SUPPLEMENTAL MATERIAL

Table S1. Example search strategy (Embase)

#	Searches	Results
1	Epicardial adipose tissue.mp.	1249
2	Epicardial fat.mp.	1481
3	Pericardial adipose tissue.mp	161
4	Pericardial fat.mp	550
5	Vulnerable plaque.mp	2196
6	High risk plaque.mp	288
7	Low attenuation plaque.mp	101
8	Napkin ring.mp	94
9	Positive remodelling	125
10	Spotty calcification	170
11	Plaque characteristics	1228
12	Plaque composition	1734
13	Plaque vulnerability	1745
14	Thin cap fibroatheroma	773
15	Necrotic core	2091
16	Exp intravascular ultrasound/	12695
17	Exp optical coherence tomography/	36156
18	Exp computer assisted tomography/	778928
19	Computed tomography coronary angiography.mp	1140
20	Cardiac computed tomography.mp	2526
21	Exp coronary artery calcium score	3230
22	Exp coronary angiography/	2916
23	1 or 2 or 3 or 4	2877
24	5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15	7800
25	16 or 17 or 22	51500
26	18 or 19 or 20 or 21	779979
27	23 and 24 and 25	26
28	23 and 24 and 26	57

Table S2. Study EAT measurement parameters and HRP definitions

Author	EAT measure method	Definition of HRP features
Lu et al.[1]	EAT definition: fat within pericardial sac. Method: Semi-automated. Software: Volume Viewer, Siemens Medical Solutions, Germany Interval: 1cm Superior border: mid-level RPA Inferior border: diaphragm HU range: -195 to -45 HU	PR: RI of >1.1 maximal outer vessel diameter at plaque divided by average of the proximal and distal normal vessels LAP: <30 HU SpC: <3mm CP extending <1.5mm long-axis vessel diameter & two-thirds vessel circumference NRS: ring of peripheral high attenuation surrounded by core of low attenuation in a non-calcified plaque
Schlett et al.[2]	EAT definition: fat within pericardial sac. Method: Manual Software: Leonardo, Siemens Medical Solutions Interval: 1cm Superior border: mid-level RPA. Inferior border: not specified. HU range: -190 to -30 HU	PR: >1.05 remodelling index LAP: <30 HU SC: <3mm diameter CP HRP defined as at least 2 characteristics in lesions>50% luminal narrowing
Rajani et al.[3]	EAT definition: fat within pericardial sac. Method: Semi-automated Software: QFAT, Cedars-Sinai Medical Centre Interval: 3mm (total 20-40 slices per pt) Superior border: RPA take-off Inferior border: First slice where PDA visualised HU range: -190 to -30 HU	LAP: <30 HU PR: >1.05 (maximal outer arterial wall diameter along plaque exceeding proximal reference by 5%
Oka et al.[4]	EAT definition: adipose tissue between epicardial surface of myocardium and pericardium Method: Manual Software: Not specified. VAT measured with Virtual Place, AZE Inc., Japan Interval: 1cm Superior border: 1cm above left main coronary artery (atrial appendage) Inferior border: cardiac apex HU range: -250 to -30 HU	CT-low density plaque: < 39 HU PR: remodelling index >1.05 SpC: calcium burden length <3/2 vessel diameter and width <2/3 vessel diameter
Ito et al.[5]	EAT definition: adipose tissue within the visceral epicardium Method: Manual Software: Not specified Interval: Not specified. 8-12 slices per patient Superior border: Mid left atrium Inferior border: left ventricular apex HU range: -190 to -30 HU	LAP: <30 HU PR: RI >1.1 (ratio of outer vessel area of lesion to outer vessel area of proximal reference site
Nakanishi et al.[6]	EAT definition: adipose tissue within the pericardial sac Method: Semi-automated Software: Synapse Vincent, Japan Interval: not specified. 7-10 planes Superior border: bifurcation pulmonary artery Inferior border: last slice containing any portion of the heart HU range: -250 to -30 HU	LAP: <30 HU PR: RI >1.1
Ito et al.[7]	EAT definition: adipose tissue within the visceral epicardium Method: Manual Software: Not specified. CT with Aquarius NetStation, USA Interval: not specified. Superior border: not specified Inferior border: not specified HU range: -250 to -40 HU	**CT:** LAP: <30 HU PR: RI >1.1 (ratio of outer vessel area of lesion to outer area of proximal reference site) **OCT:** Necrotic lipid pools quantified as number of quadrants Cap thickness measured at thinnest section of distance from lumen to inner border of lipid pool. TCFA = plaque with necrotic lipid pool in ≥2 quadrants within a plaque and fibrous cap <=65μm

Park et al.[8]	Method: 2D parasternal long-axis view; point on the free wall of RV to assess anterior echo-lucent space between linear echo-dense parietal pericardium and RV epicardium Cardiac cycle timing: End-diastole. Thickest point of EAT in each of 3 cycles measured and average value used	Plaque components: Fibrous – areas of dense collagen Fibrofatty – fibrous tissue with interspersed lipid in collagen Dense calcium – calcium with no adjacent necrosis Necrotic core – necrotic regions containing cholesterol clefts, foam cells, microcalcification TCFA: necrotic core ≥10% plaque area without overlying fibrous tissue and having >40% plaque burden in 3 consecutive frames
Tachibana et al.[9]	Method: 2D parasternal long-axis view; point on the free wall of RV along midline of ultrasound beam perpendicular to aortic annulus Cardiac cycle timing: End-systole. Average of three cardiac cycles used	PR: RI >1.05 (cross sectional lesion vessel area divided by proximal reference vessel area) LAP: <30 HU

CT – computed tomography, CP – calcified plaque, EAT – epicardial adipose tissue, HRP – high risk plaque, HU – Hounsfield units, LAP – low attenuation plaque, NRS – napkin ring sign, OCT – optical coherence tomogprahy, PDA – posterior descending artery, PR – positive remodelling, RPA – right pulmonary artery, SpC – spotty calcification, TCFA – thin-cap fibroatheroma. VAT – visceral adipose tissue

Table S3. Sensitivity analysis displaying pooled odds ratios and 95% confidence intervals with systematic exclusion of individual studies.

Excluded study	Pooled OR	Lower 95% CI	Upper 95% CI	I^2	p-value
Lu et al[1]	1.27	1.12	1.45	70%	<0.001
Schlett et al.[2]	1.17	1.06	1.30	80%	0.003
Rajani et al.[3]	1.19	1.07	1.33	82%	0.001
Oka et al.[4]	1.20	1.07	1.33	82%	0.001
Ito et al.[5]	1.24	1.08	1.43	78%	0.003
Nakanishi et al.[6]	1.24	1.09	1.42	82%	0.002
Park et al.[8]	1.25	1.09	1.43	83%	0.001
Ito et al.[7]	1.19	1.07	1.32	81%	0.001
Tachibana et al.[9]	1.16	1.06	1.27	74%	0.001

Table S4. Newcastle-Ottawa Scale (NOS) Evaluation of Study Quality

STUDY	SELECTION	COMPARABILITY	OUTCOME
Lu et al.[1]	****	**	***
Schlett et al. [2]	****	**	***
Rajani et al. [3]	*****	**	***
Oka et al.[4]	****	**	***
Ito et al.[5]	****	**	***
Nakanishi et al.[6]	***	**	***
Park et al.[8]	****	**	***
Ito et al.[7]	***	**	***
Tachibana et al [9]	****	**	**

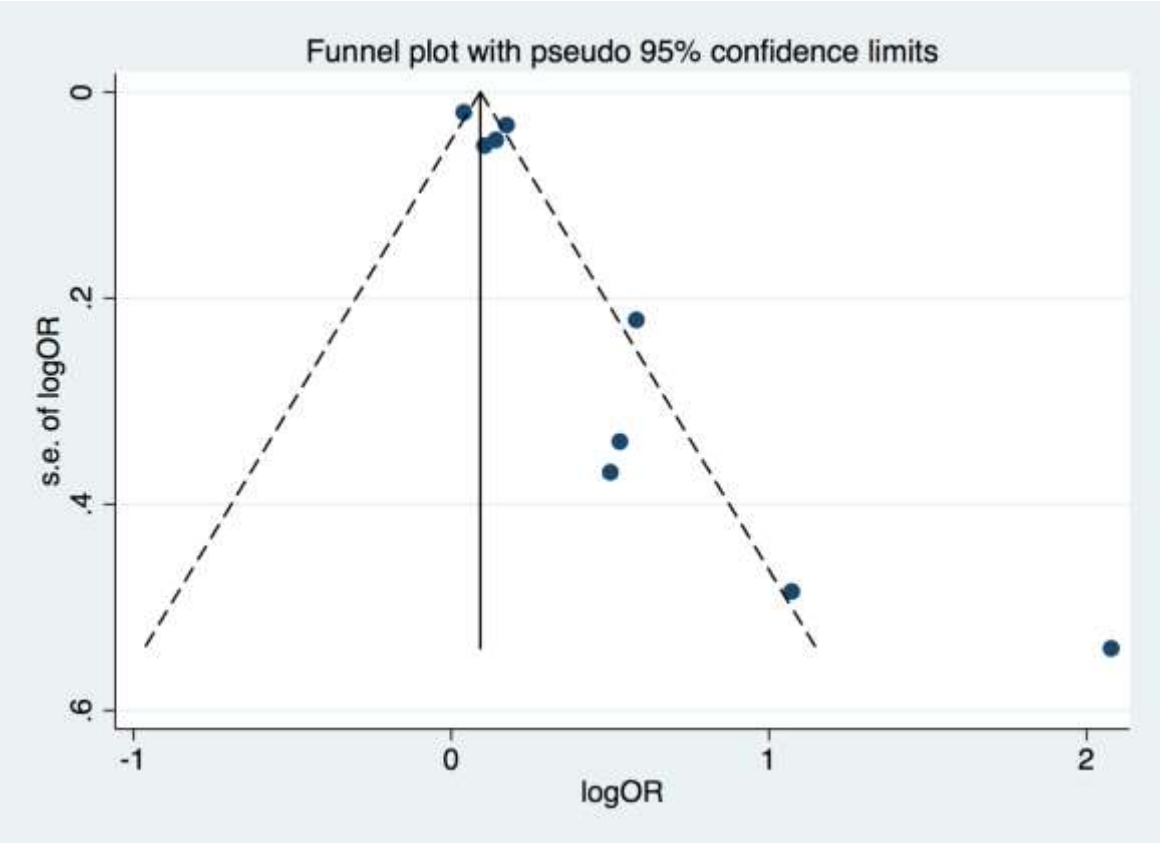
The Newcastle-Ottawa Scale (NOS) evaluates the included studies based on selection, comparability and outcome. The maximum score for each criteria is 5, 2 and 3, respectively, with the maximum total score equalling 10

Table S5. GRADE quality assessment

STUDY	INITIAL GRADE	BIAS ASSESSMENT	FINAL GRADE
Lu et al.[1]	Low	**Bias**: Low; **Applicability**: Low; **Imprecision**: Low	Low
Schlett et al.[2]	Low	**Bias**: Low; **Applicability**: Low; **Imprecision**: High	Low
Rajani et al.[3]	Low	**Bias**: Low; **Applicability**: Low; **Imprecision**: Low	Low
Oka et al. [4]	Low	**Bias**: Unclear; **Applicability**: Low; **Imprecision**: High	Low
Ito et al. [5]	Low	**Bias**: Unclear; **Applicability**: Low; **Imprecision**: Low	Low
Nakanishi et al[6]	Low	**Bias**: Unclear; **Applicability**: High; **Imprecision**: Low	Low
Park et al.	Low	**Bias**: Unclear; **Applicability**: Unclear; **Imprecision**: Unclear	Low
Ito (2012) et al.	Low	**Bias**: Unclear; **Applicability**: Low; **Imprecision**: Unclear	Low
Tachibana et al	Low	**Bias**: High; **Applicability**: Unclear; **Imprecision**: High	Very Low

GRADE classification adapted from the GRADE Handbook [10-12] to evaluate quality of evidence in observational studies. All studies are observational and therefore considered of low quality. Assessment based on bias (factors including eligibility criteria, control of confounding), applicability (assessment of intervention) and imprecision (assessment of modelling methods and outcomes). Assessment is graded as either a low risk of bias, high risk of bias or unclear risk of bias.

Figure S1. Funnel plot



Egger's test for small study effects: p = 0.005

Overall summary estimate using trim and fill method: 1.13 (95% CI 1.03-1.28, p=0.04, I^2=81%)

Supplemental References:

1. Lu MT, Park J, Ghemigian K, Mayrhofer T, Puchner SB, Liu T, Fleg JL, Udelson JE, Truong QA, Ferencik M, Hoffmann U. Epicardial and paracardial adipose tissue volume and attenuation - association with high-risk coronary plaque on computed tomographic angiography in the romicat ii trial. *Atherosclerosis*. 2016;251:47-54.

2. Schlett CL, Ferencik M, Kriegel MF, Bamberg F, Ghoshhajra BB, Joshi SB, Nagurney JT, Fox CS, Truong QA, Hoffmann U. Association of pericardial fat and coronary high-risk lesions as determined by cardiac ct. *Atherosclerosis*. 2012;222:129-134.

3. Rajani R, Shmilovich H, Nakazato R, Nakanishi R, Otaki Y, Cheng VY, Hayes SW, Thomson LE, Friedman JD, Slomka PJ, Min JK, Berman DS, Dey D. Relationship of epicardial fat volume to coronary plaque, severe coronary stenosis, and high-risk coronary plaque features assessed by coronary ct angiography. *J Cardiovasc Comput Tomogr*. 2013;7:125-132.

4. Oka T, Yamamoto H, Ohashi N, Kitagawa T, Kunita E, Utsunomiya H, Yamazato R, Urabe Y, Horiguchi J, Awai K, Kihara Y. Association between epicardial adipose tissue volume and characteristics of non-calcified plaques assessed by coronary computed tomographic angiography. *Int J Cardiol*. 2012;161:45-49.

5. Ito T, Suzuki Y, Ehara M, Matsuo H, Teramoto T, Terashima M, Nasu K, Kinoshita Y, Tsuchikane E, Suzuki T, Kimura G. Impact of epicardial fat volume on coronary artery disease in symptomatic patients with a zero calcium score. *Int J Cardiol*. 2013;167:2852-2858.

6. Nakanishi K, Fukuda S, Tanaka A, Otsuka K, Taguchi H, Yoshikawa J, Shimada K. Epicardial adipose tissue accumulation is associated with renal dysfunction and coronary plaque morphology on multidetector computed tomography. *Circ J*. 2016;80:196-201.

7. Ito T, Nasu K, Terashima M, Ehara M, Kinoshita Y, Ito T, Kimura M, Tanaka N, Habara M, Tsuchikane E, Suzuki T. The impact of epicardial fat volume on coronary plaque vulnerability: Insight from optical coherence tomography analysis. *Eur Heart J Cardiovasc Imaging*. 2012;13:408-415.

8. Park JS, Choi SY, Zheng M, Yang HM, Lim HS, Choi BJ, Yoon MH, Hwang GS, Tahk SJ, Shin JH. Epicardial adipose tissue thickness is a predictor for plaque vulnerability in patients with significant coronary artery disease. *Atherosclerosis*. 2013;226:134-139

9. Tachibana M, Miyoshi T, Osawa K, Toh N, Oe H, Nakamura K, Naito T, Sato S, Kanazawa S, Ito H. Measurement of epicardial fat thickness by transthoracic echocardiography for predicting high-risk coronary artery plaques. *Heart Vessels*. 2016;31:1758-1766.

10. Guyatt GH, Oxman AD, Kunz R, Brozek J, Alonso-Coello P, Rind D, Devereaux PJ, Montori VM, Freyschuss B, Vist G, Jaeschke R, Williams JW, Jr., Murad MH, Sinclair D, Falck-Ytter Y, Meerpohl J, Whittington C, Thorlund K, Andrews J, Schunemann HJ. Grade guidelines 6. Rating the quality of evidence--imprecision. *J. Clin. Epidemiol.* 2011;64:1283-1293.

11. Guyatt GH, Oxman AD, Kunz R, Woodcock J, Brozek J, Helfand M, Alonso-Coello P, Glasziou P, Jaeschke R, Akl EA, Norris S, Vist G, Dahm P, Shukla VK, Higgins J, Falck-Ytter Y, Schunemann HJ. Grade guidelines: 7. Rating the quality of evidence--inconsistency. *J Clin Epidemiol.* 2011;64:1294-1302.

12. Guyatt GH, Oxman AD, Vist G, Kunz R, Brozek J, Alonso-Coello P, Montori V, Akl EA, Djulbegovic B, Falck-Ytter Y, Norris SL, Williams JW, Jr., Atkins D, Meerpohl J, Schunemann HJ. Grade guidelines: 4. Rating the quality of evidence--study limitations (risk of bias). *J. Clin. Epidemiol.* 2011;64:407-415.