

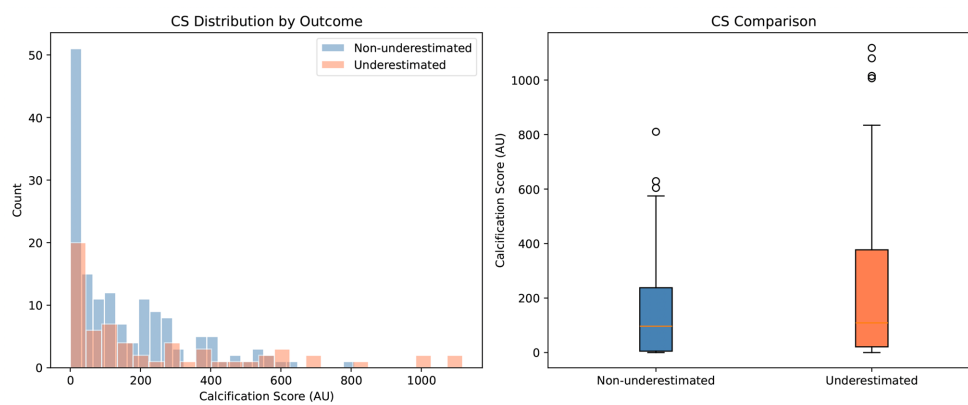


Figure S1 RCS sensitivity across df (Model 1, unadjusted). This figure shows the sensitivity analysis of the RCS model across different df for estimating the association between CS (AU) and the risk of CCTA underestimation. The Y-axis represents the OR (reference OR =1), and the blue curve with its shaded area indicates the fitted spline with 95% CI. Vertical red dashed lines mark the candidate CS thresholds (AU) corresponding to the RCS change points. The P-nonlinearity value is the P value from the non-linear test in the RCS model for each df. AU, Agatston units; CCTA, coronary computed tomography angiography; CI, confidence interval; CS, coronary artery calcification score; df, degrees of freedom; OR, odds ratio; RCS, restricted cubic spline.

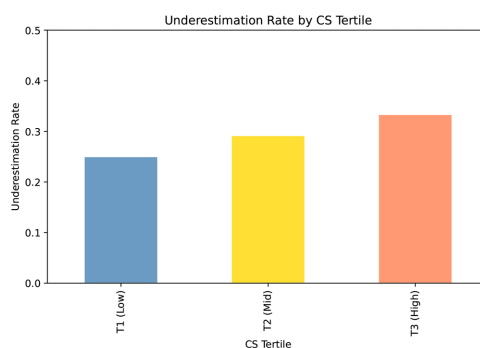


Figure S2 Distribution of CS by underestimation status. This figure compares the distribution of CS (AU) between patients with non-underestimation and those with underestimation on CCTA, using an ICA-based reference. The left panel shows the histogram of CS values in the two groups, where colors represent non-underestimated and underestimated cases. The right panel shows the boxplot for CS by group, displaying the median, IQR, and overall spread, and the title reports the between-group comparison (Mann-Whitney U test P value). AU, Agatston units; CCTA, coronary computed tomography angiography; CS, coronary artery calcification score; ICA, invasive coronary angiography; IQR, interquartile range.

Supplementary: RCS Sensitivity Across Degrees of Freedom (Model 1, Unadjusted)

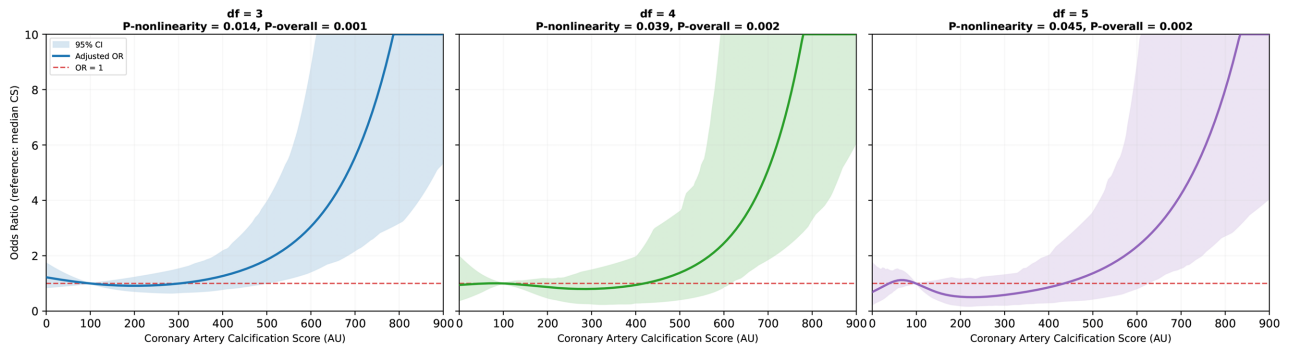


Figure S3 Underestimation rate by CS tertile. This bar chart displays the underestimation rate of CCTA across CS tertiles (T1 low, T2 middle, and T3 high). Each bar indicates the proportion of patients with CCTA underestimation within the corresponding CS tertile, and the figure provides both the percentage and the sample size (n, per tertile). The three tertiles contain equal numbers of participants (n=72 each), allowing direct comparison of underestimation rates across CS strata. Model 1: unadjusted, including only CS as the independent variable. T1/T2/T3: CS tertiles; n: sample size. AU, Agatston units; CCTA, coronary computed tomography angiography; CI, confidence interval; CS, coronary artery calcification score; df, degrees of freedom; OR, odds ratio; RCS, restricted cubic spline.

Table S1 Collinearity (sensitivity) analysis for CS association with CCTA underestimation—VIF check for Model 3 variables

Variables	VIF
CS	1.14
Age	1.48
Sex	2.05
Plaque type	1.14
HTN	1.22
DM	1.22
Dyslipidemia	1.18
Smoking	2.64
Alcohol	2.39
BMI	1.22
ALT	2.48
AST	2.23
Cr	2.54
BUN	2.38
TG	1.76
TC	32.59 [†]
LDL-C	27.92 [†]
HDL-C	3.11
TNT	1.16
TNI	1.07
D-dimer	1.09

[†], TC and LDL-C showed high collinearity (VIF >5); sensitivity analysis was performed. ALT, alanine aminotransferase; AST, aspartate aminotransferase; BMI, body mass index; BUN, blood urea nitrogen; CCTA, coronary computed tomography angiography; Cr, creatinine; CS, coronary artery calcification score; DM, diabetes mellitus; HDL-C, high-density lipoprotein cholesterol; HTN, hypertension; LDL-C, low-density lipoprotein cholesterol; TC, total cholesterol; TG, triglycerides; TNI, troponin I; TNT, troponin T; VIF, variance inflation factor.

Table S2 Collinearity (sensitivity) analysis for CS association with CCTA underestimation—sensitivity analysis results

Model	Number	CS OR (95% CI)	P value	Max VIF
Model 3 (original, TC + LDL-C)	194	1.002 (1.000–1.003)	0.053	32.59
Model 3a (remove TC)	194	1.002 (1.000–1.003)	0.051	<5
Model 3b (remove LDL-C)	194	1.002 (1.000–1.003)	0.051	<5

This table summarizes the collinearity sensitivity analysis for the association between CS and CCTA underestimation in Model 3. Model 3: additionally adjusted for a comprehensive set of clinical confounders, including plaque type, HTN, DM, hyperlipidemia, smoking, alcohol consumption, BMI, ALT, AST, Cr, BUN, TG, TC, LDL-C, HDL-C, TNT, TNI, and D-dimer. The reference model included TC + LDL-C among lipid covariates. Sensitivity models (Model 3a and Model 3b) were constructed by removing TC or LDL-C, respectively. “CS OR” denotes the OR for CCTA underestimation per 1 AU increase in CS. ALT, alanine aminotransferase; AST, aspartate aminotransferase; AU, Agatston units; BMI, body mass index; BUN, blood urea nitrogen; CCTA, coronary computed tomography angiography; CI, confidence interval; Cr, creatinine; CS, coronary artery calcification score; DM, diabetes mellitus; HDL-C, high-density lipoprotein cholesterol; HTN, hypertension; LDL-C, low-density lipoprotein cholesterol; OR, odds ratio; TC, total cholesterol; TG, triglycerides; TNI, troponin I; TNT, troponin T; VIF, variance inflation factor.