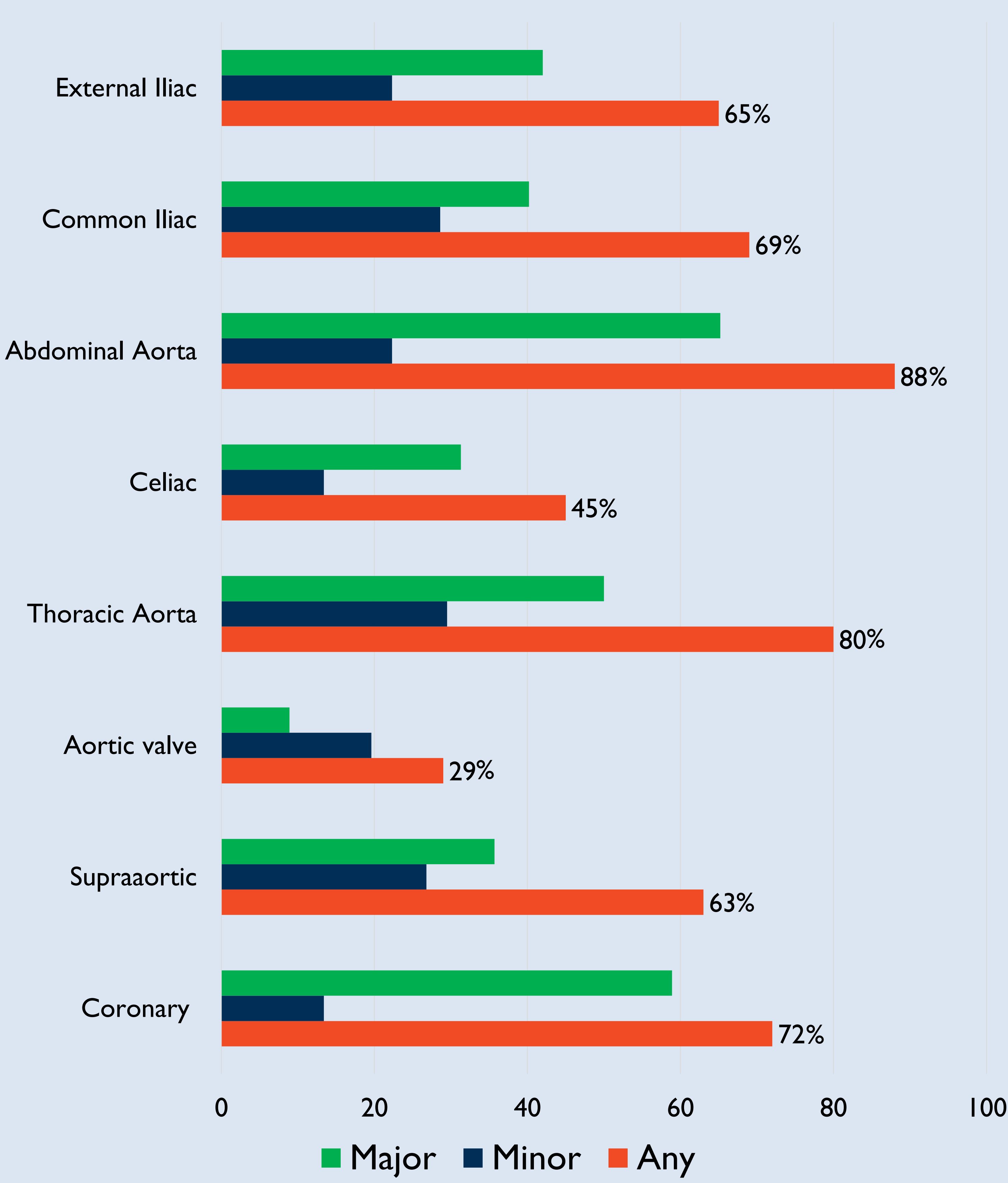
	N = 112
Age (years)	70.0 [IQR 63.0-76.0]
BMI (kg/m ²)	25.4 [IQR 22.7-29.7]
Male	67 (60%)
Diabetes mellitus	37 (33%)
Respiratory disease	24 (21%)
Chronic kidney disease	109 (97%)
Any tobacco use	57 (51%)
Alcohol abuse	109 (97%)
ASA 2	6 (5%)
ASA 3	86 (77%)
ASA 4	20 (18%)

ARTERIAL CALCIFICATIONS

Example of common iliac artery calcifications
Graded as major



LOCATION OF ARTERIAL CALCIFICATIONS



90-DAY OUTCOMES

	N = 112
Readmissions	27 (24%)
Reoperations	3 (3%)
Major complications	17 (15%)
Mortality	5 (5%)
Pancreatic leak	24 (21%)
Intra-abdominal abscesses	12 (11%)

No calcification site predicted 90-day outcomes or major complications, except intra-abdominal abscess formation

FACTORS ASSOCIATED WITH INTRA-ABDOMINAL ABSCESS FORMATION

	Odds Ratio	95% CI
Major thoracic aortic calcifications	8.8	1.1-73.7
Major common iliac artery calcifications	6.5	1.3-32.7

CONCLUSIONS

- Major thoracic aorta and common iliac arteries calcifications on preoperative CT imaging are independent predictors of intra-abdominal abscesses after pancreaticoduodenectomy.
- Arterial calcification burden may be a proxy for impaired perfusion and healing capacity postoperatively
- Prospective studies are warranted to validate calcification scoring as a risk stratification tool