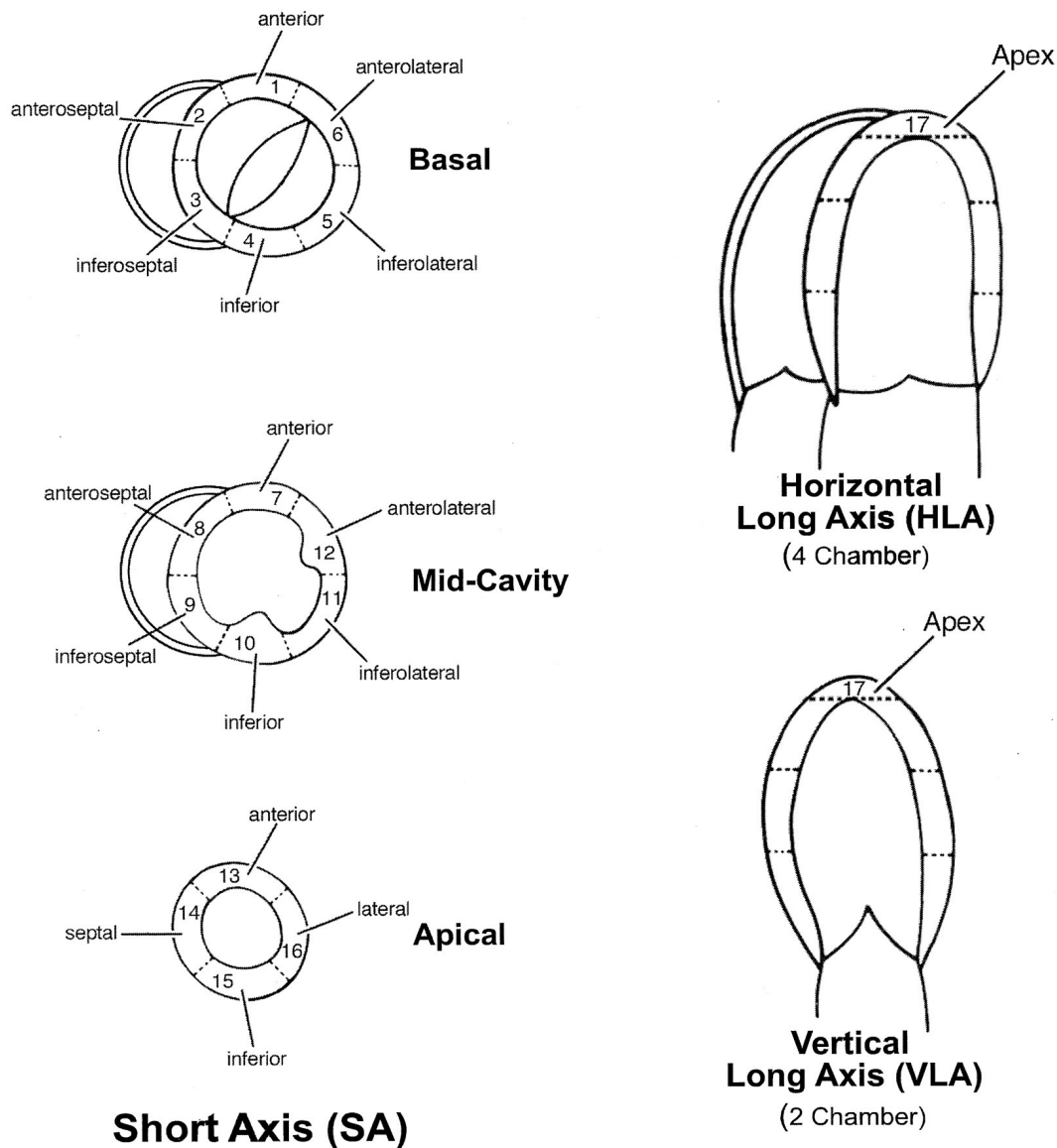


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A Cardiac Contouring Atlas for Radiotherapy

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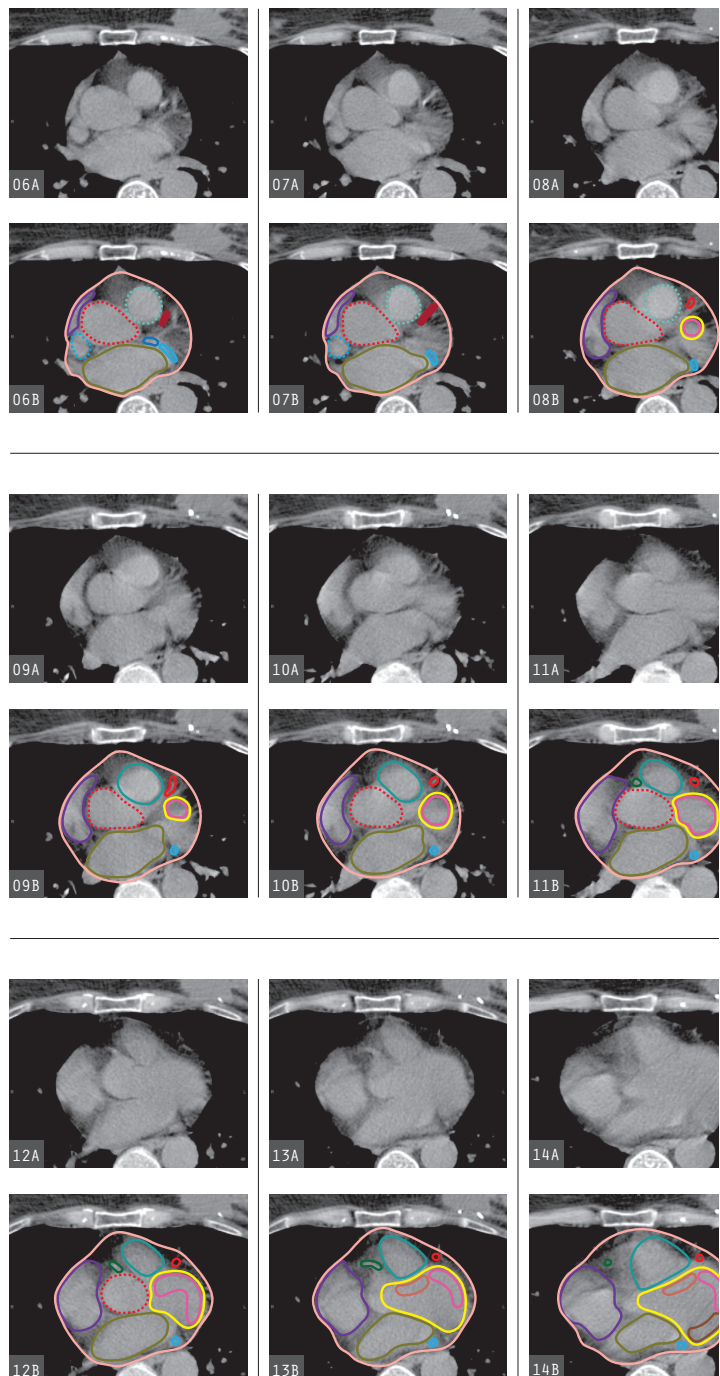
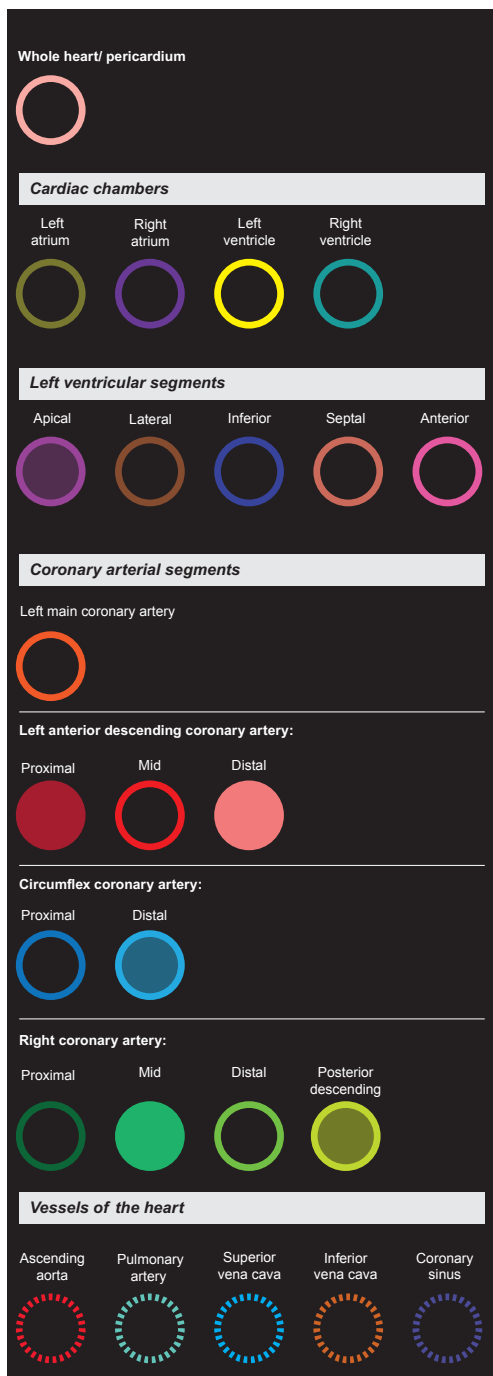
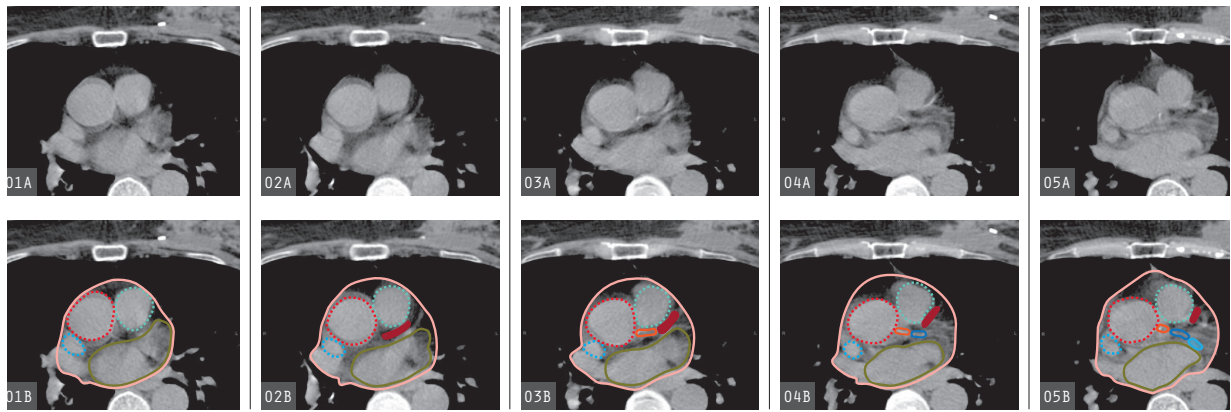
Supplementary Fig. 1. Diagram of 17-segment myocardial segmentation model.

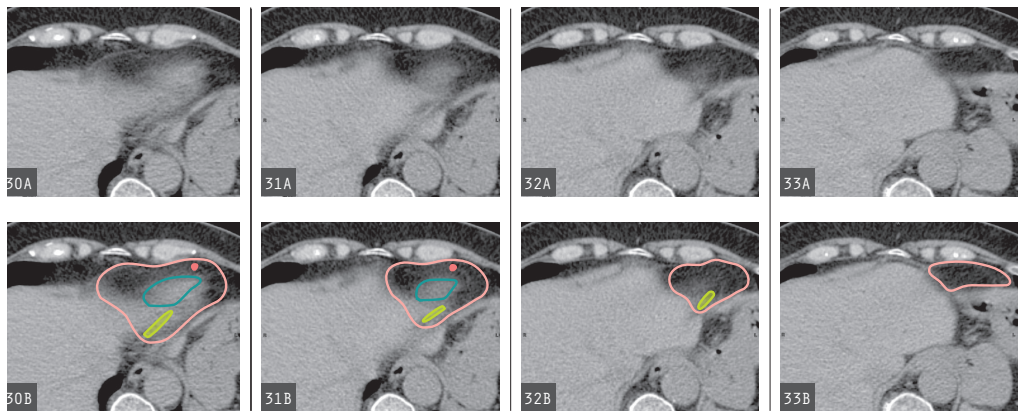
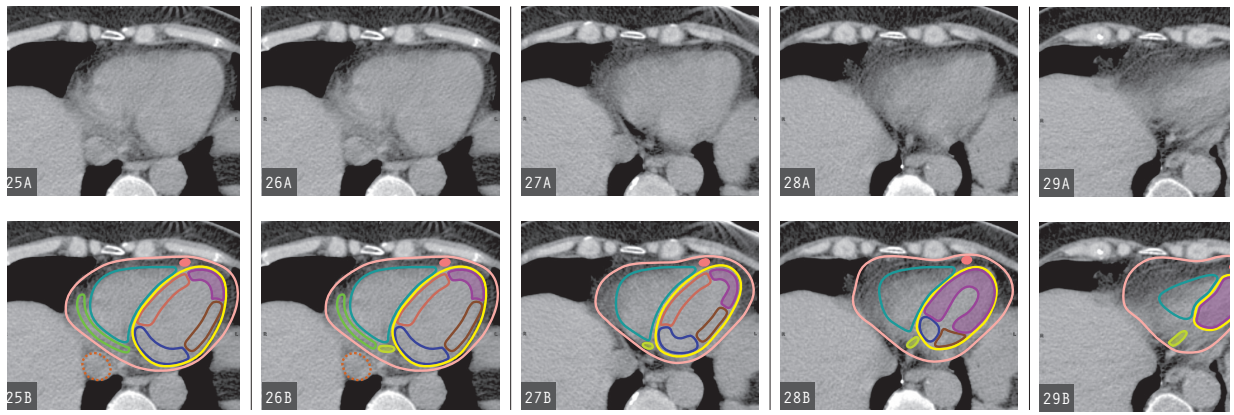
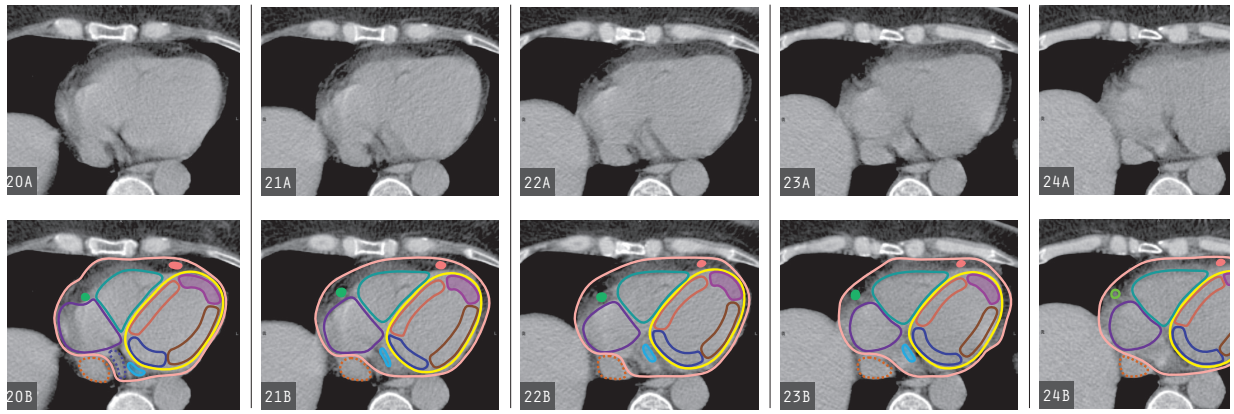
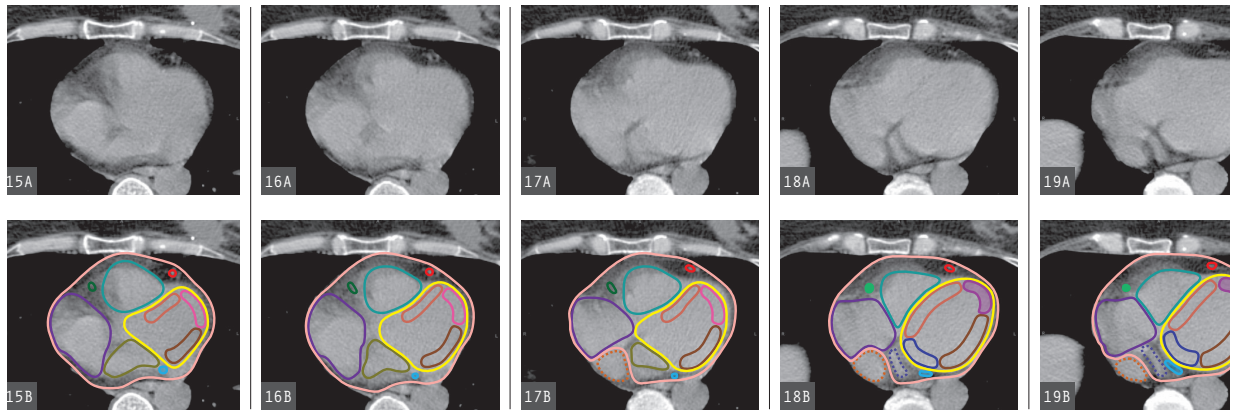
Diagram of vertical long-axis (VLA, approximating the 2-chamber view), horizontal long-axis (HLA, approximating the 4-chamber view), and short-axis (SA) planes showing the name, location, and anatomic landmarks for selection of the basal (tips of the mitral valve leaflets), mid-cavity (papillary muscles), and apical (beyond papillary muscles but before cavity ends) short-axis slices for the recommended 17-segment system. All imaging modalities should use these same landmarks, when available, for slice detection.

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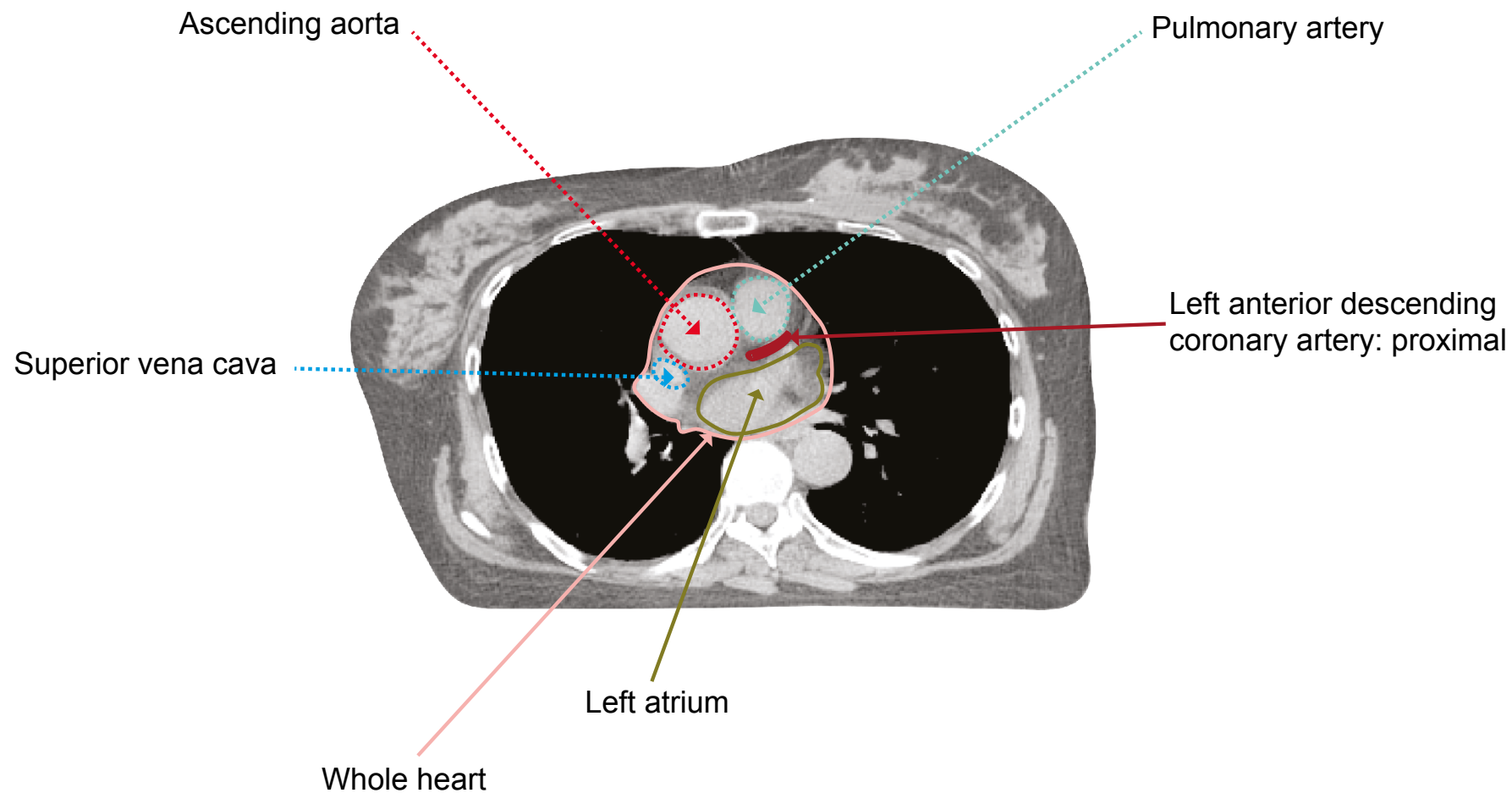
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Supplementary Fig. 2. Axial radiotherapy CT planning images showing contouring of the coronary arterial and left ventricular myocardial segments (slice thickness 3mm).

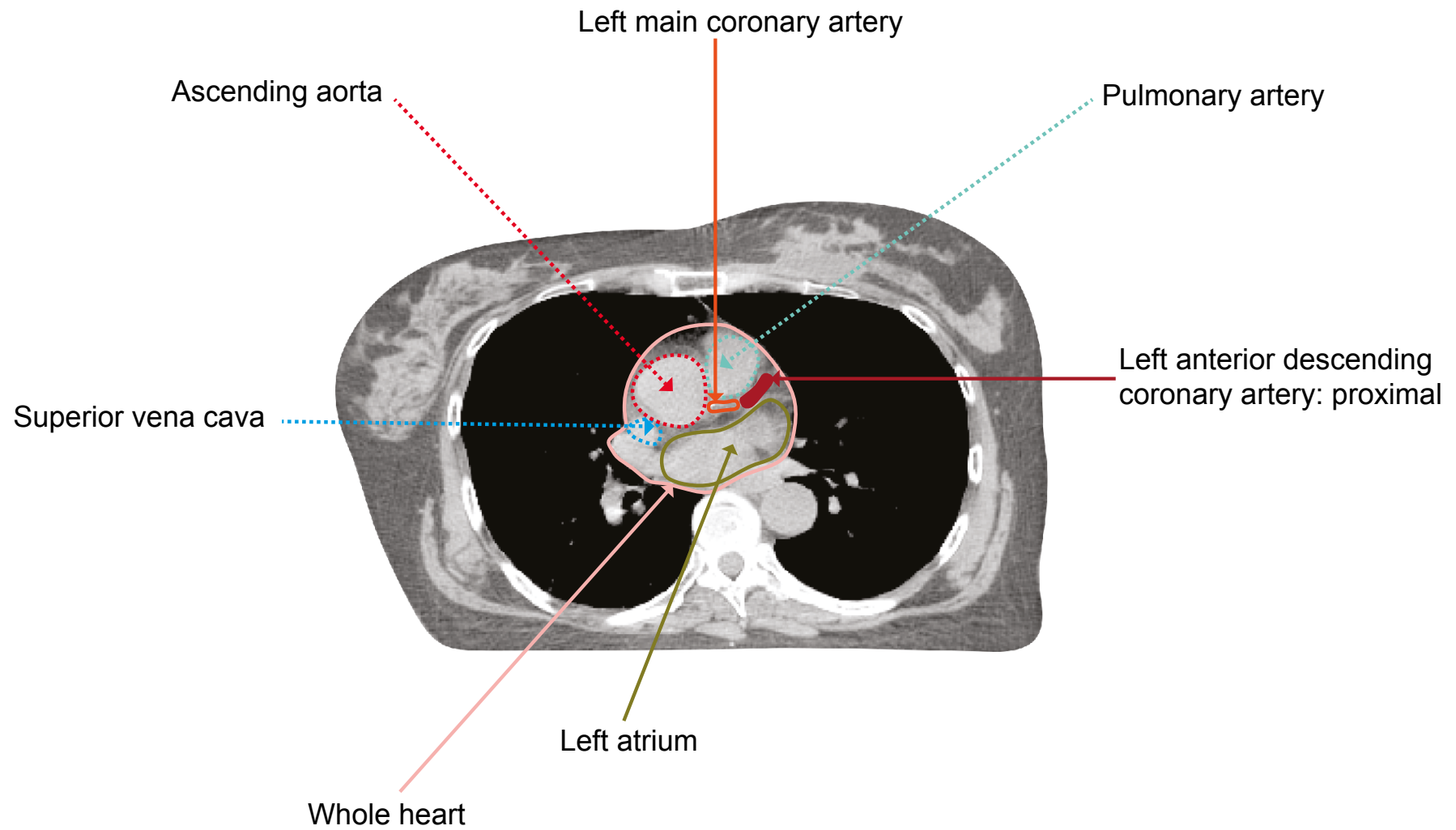


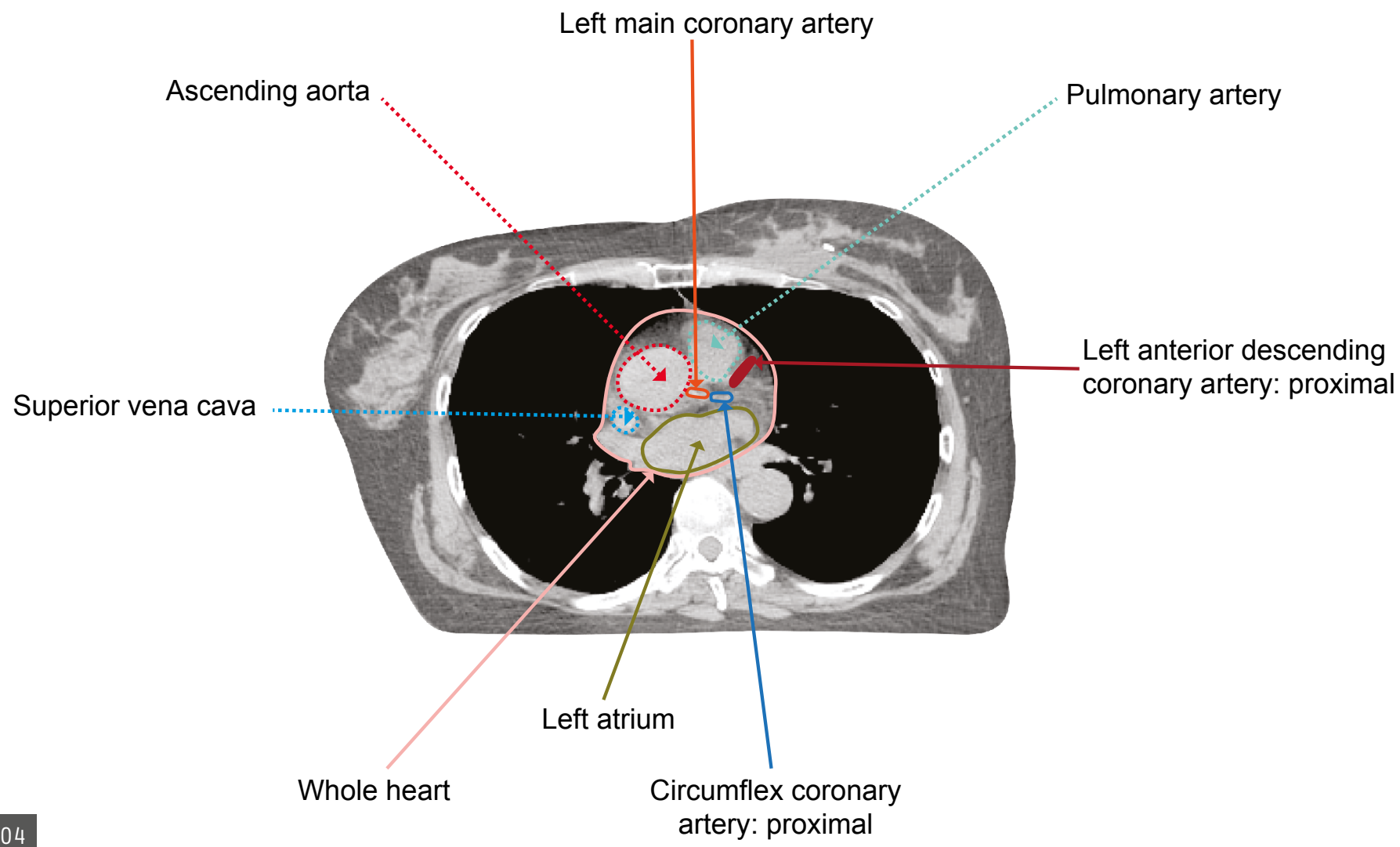


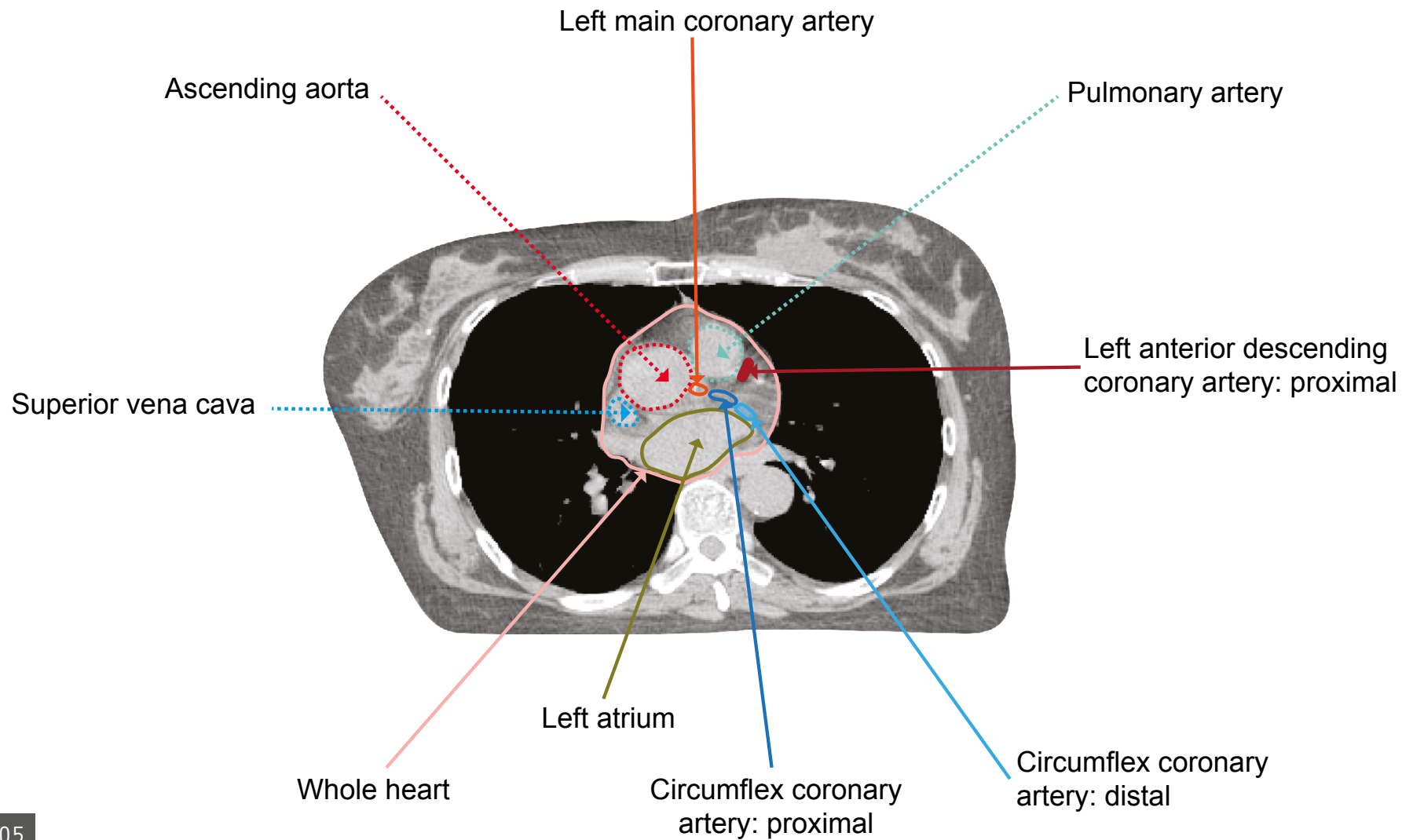
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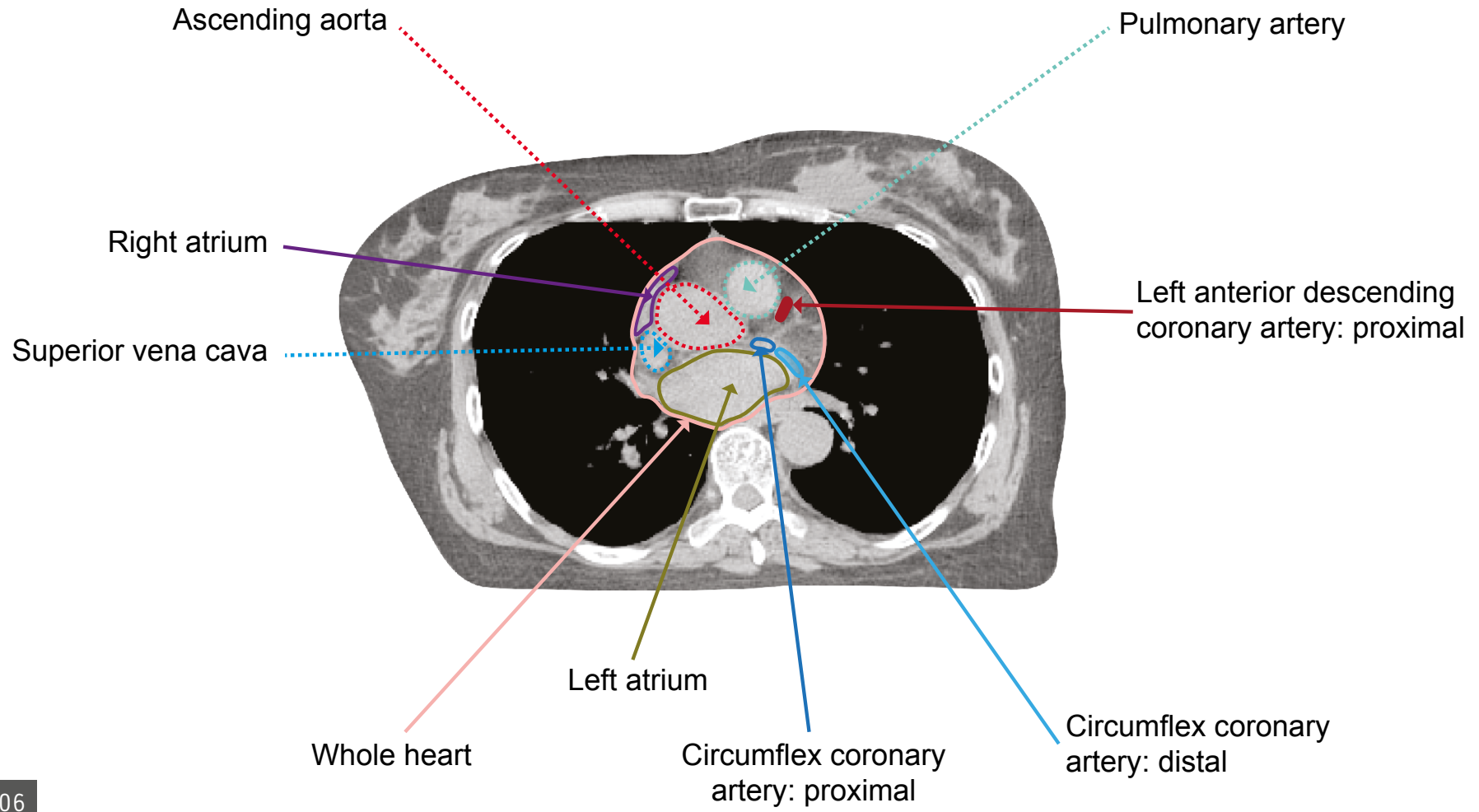


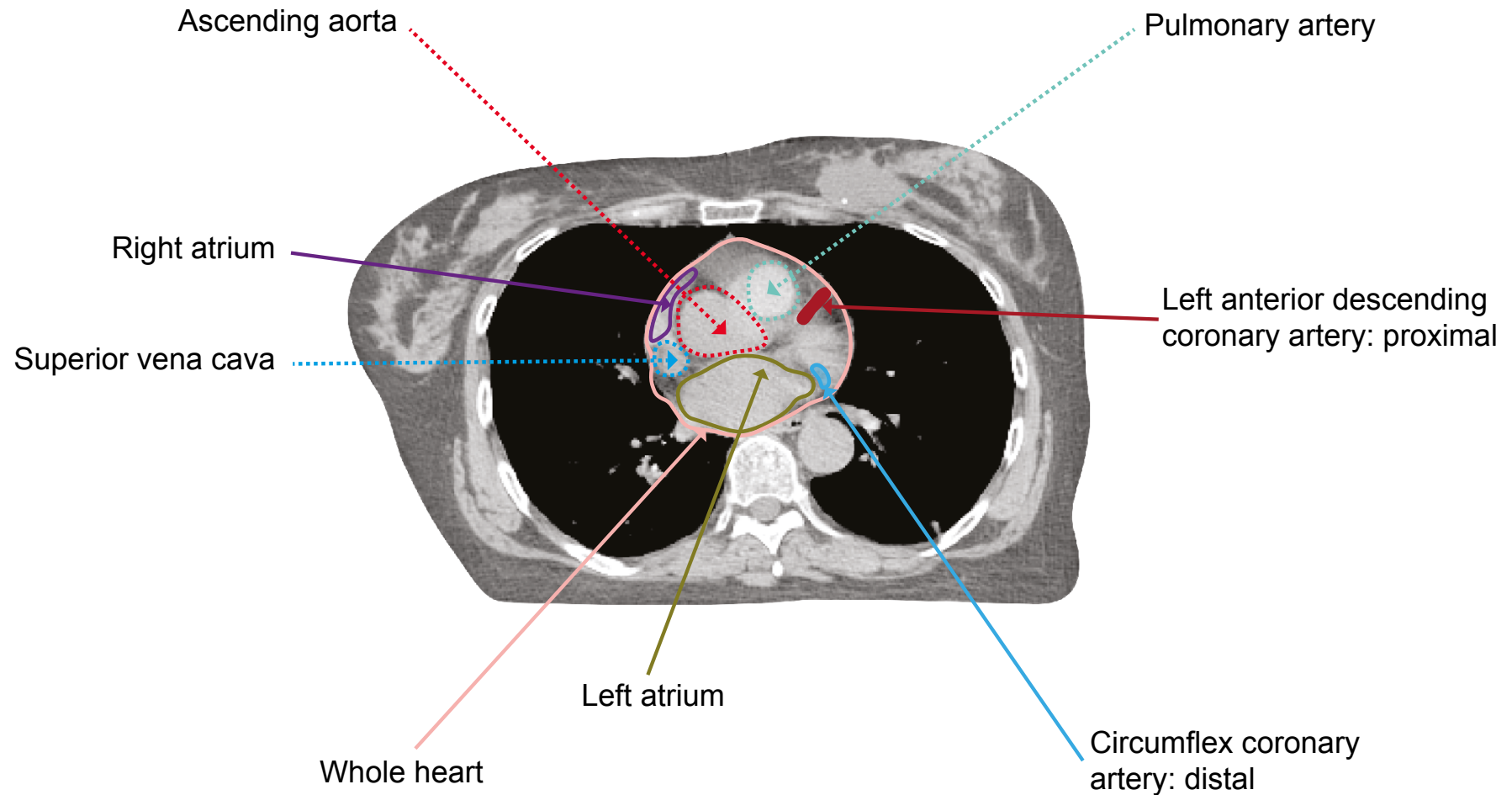
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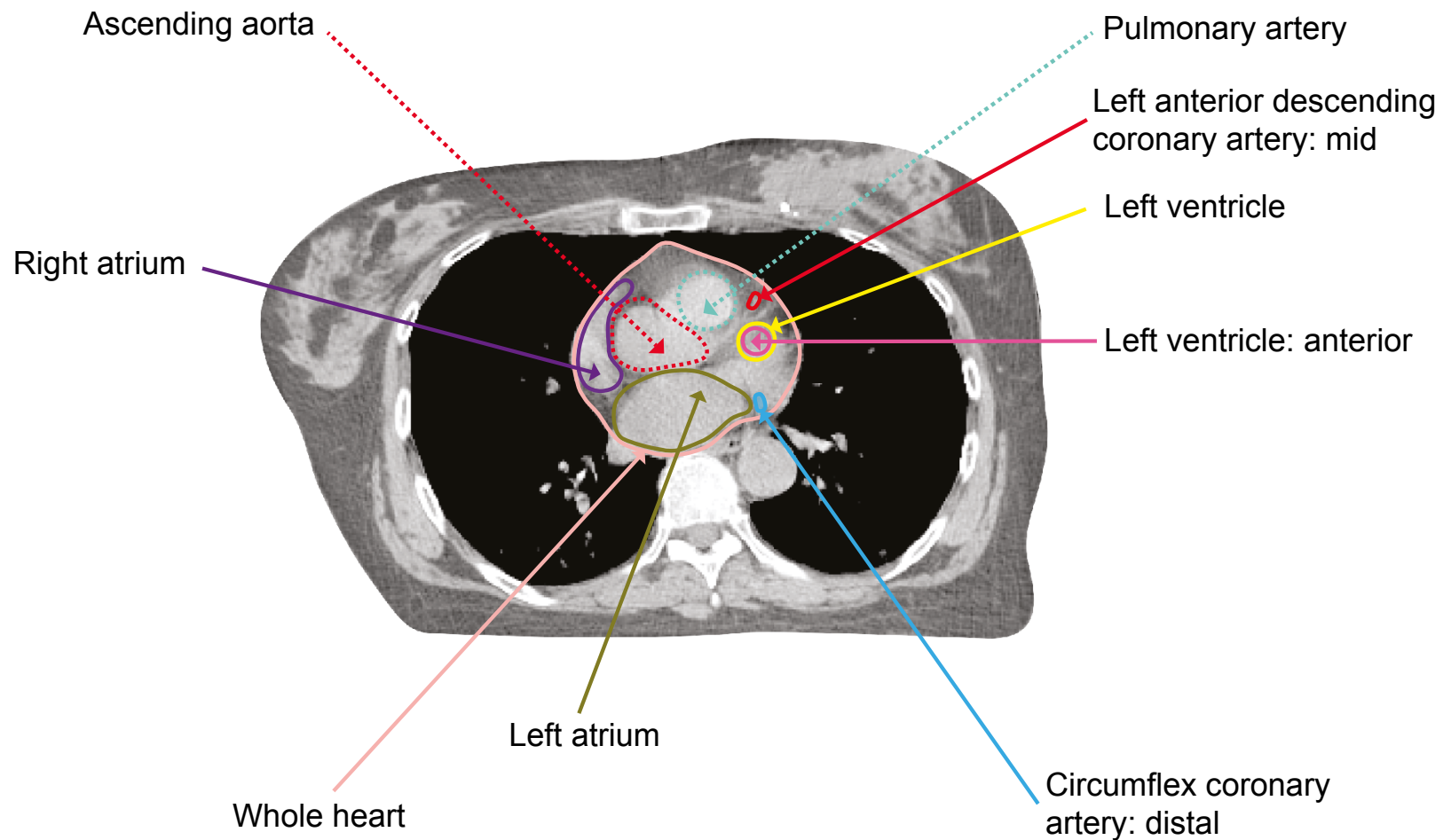


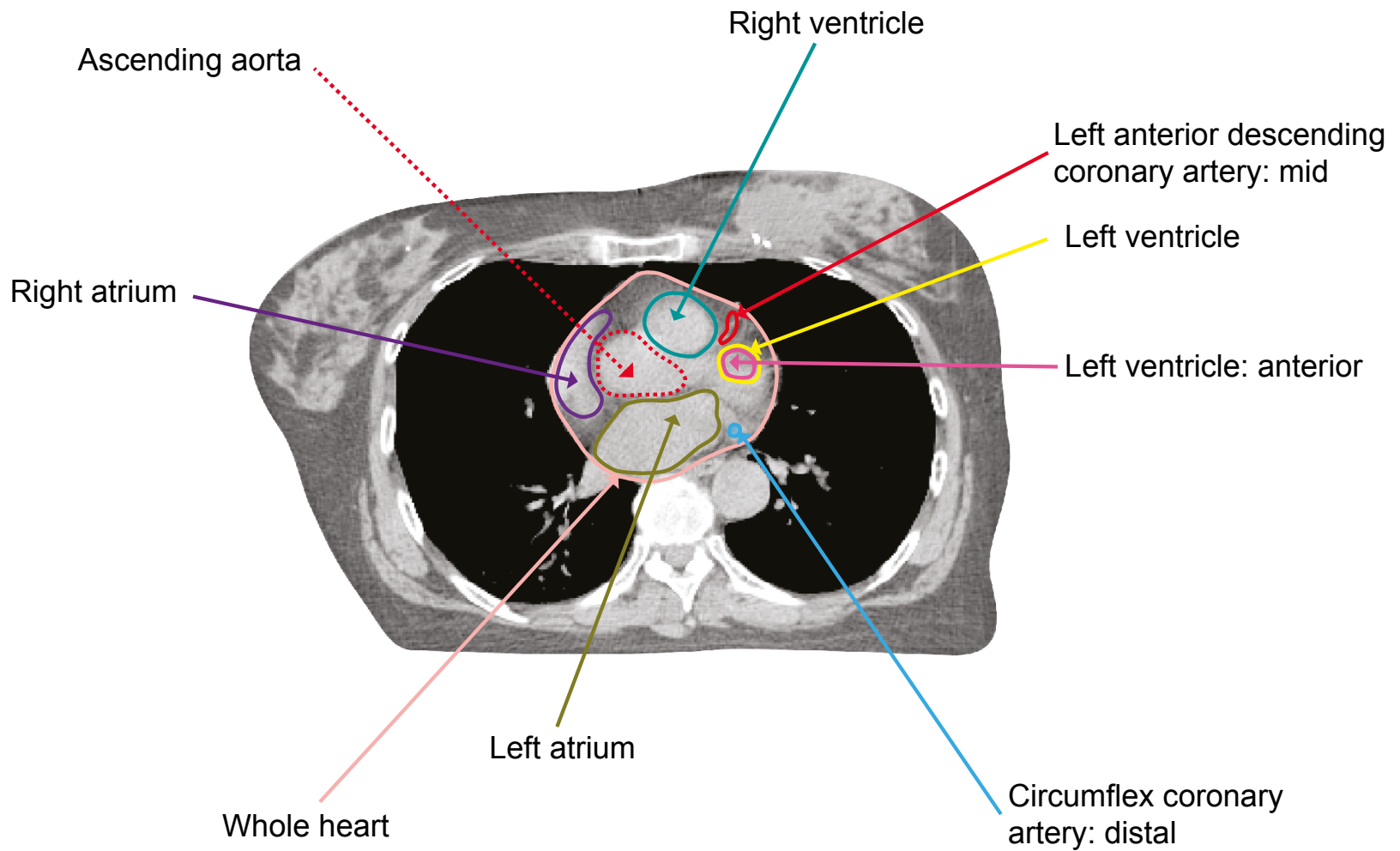


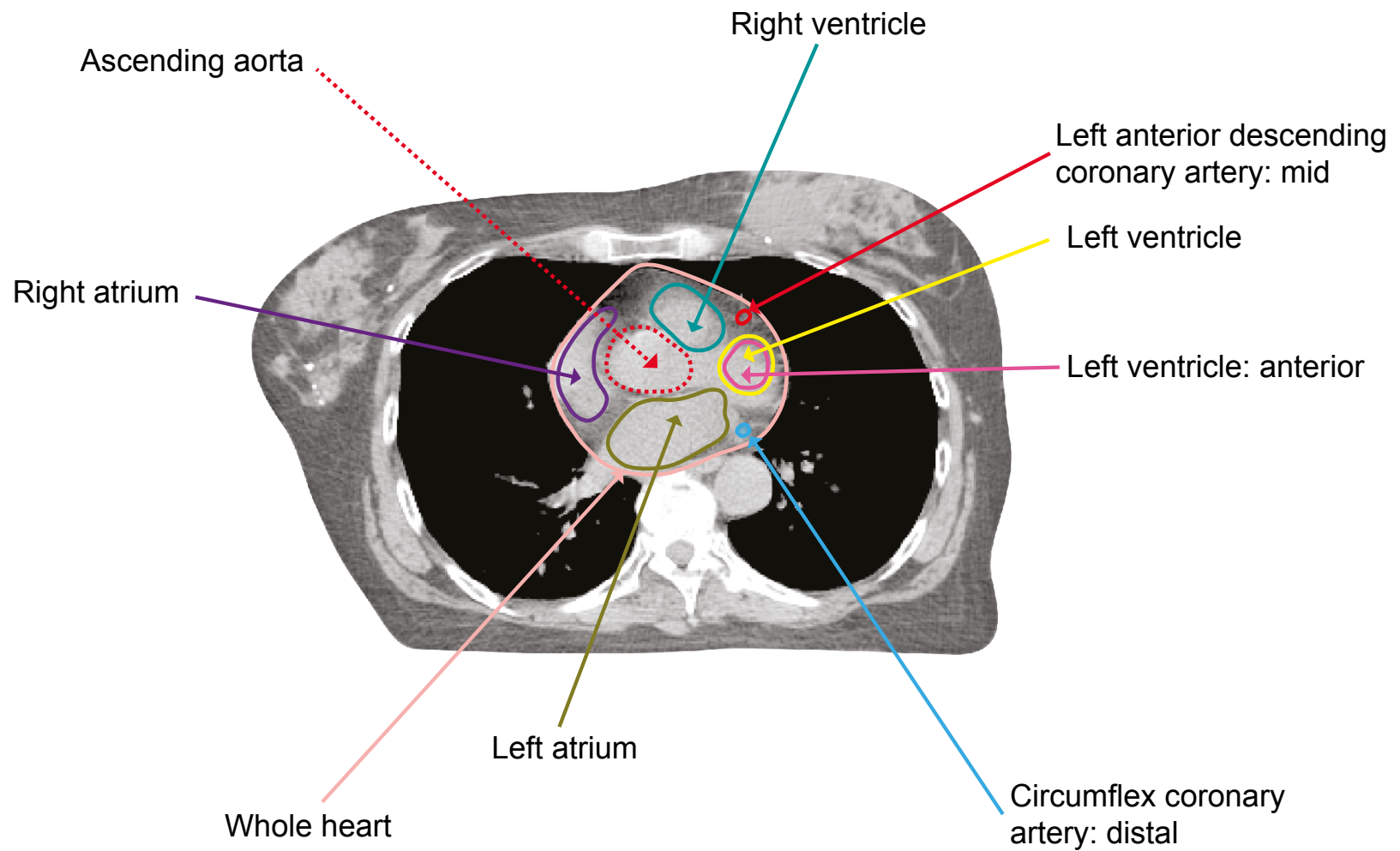


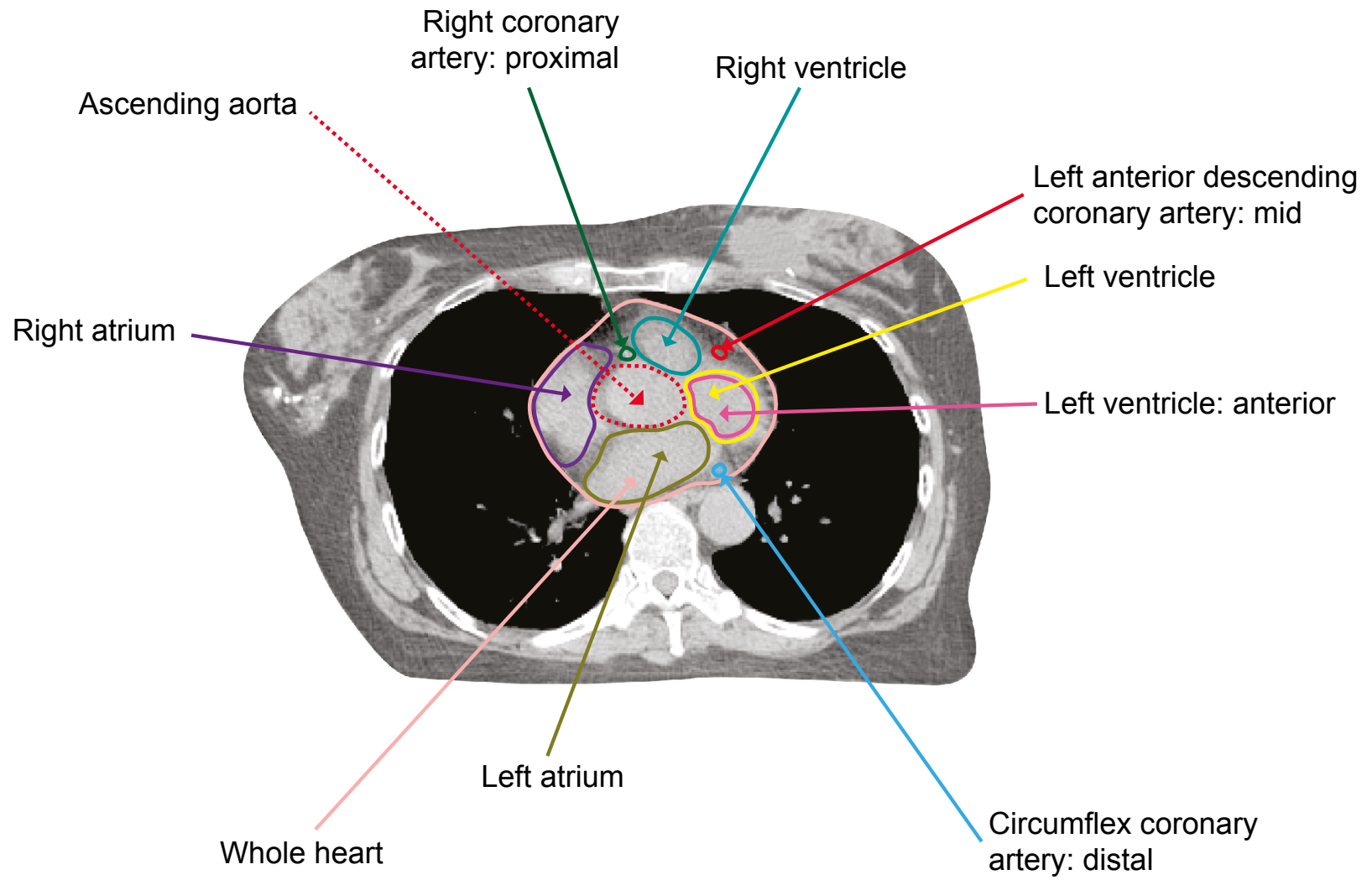


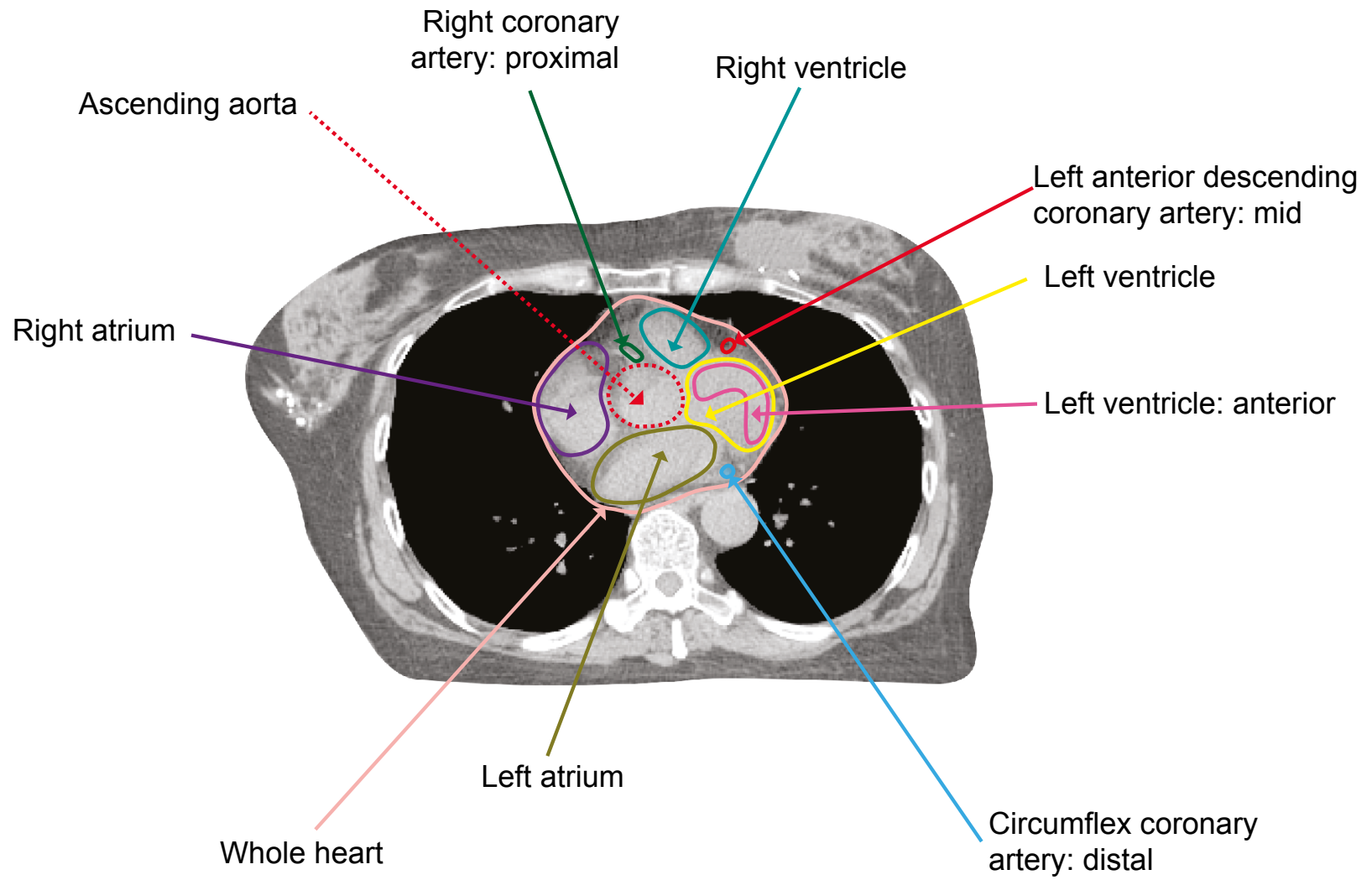


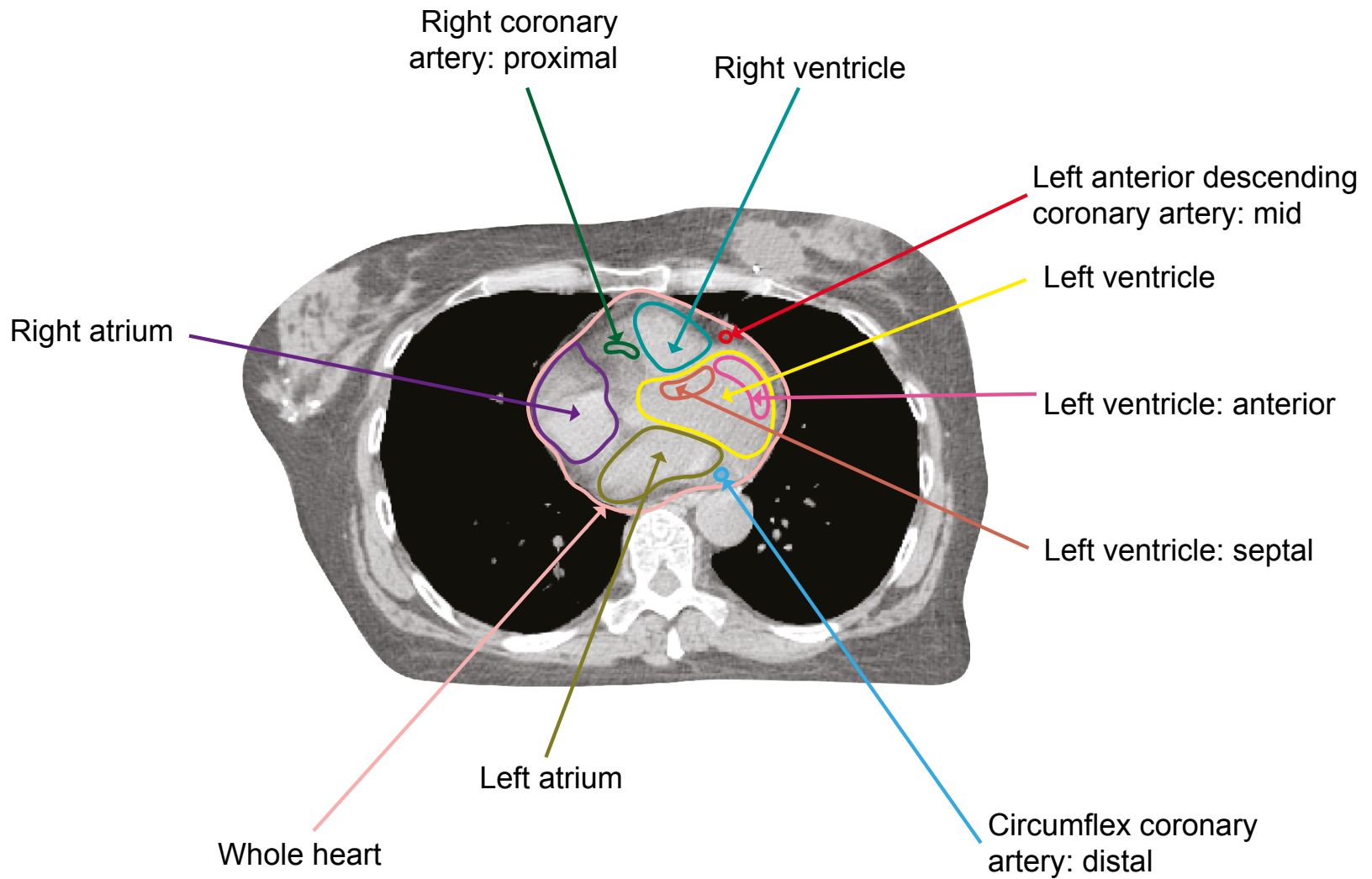


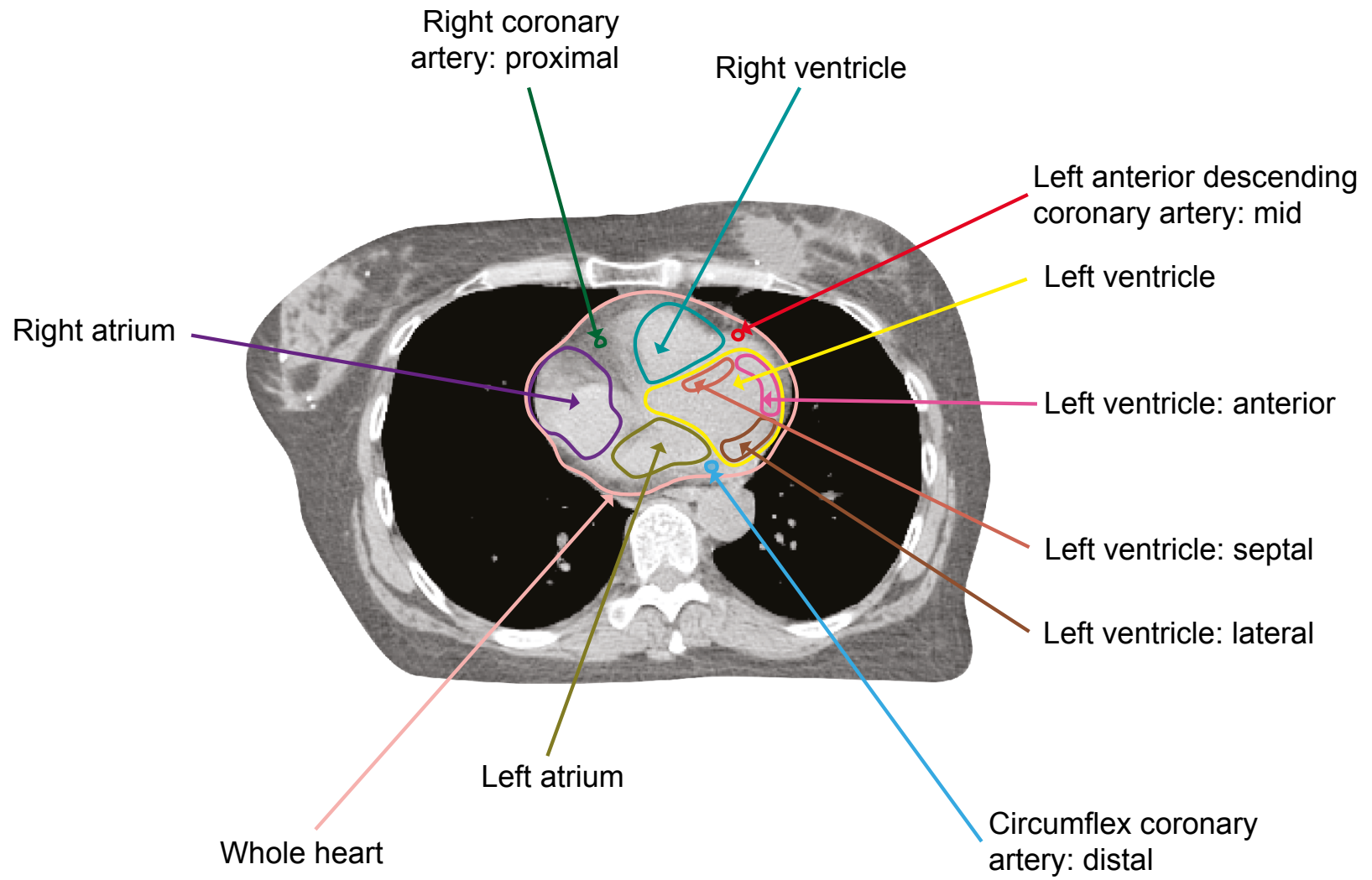


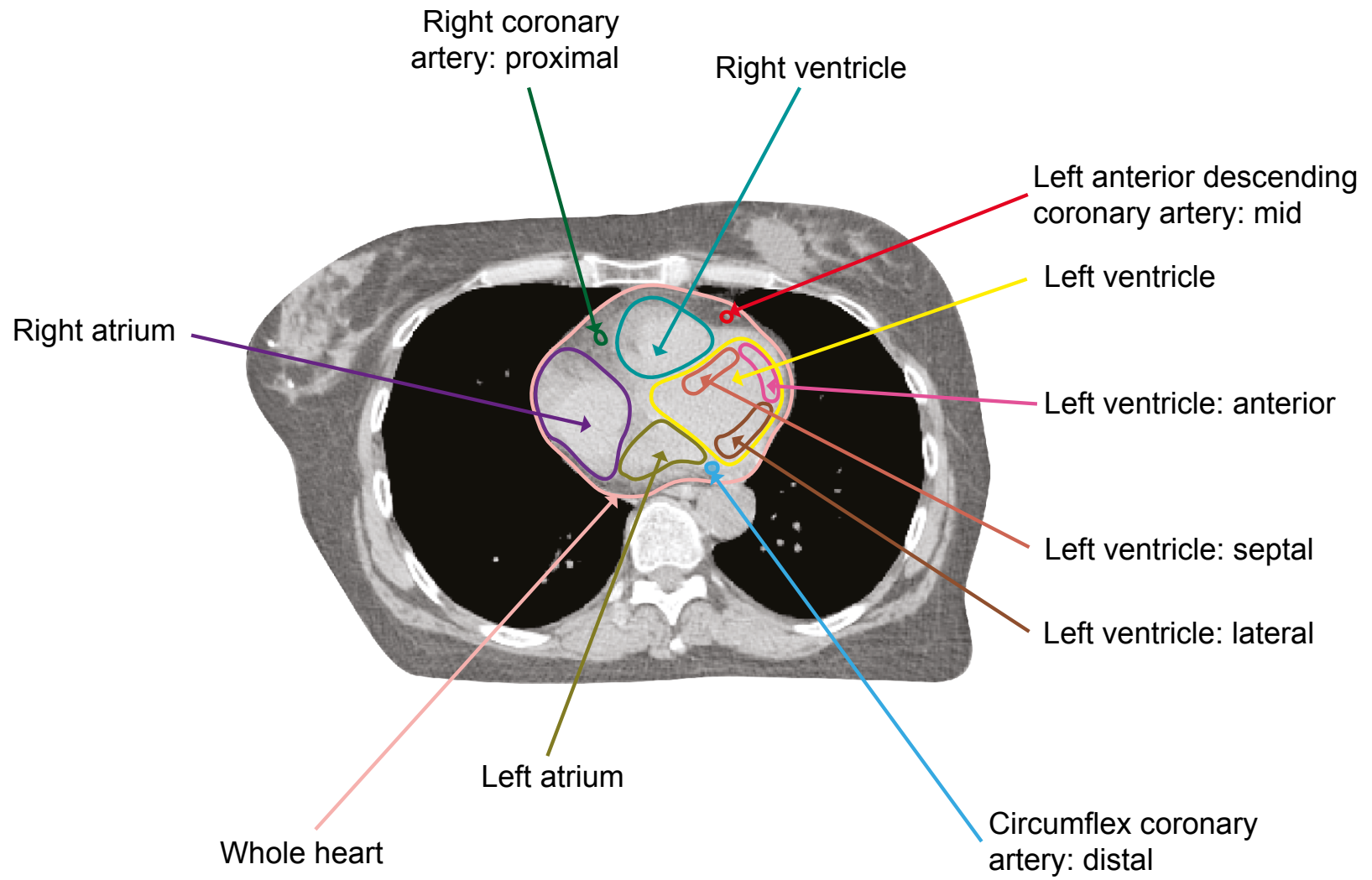


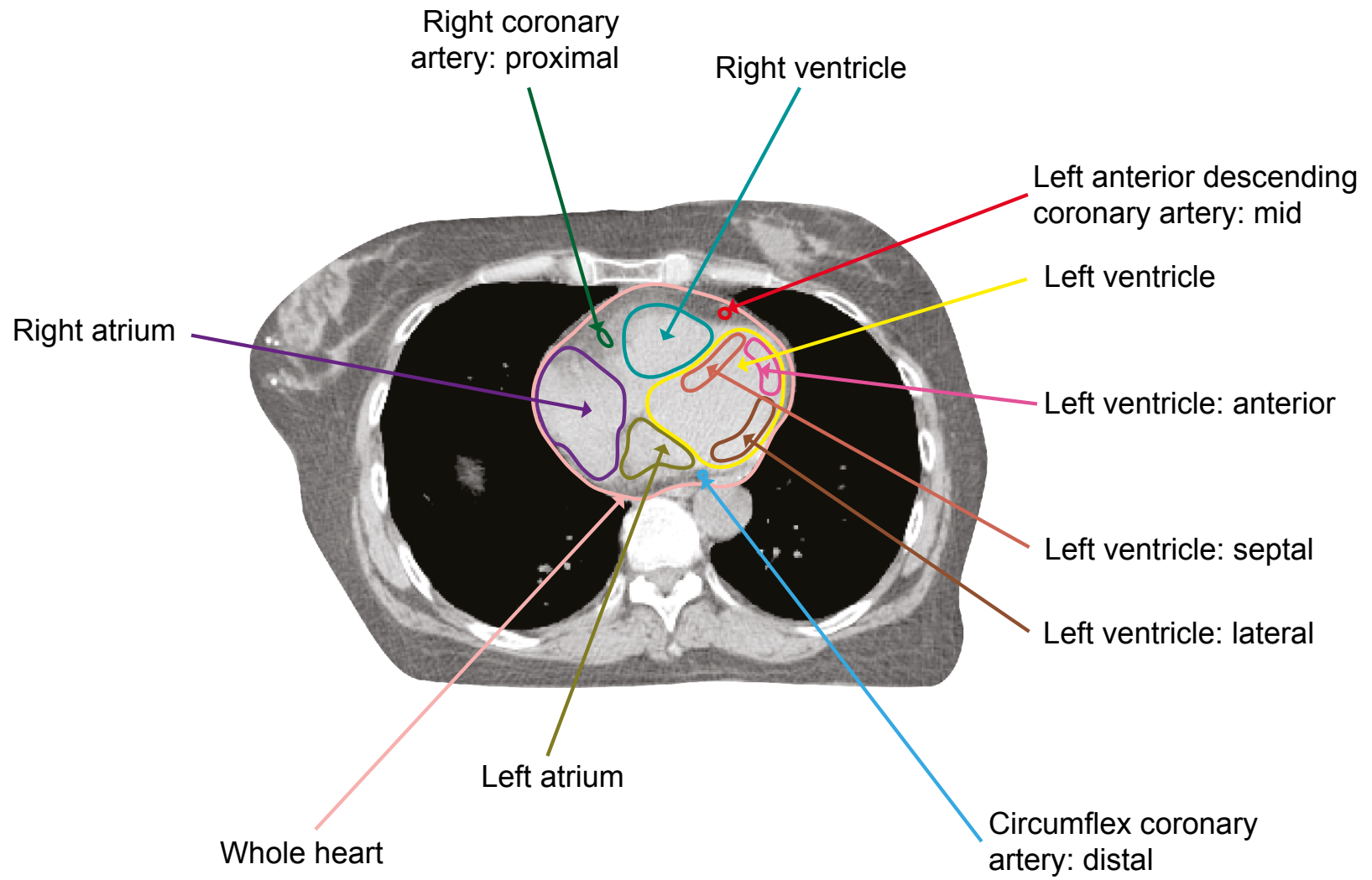


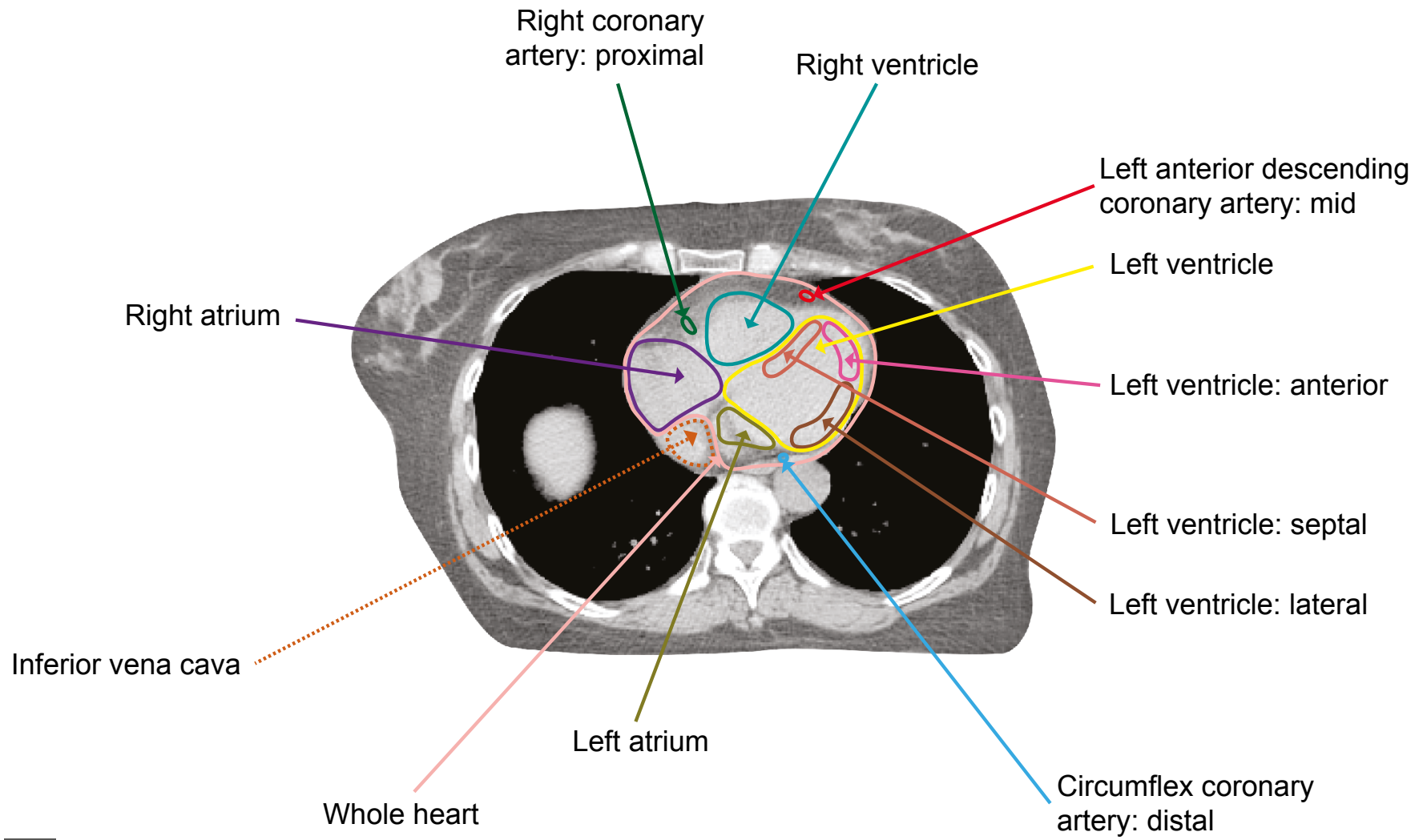


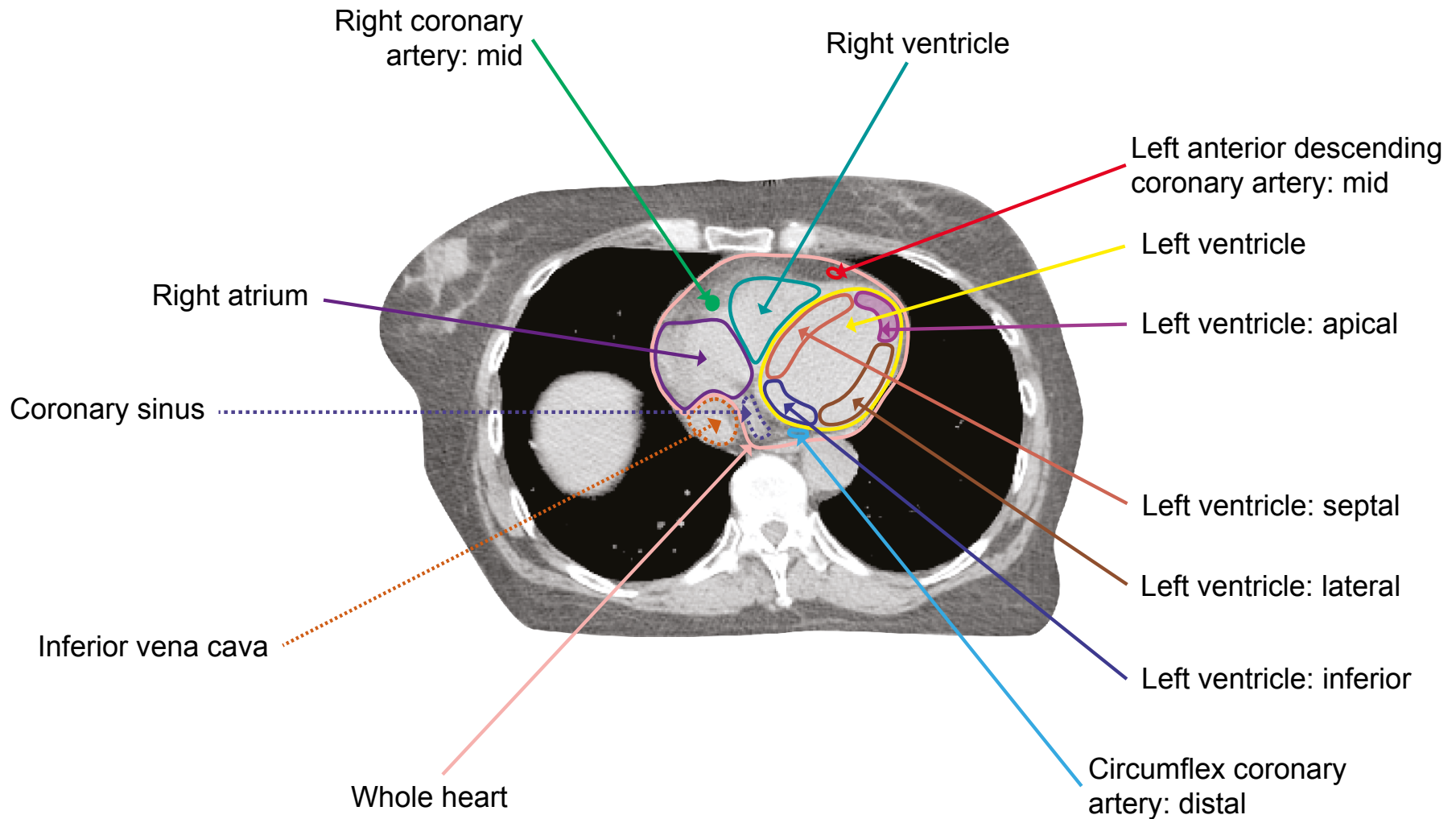


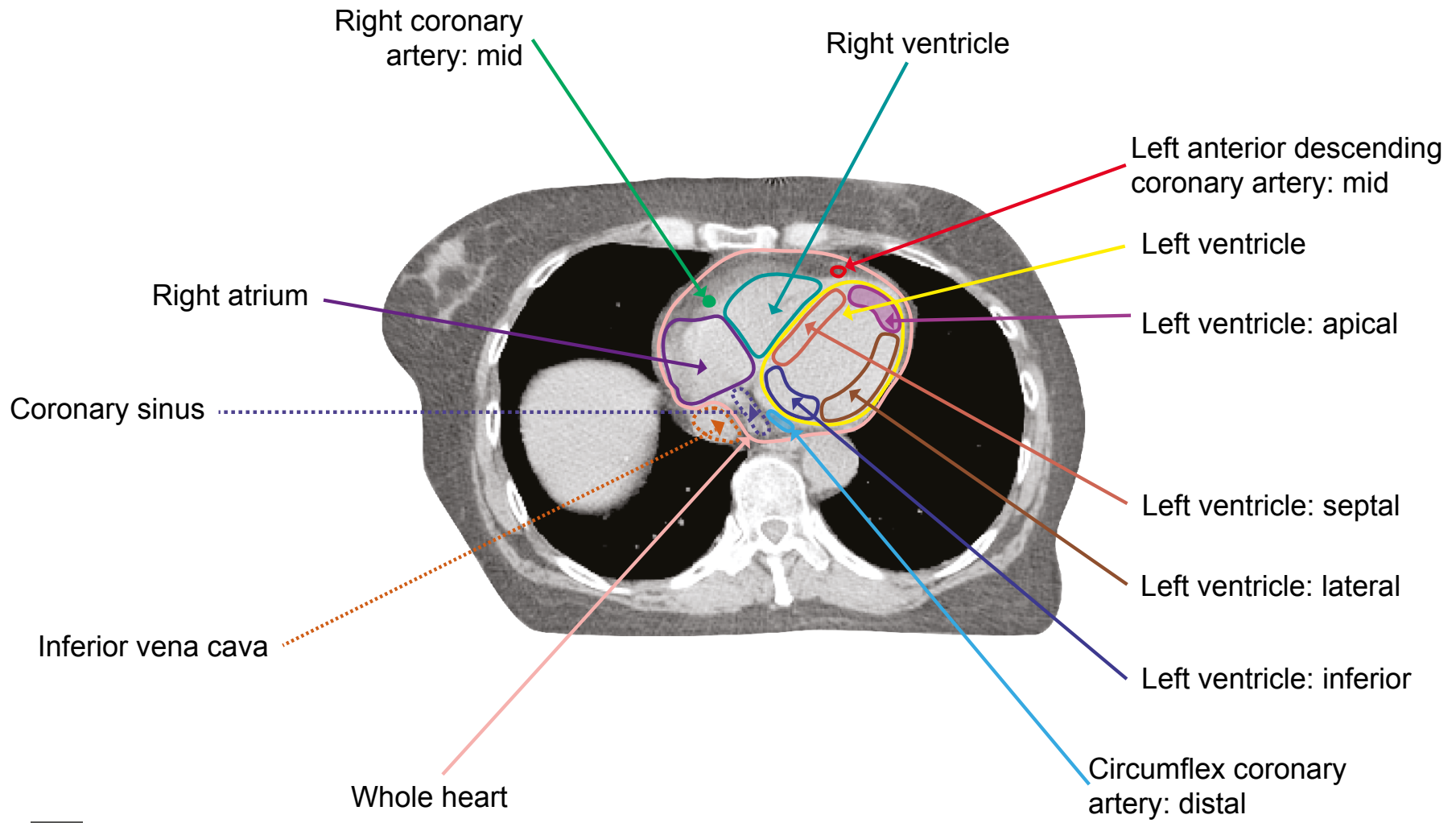


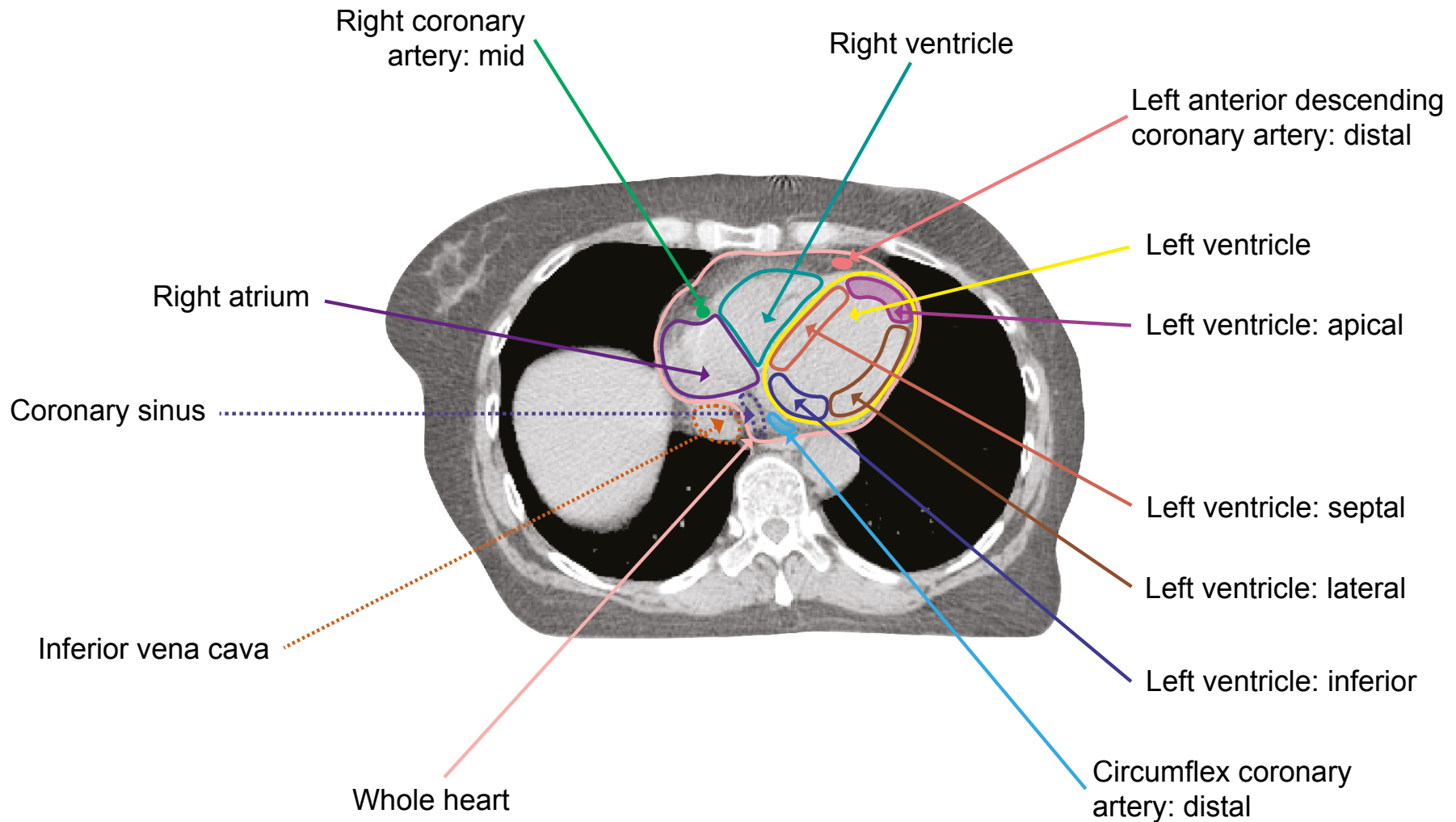


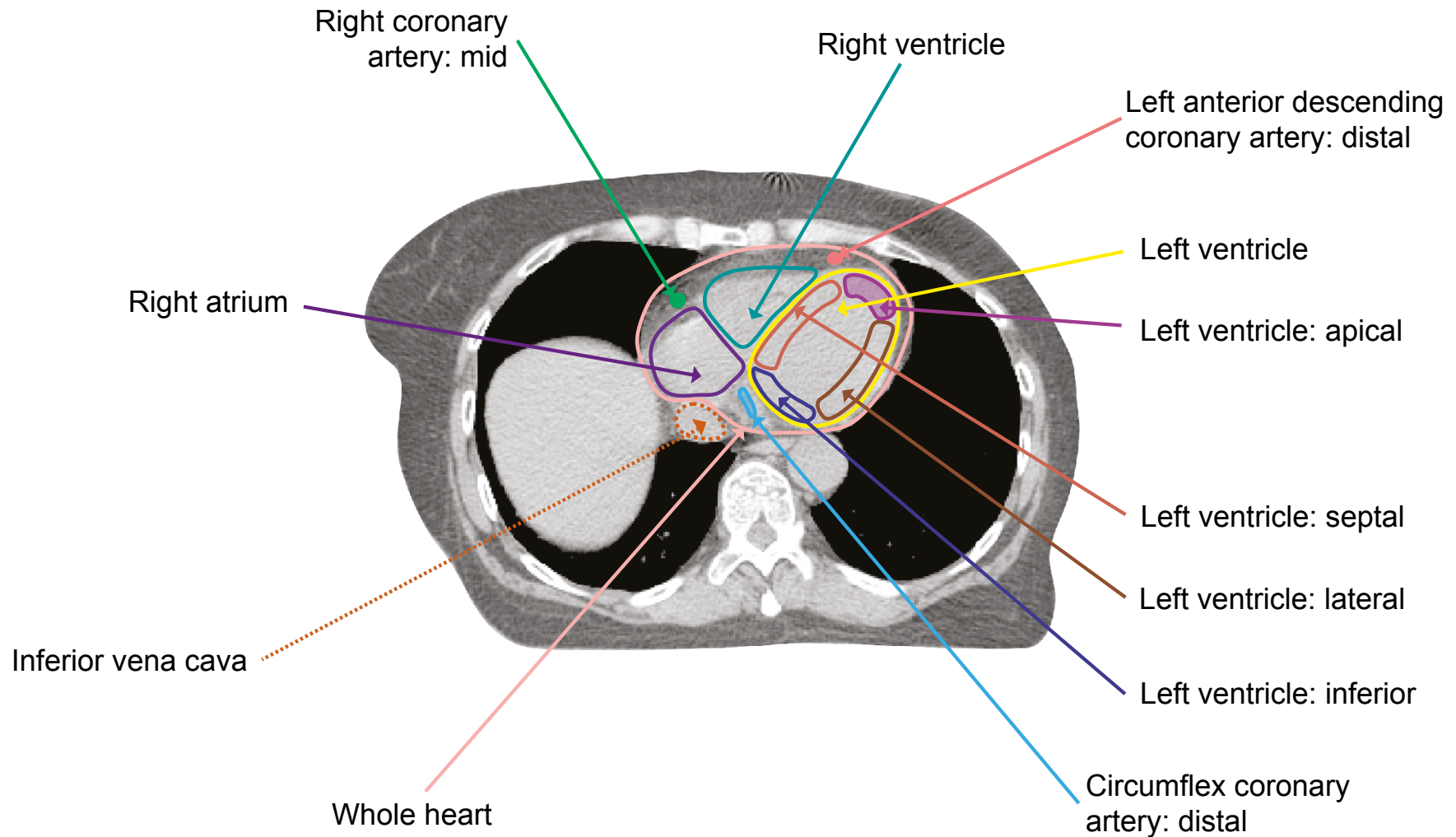


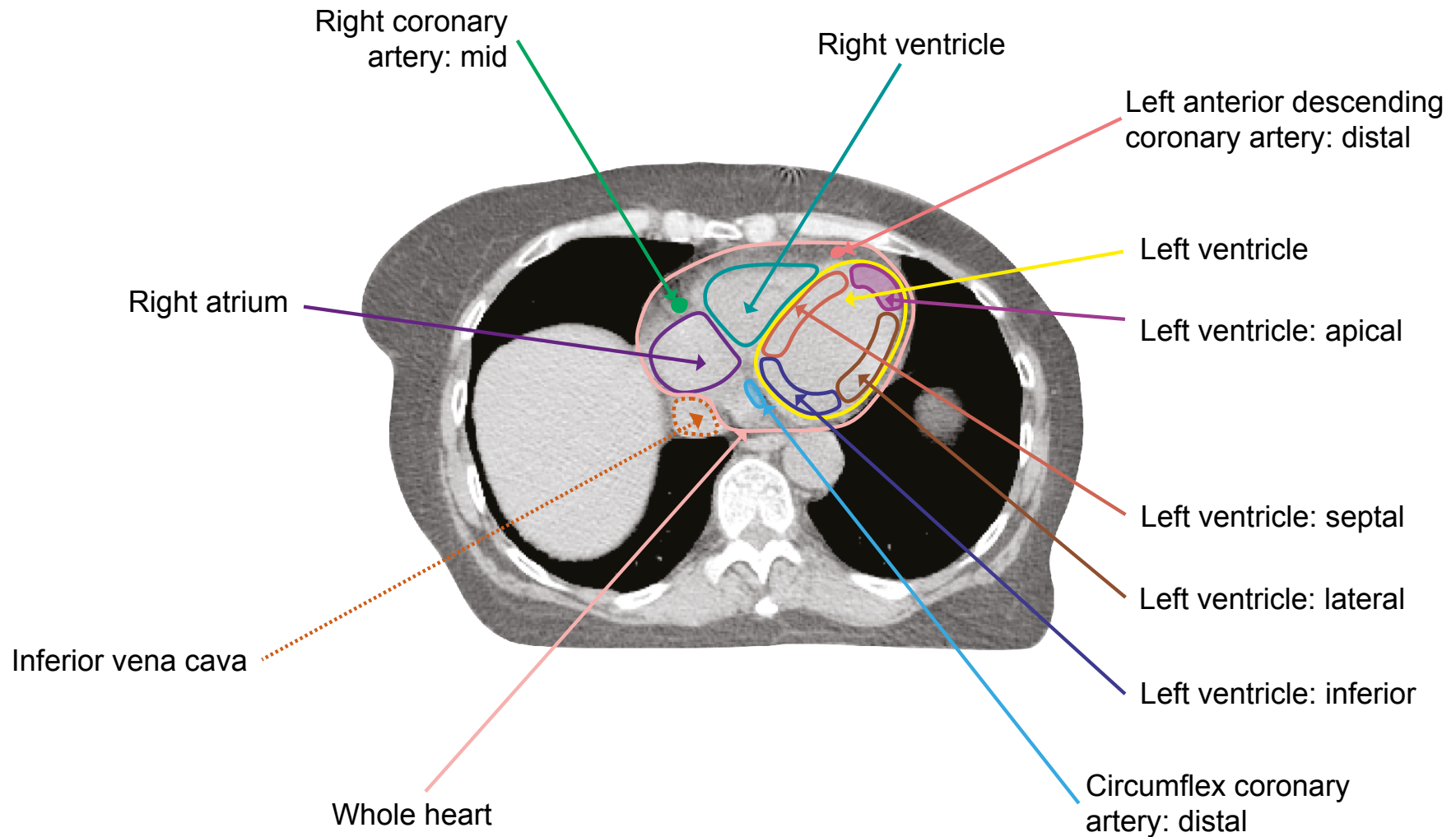


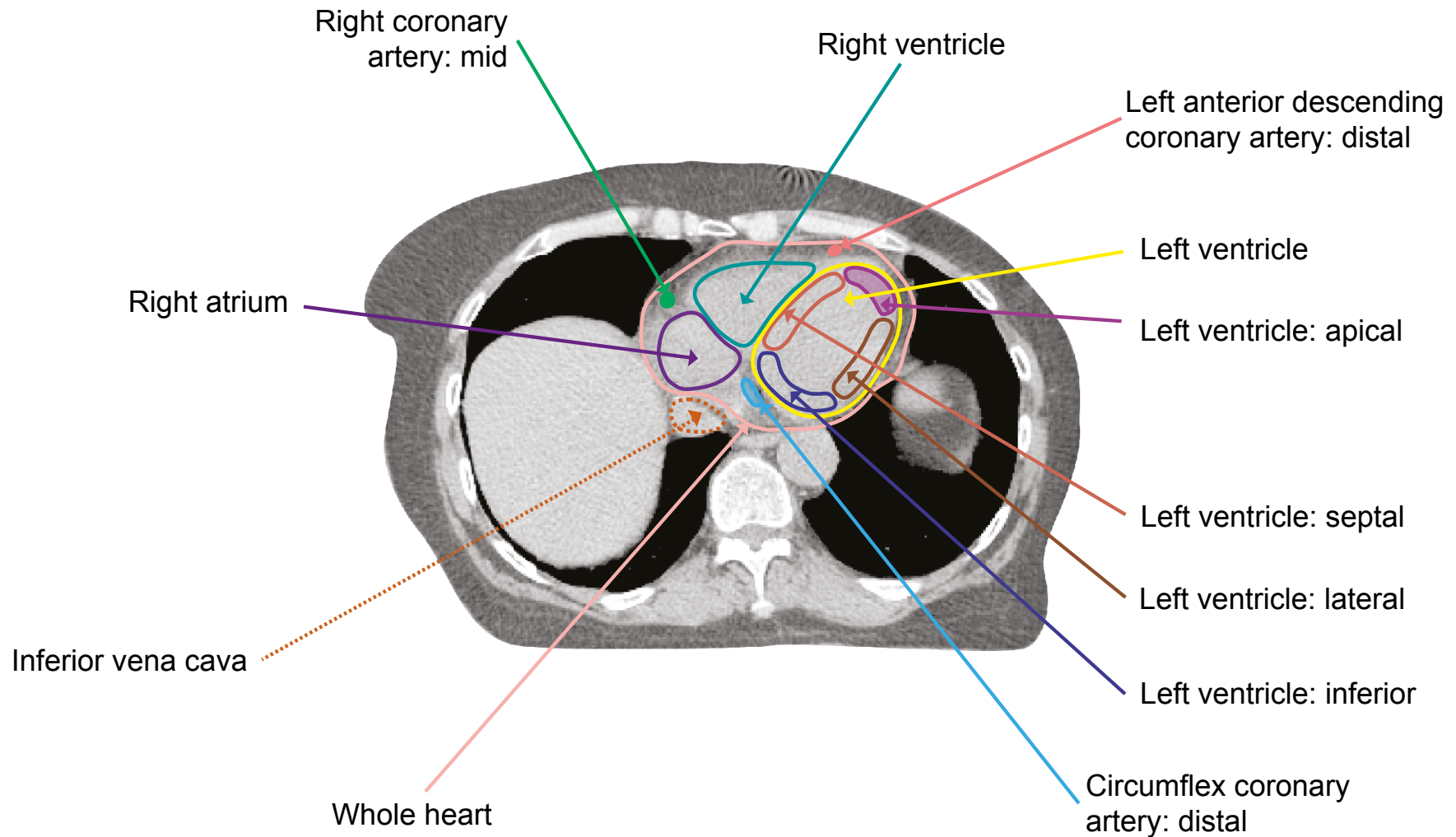


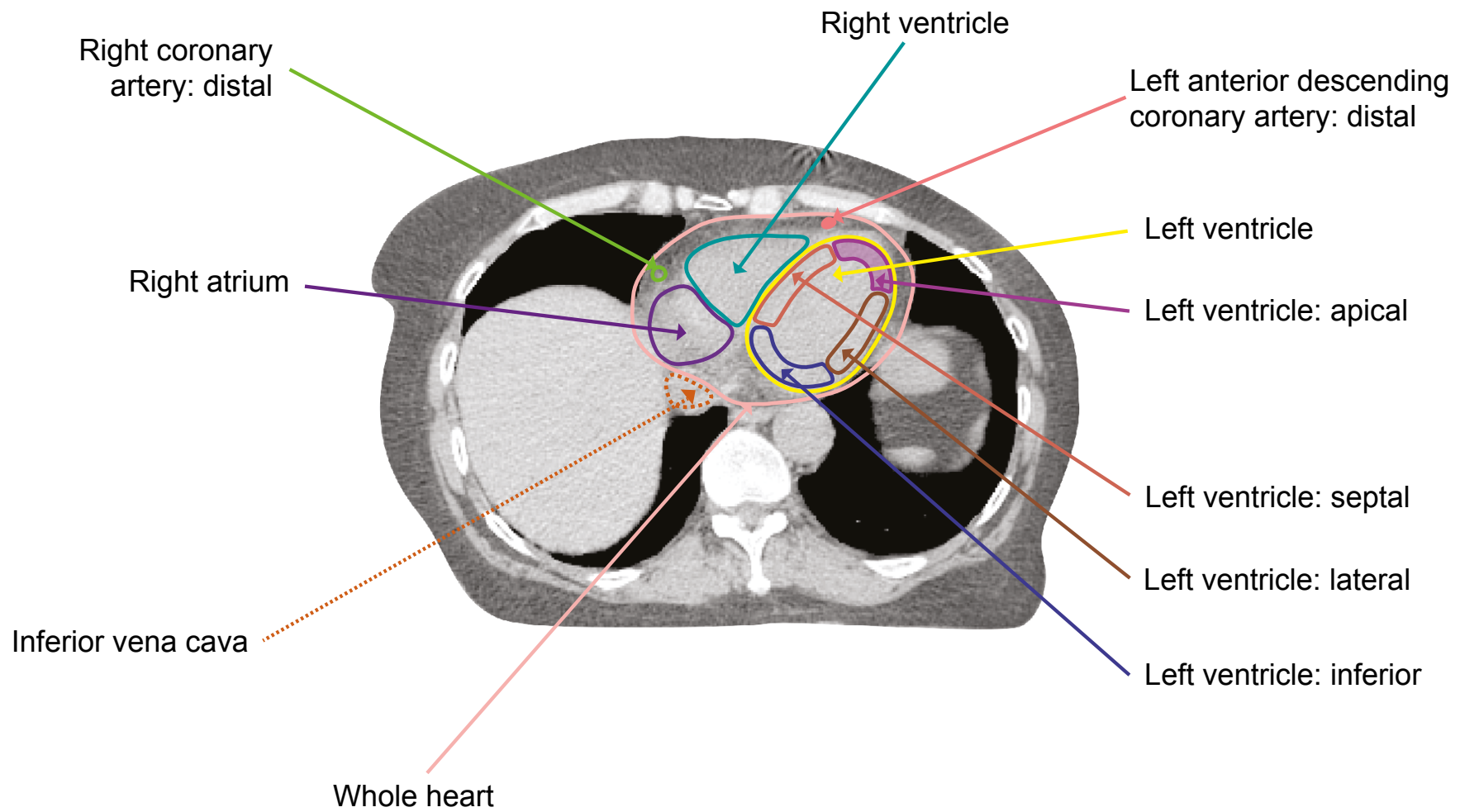


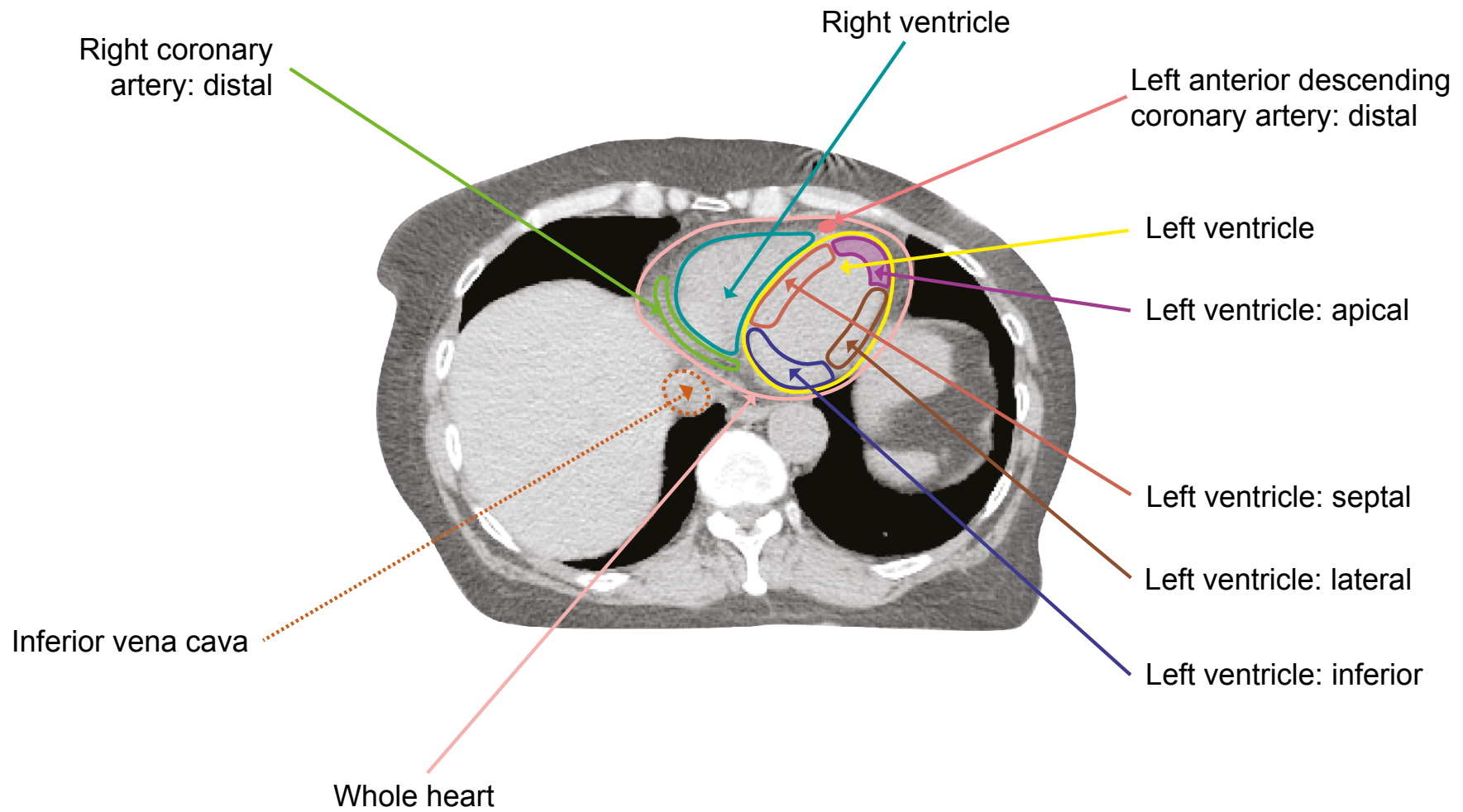


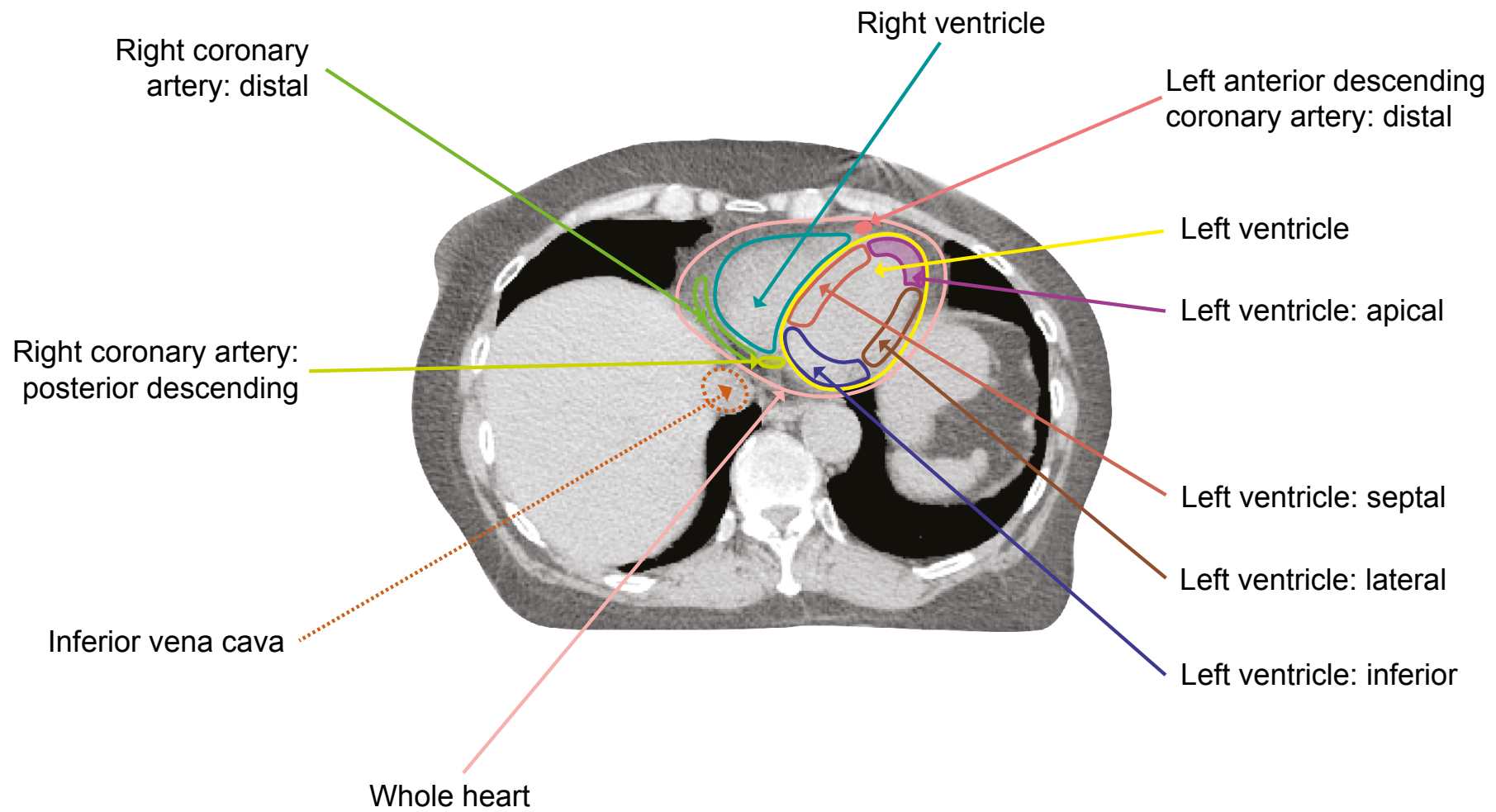


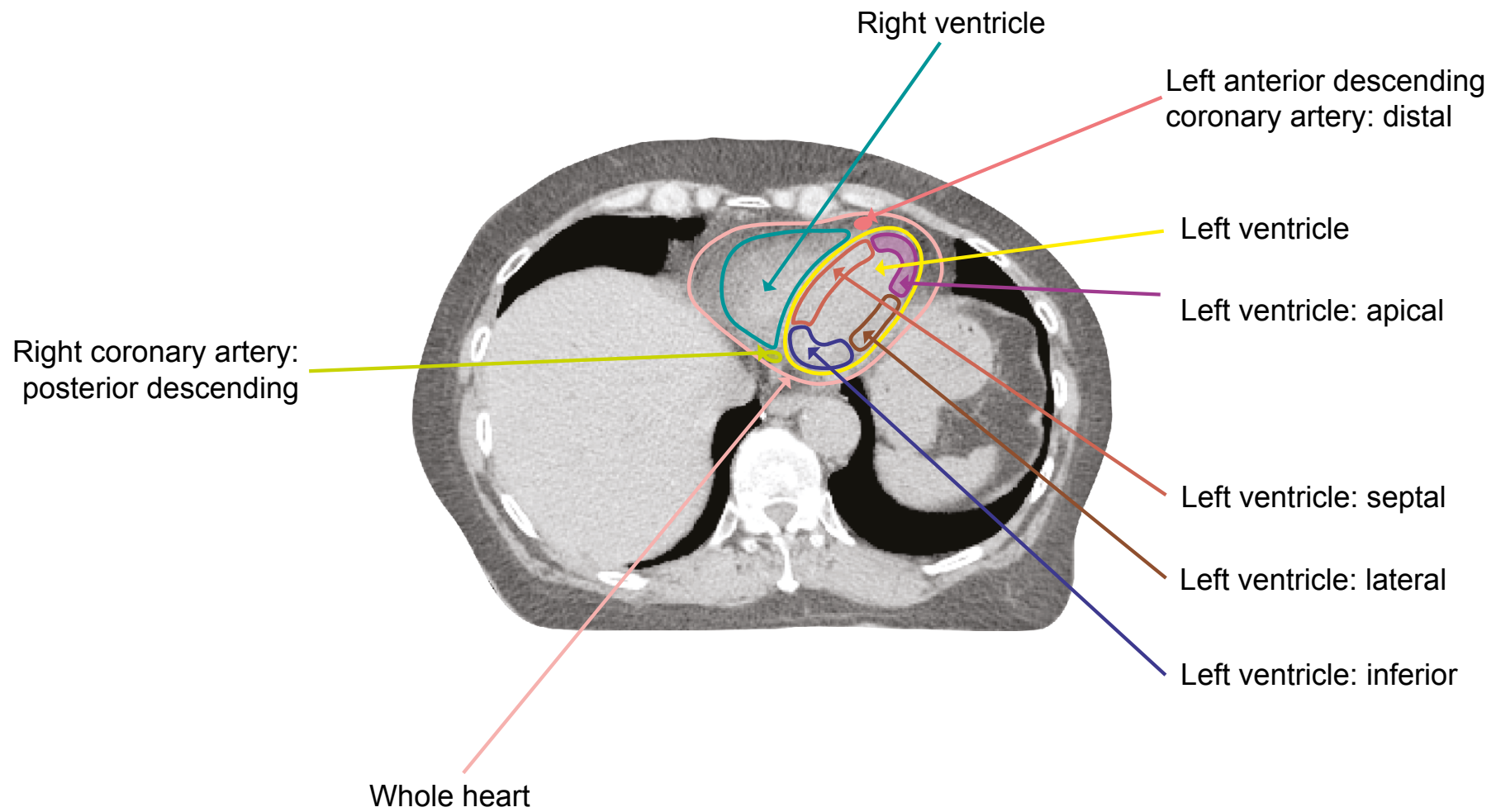


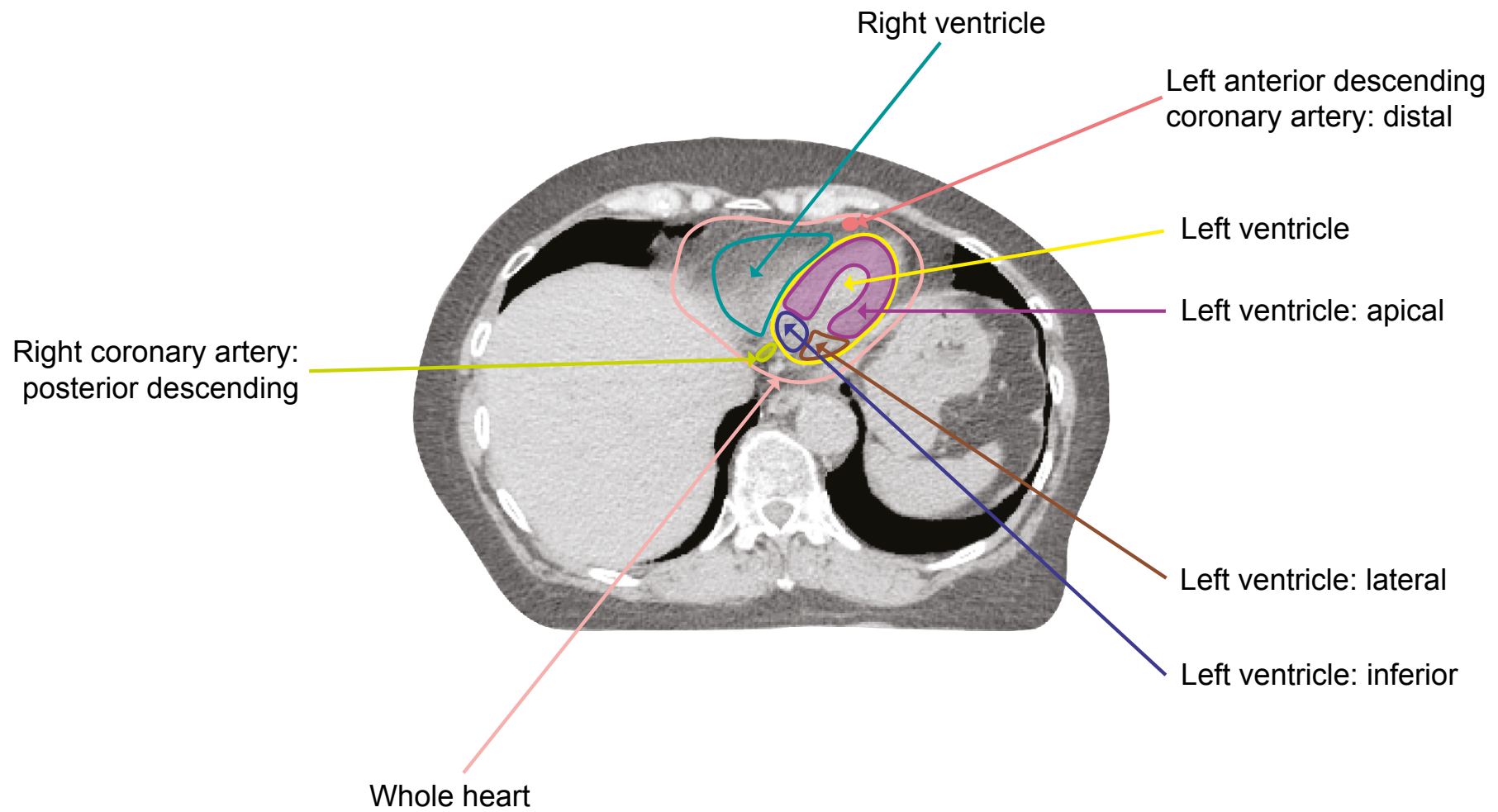


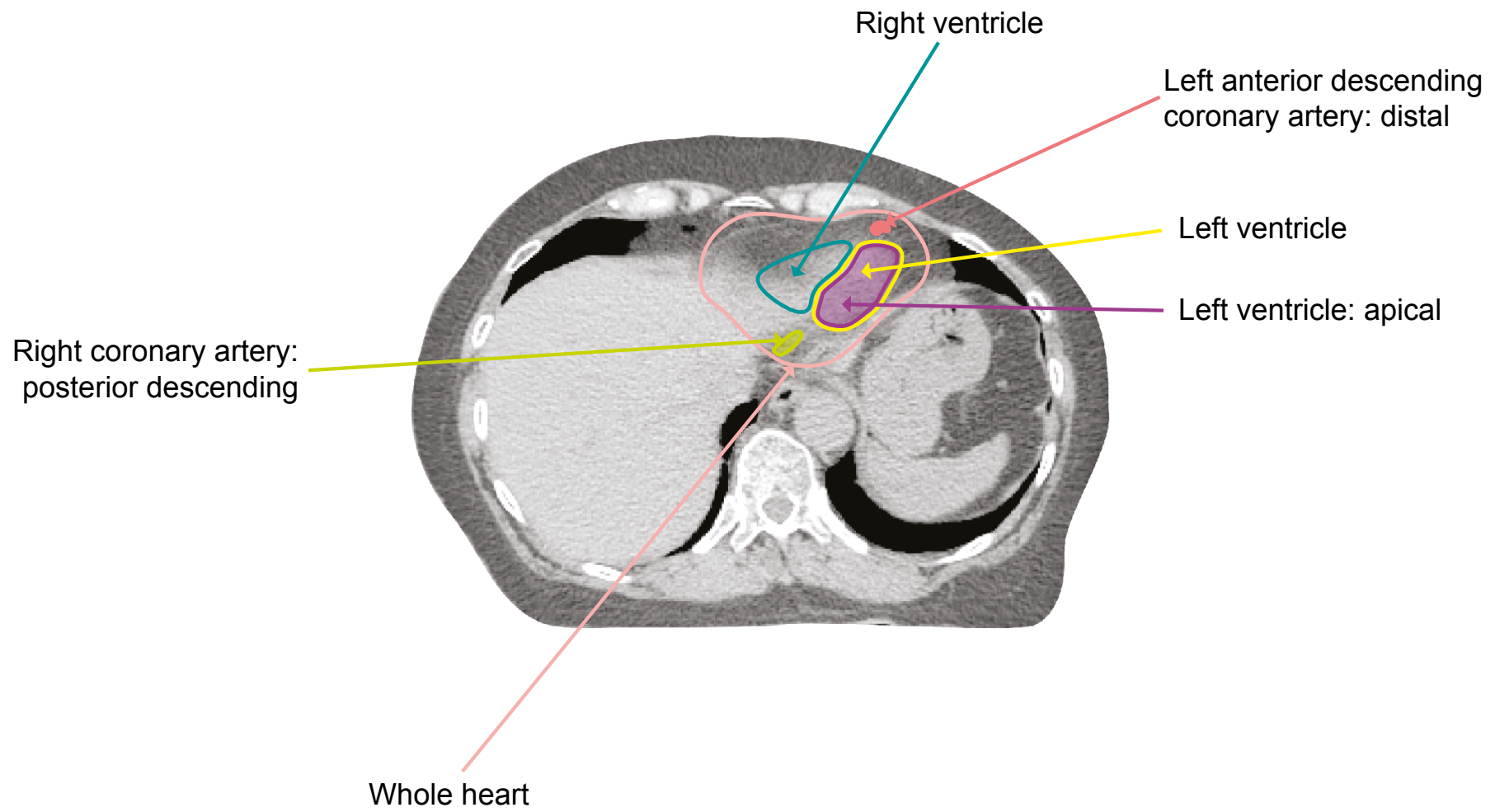


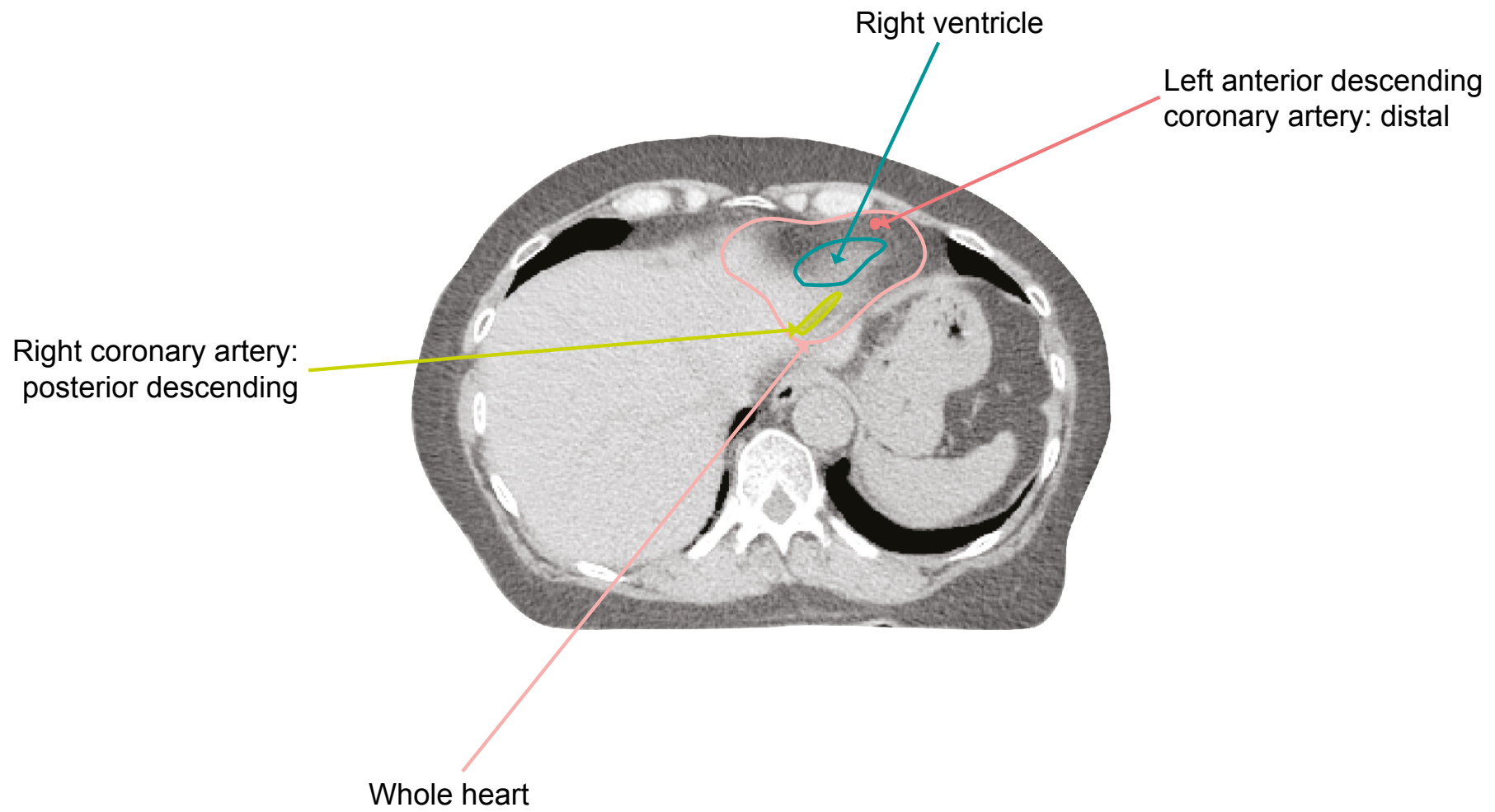


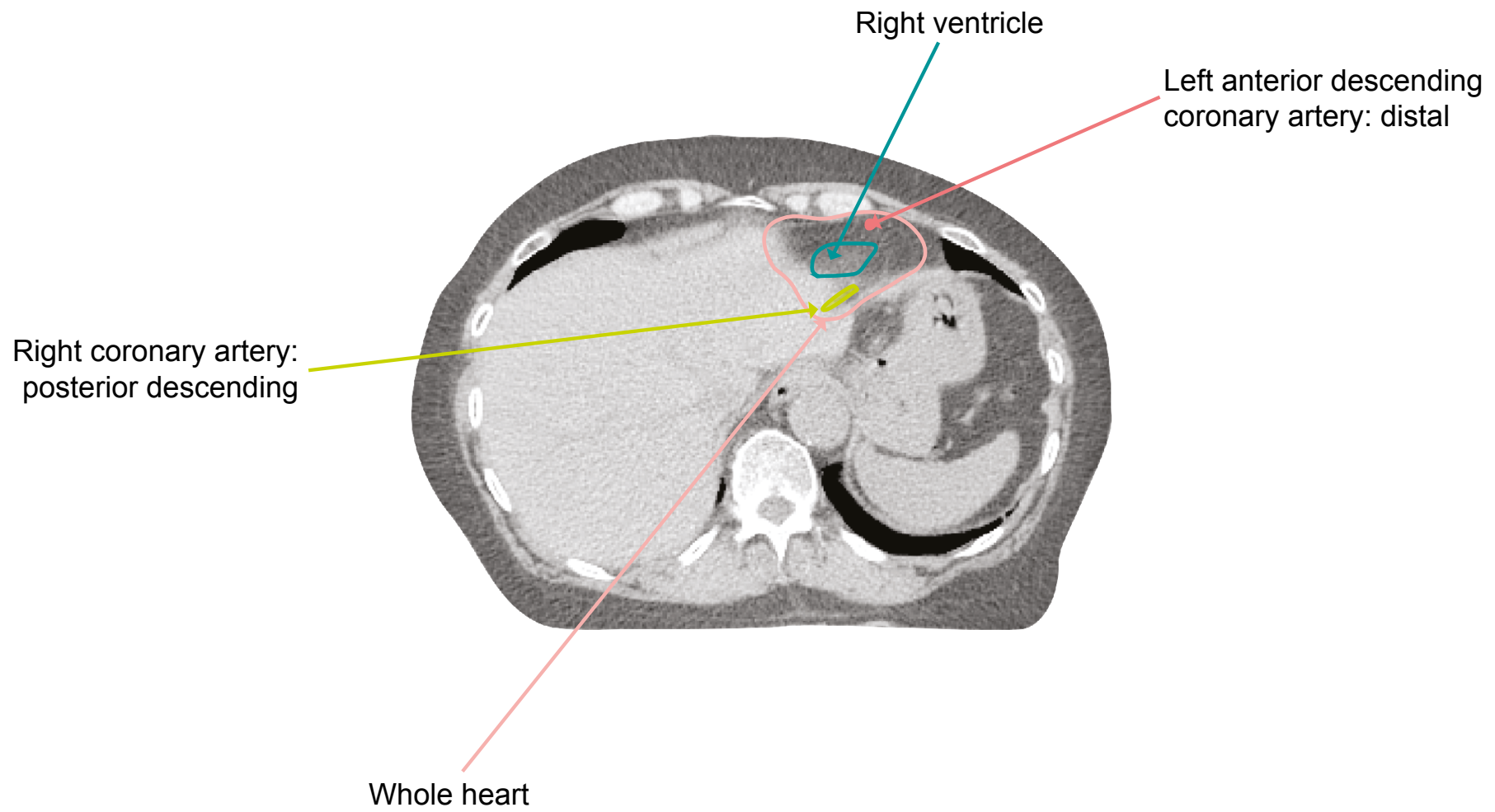






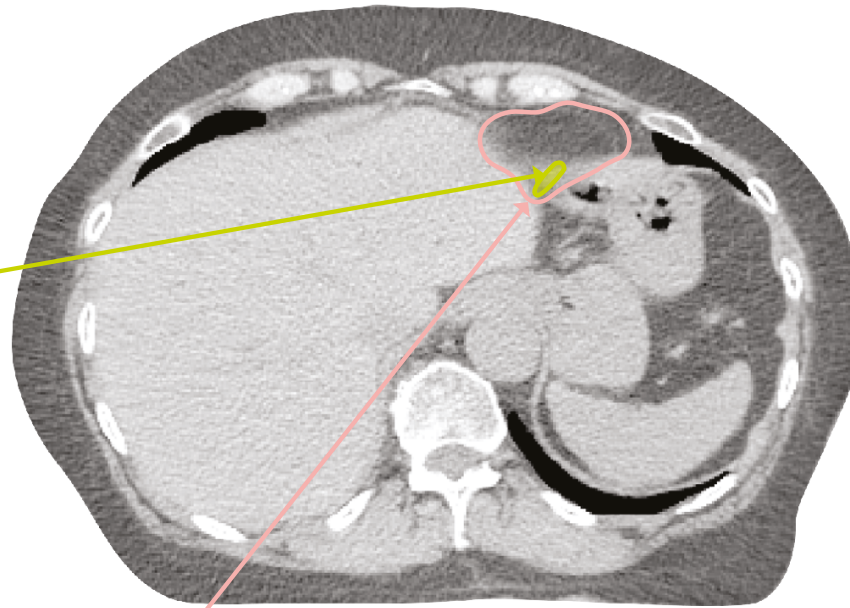


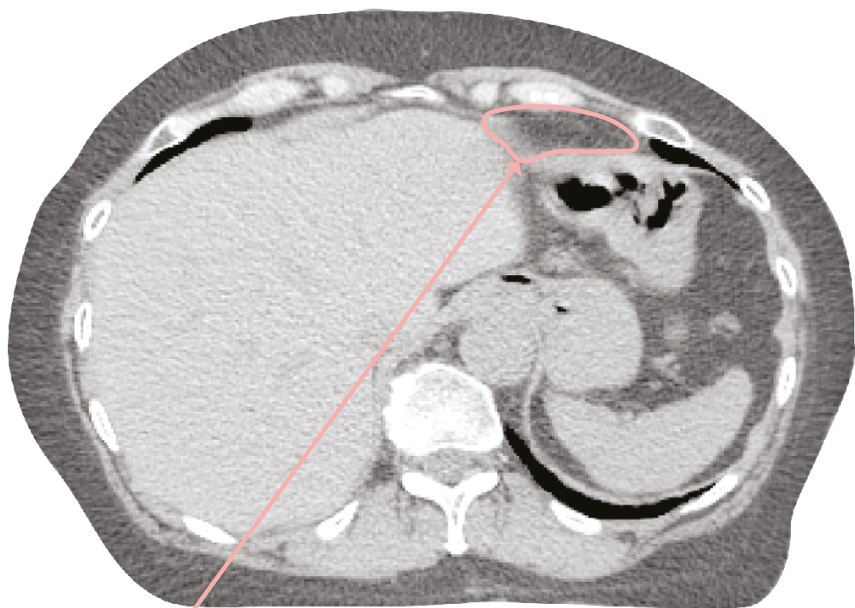




Right coronary artery:
posterior descending

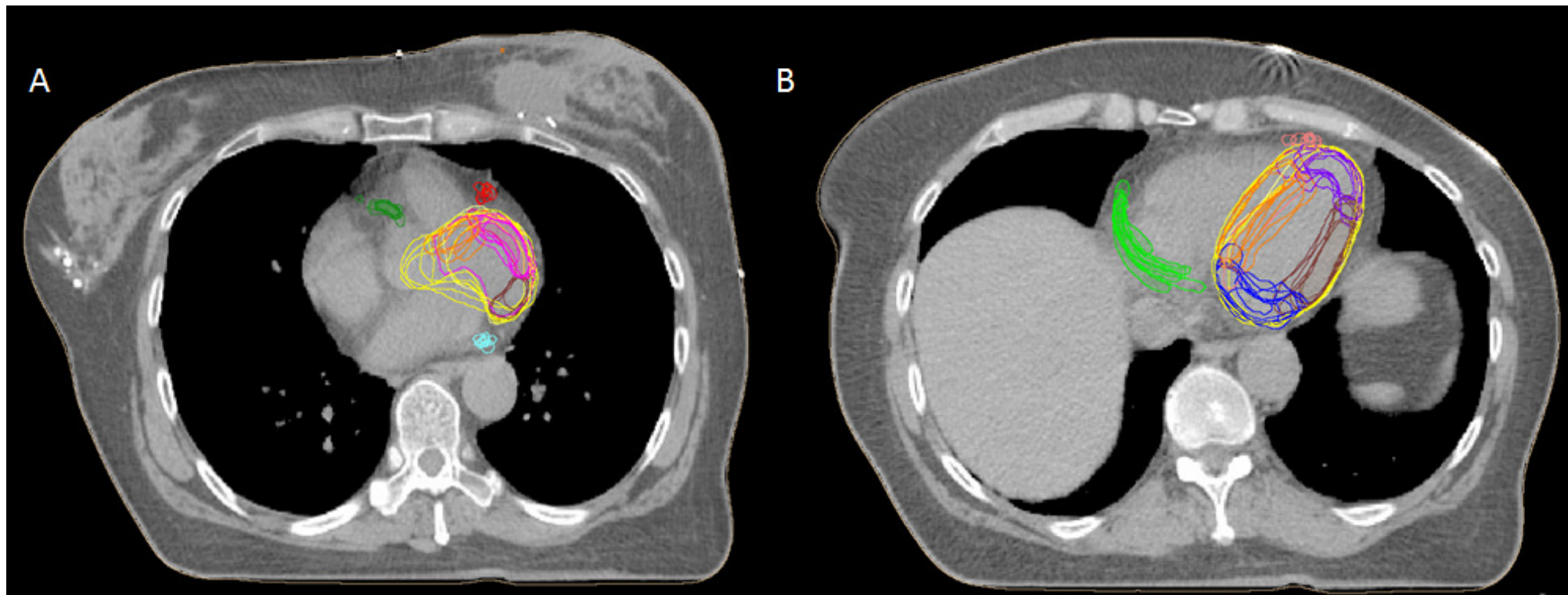
Whole heart





Whole heart

Supplementary Fig. 4. Cardiac substructure contours by six observers on one CT-planning scan at the level of the left ventricle superiorly (a) and inferiorly (b).



Supplementary Table 1. Variation in doses from right breast cancer regimens for cardiac segments contoured by six observers on one CT-planning dataset.

Cardiac segments	Dose variation (Gy), right-sided regimens		
	Mean (SD), range		
	PWT	OPP	E-/MV
Left ventricle	0.3 (0.0), 0.3-0.3	0.2 (0.0), 0.2-0.2	0.7 (0.0), 0.7-0.7
LV: apical	0.2 (0.0), 0.2-0.2	0.1 (0.0), 0.1-0.1	0.5 (0.0), 0.5-0.5
LV: lateral	0.2 (0.0), 0.2-0.2	0.1 (0.0), 0.1-0.1	0.5 (0.0), 0.5-0.5
LV: inferior	0.3 (0.1), 0.3-0.4	0.3 (0.1), 0.2-0.3	0.9 (0.1), 0.8-1.0
LV: septal	0.5 (0.0), 0.4-0.5	0.4 (0.0), 0.4-0.5	0.9 (0.1), 0.8-1.0
LV: anterior	0.3 (0.0), 0.3-0.4	0.3 (0.0), 0.2-0.3	0.9 (0.1), 0.8-1.0
LMCA	0.8 (0.1), 0.7-6.8	0.8 (0.0), 0.8-0.8	1.9 (0.1), 1.8-2.0
LADCA proximal	0.6 (0.0), 0.6-0.6	0.6 (0.1), 0.5-0.6	1.1 (0.1), 1.0-1.2
LADCA mid	0.5 (0.0), 0.5-0.5	0.4 (0.0), 0.4-0.4	0.8 (0.0), 0.7-0.8
LADCA distal	0.2 (0.1), 0.1-0.3	0.1 (0.1), 0.1-0.2	0.6 (0.1), 0.5-0.6
Cx proximal	0.6 (0.0), 0.6-0.7	0.6 (0.1), 0.5-0.7	1.4 (0.1), 1.2-1.6
Cx distal	0.3 (0.0), 0.3-0.4	0.2 (0.1), 0.1-0.3	0.9 (0.1), 0.8-1.0
RCA proximal	2.3 (0.2), 1.9-2.5	2.5 (0.3), 2.1-2.8	16.9 (3.6), 12.6-21.7
RCA mid	3.1 (1.3), 2.2-5.7	4.2 (2.5), 2.8-9.2	28.6 (3.7), 25.6-35.6
RCA distal	1.4 (0.3), 1.0-1.8	1.7 (0.40), 1.2-2.1	20.3(2.2), 18.1-23.6
RCA post desc	0.4 (0.0), 0.3-0.4	0.4 (0.1), 0.3-0.5	1.4 (0.4), 1.0-2.2

Dose variation results for structures located near the high dose-gradient are highlighted in bold.

Abbreviations: PWT: partially wide tangential technique; OPP: oblique parasternal photon technique; E-/MV: mixed electron/photon direct parasternal technique; LV: left ventricle; LMCA: left main coronary artery, LADCA: left anterior descending coronary artery, Cx: circumflex coronary artery, RCA: right coronary artery, post desc: posterior descending