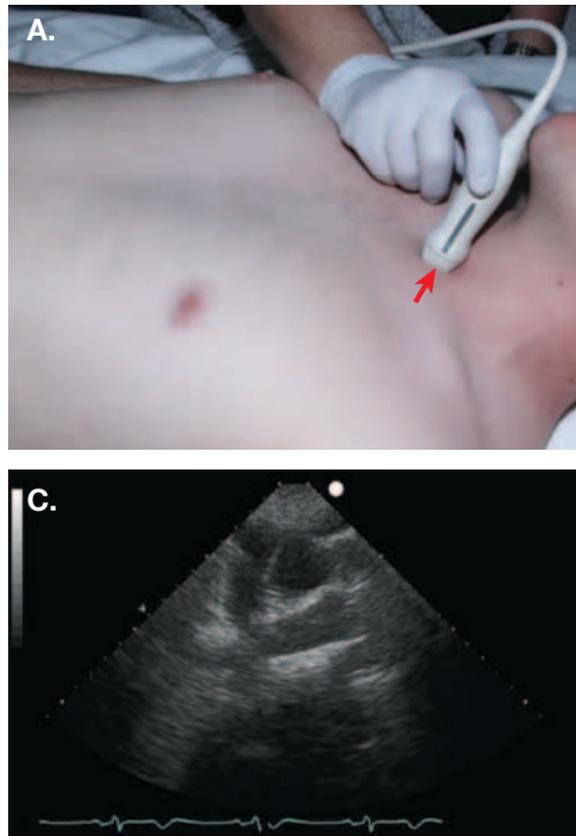


Structures Visualised and Normal Echocardiographic Appearances

While this view is not routinely employed in the standard 2D examination of the adult patient, it may be very useful in identifying pulmonary venous drainage into the LA, in determining the sidedness of the aortic arch, and to view the pulmonary artery branches in patients who have had a LeCompte manoeuvre (performed during an arterial switch operation).

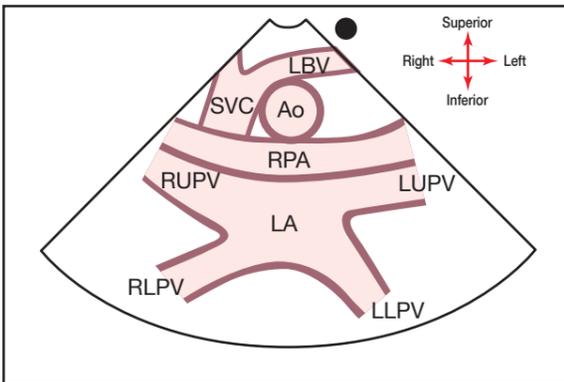
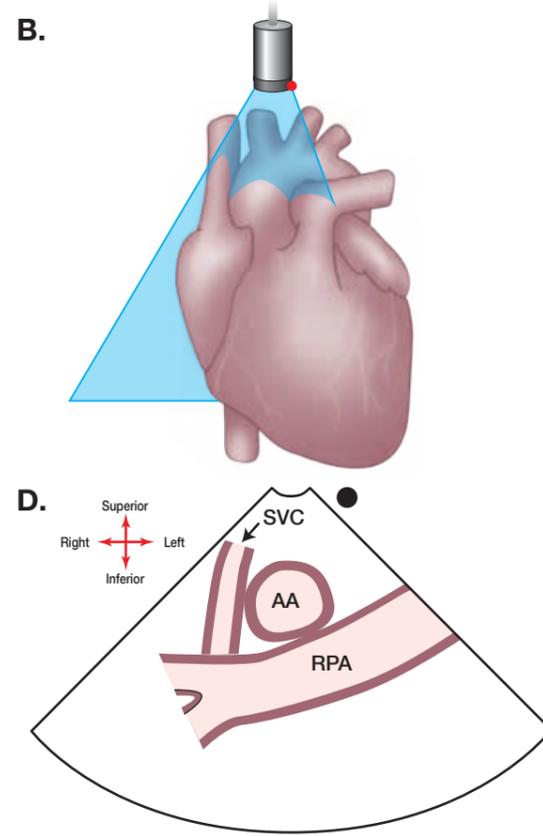


► **Figure 2.41** These images show the probe position and rotation on the suprasternal notch (A) and the imaging plane through the heart (B), an echocardiographic image acquired from this view (C), and the sector orientation and structures seen (D). The red arrow on A and the red dot on B indicate the probe orientation marker. See text for further details. AA = aortic arch; RPA = right pulmonary artery; SVC = superior vena cava.



► **Figure 2.42** This figure shows the pulmonary venous drainage into the left atrium (LA) as seen from a suprasternal short axis view. Ao = Aorta; LBV = left brachiocephalic vein; LLPV = left lower pulmonary vein; LUPV = left upper pulmonary vein; RLPV = right lower pulmonary vein; RPA = right pulmonary artery; RUPV = right upper pulmonary vein; SVC = superior vena cava.

Drainage of all four pulmonary veins into the LA is also referred to as the “crab” view (Fig. 2.42). From this view, the aortic arch is transected in its short axis and the RPA is seen in its long axis, coursing from right to left across the image display and inferior to the arch. The right pulmonary veins appear to the left of the image with the right upper vein superior to the right lower vein while the left pulmonary veins appear to the right of the image with the left upper vein superior to the left lower vein.



By angling the probe towards the patient’s right, the atria, the IAS, and the superior and inferior vena cavae may be seen (Fig. 2.45). From this view, the IAS is oriented perpendicular to the ultrasound beam.

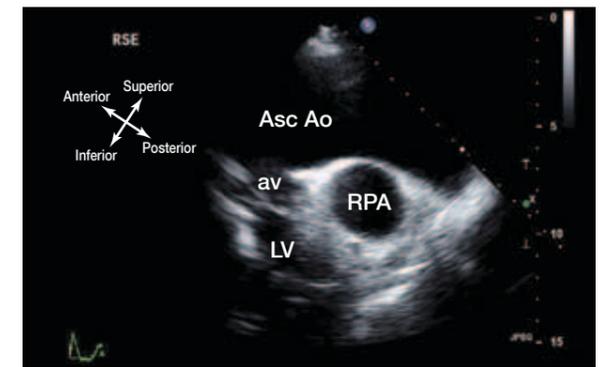
Posterior Chest Wall

In the presence of a large left pleural effusion, pleural fluid can be used as an acoustic window to the heart. This window can display high quality images of the heart and descending thoracic aorta. In fact, this window may provide better images of the heart than the standard transthoracic windows where the lungs and other overlying organs and tissue and the patient body habitus inhibit imaging.

Patient and Probe Position

The patient is placed in a steep right lateral decubitus position with the patient’s right arm extended over their head; imaging from this window may also be obtained with the patient in a sitting position (Fig. 2.46).

The probe is placed on the patient’s back in the mid-scapula line. The probe should be perpendicular to the chest wall. The probe rotation is variable; the probe should be manipulated to obtain a recognisable imaging plane of the heart. The image planes that can be obtained are usually those of a long axis or short axis of the heart.



► **Figure 2.44** This image, acquired from the right parasternal window, shows the proximal ascending aorta (Asc Ao). The right pulmonary artery (RPA) is also seen in its short axis inferior to the aorta. av = aortic valve; LV = left ventricle.

Additional Acoustic Windows

Additional windows that can be employed in the transthoracic examination include the right parasternal window and the posterior chest wall.

Right Parasternal Window

The right parasternal window is also valuable in the evaluation of the aortic root and ascending aorta; especially when the aortic root and ascending aorta are dilated. This window may also be used to image the IAS and the SVC/IVC drainage into the RA.

Patient Position

The patient is placed in a steep right lateral decubitus position with the patient’s right arm extended over their head.

Probe Position and Orientation

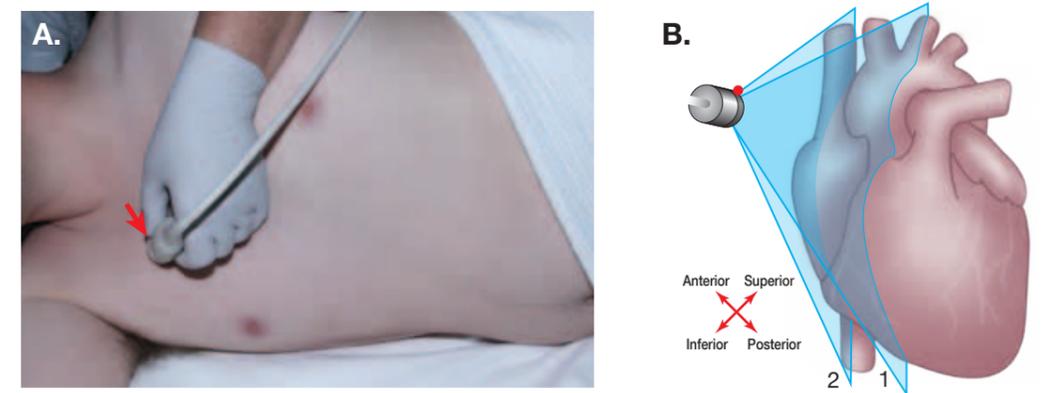
The probe is placed in the second or third intercostal space at the right sternal edge. As a general rule, images are best obtained from one intercostal space higher than that used for the standard left parasternal window. The POM is rotated toward the patient’s left clavicle at approximately the 1 o’clock position (Fig. 2.43, A & B). To image the aorta, the probe is angled approximately 45° to the chest wall; the beam is, thus, orientated to the long axis of the proximal ascending aorta. Note that the POM is rotated the same way as for imaging of the suprasternal LAX of the aorta. To image the IAS, the probe is angled towards the patient’s right.

Sector Orientation

The sector orientation is such that structures seen at the top right of the sector are superior while structures seen at the bottom left of the sector are inferior; structures seen to the top left of the image are anterior while structures seen to the bottom right of the image are posterior.

Structures Visualised and Normal Echocardiographic Appearances

From this window and with the probe angled approximately 45° to the chest wall, the proximal ascending aorta may be seen in its long axis (Fig. 2.44). Other structures seen from this view include those seen from the suprasternal LAX view.



► **Figure 2.43** This figure shows the right sternal window with respect to the probe position and rotation (A) and the sector orientation and imaging plane through the heart (B): [1] the proximal ascending aorta, and [2] the atria, the interatrial septum, and the superior and inferior vena cavae. The arrow on figure A and red dot in figure B indicate the probe orientation marker.