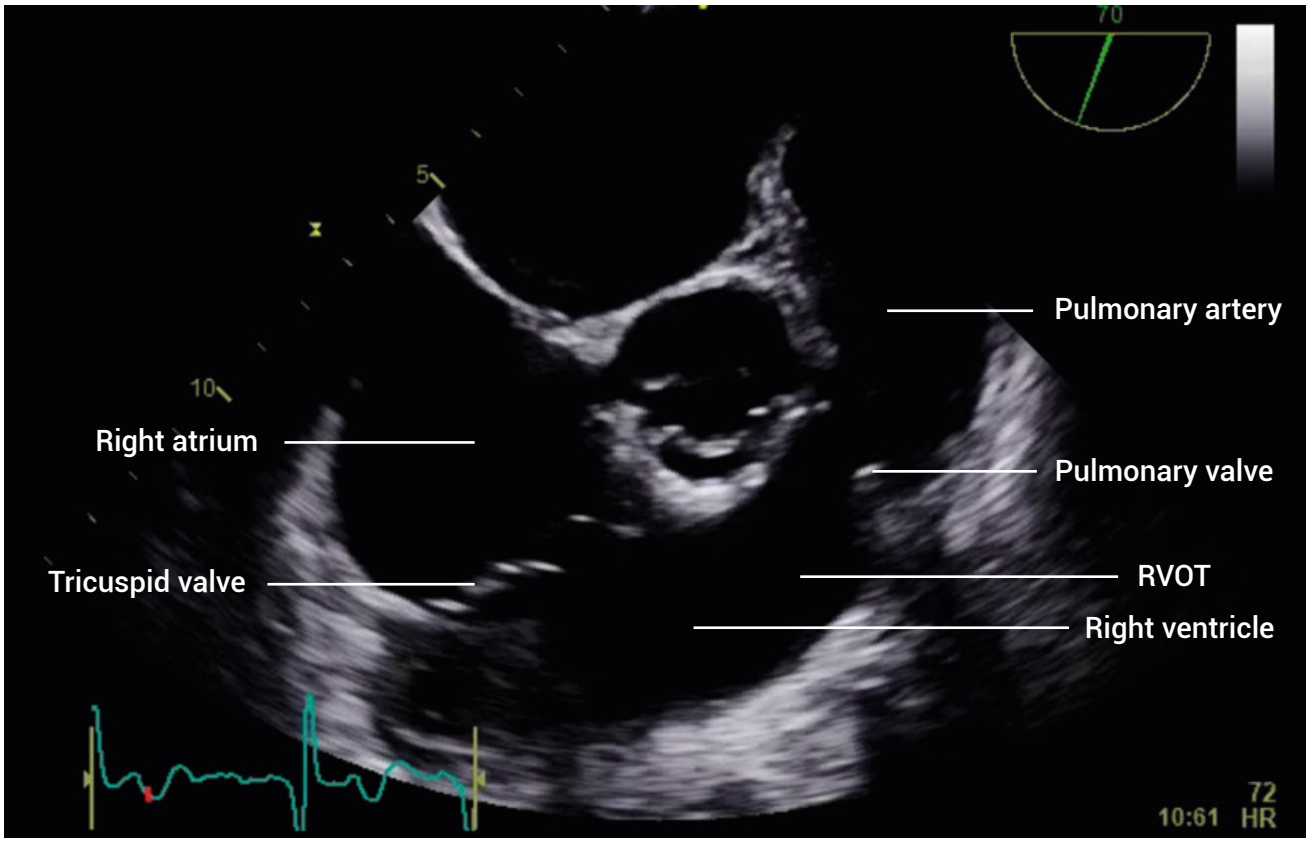
# TEE ESSENTIALS

## Assessment of the right heart: Anatomy of the right heart

The right heart has a complex geometry, wrapping around the left heart. The principal components that need to be assessed are the right atrium, tricuspid valve, right ventricle and right ventricular outflow tract (RVOT), pulmonary valve, and main pulmonary artery. The mid-esophageal right ventricular inflow-outflow view gives a general overview of each of these components, but a number of additional views are needed to assess each component in detail.




### *Right atrium*

The right atrium is a trabeculated chamber, and it's important not to mistake the trabeculations for atrial masses. The right atrium has an appendage, which is separated from the superior vena cava by a ridge called the crista terminalis. At the junction of the inferior vena cava with the right atrium there is often a small mobile flap called the Eustachian valve.

### *Right ventricle*

The right ventricle has an inflow portion, a main body, and an outflow portion (the right ventricular outflow tract, RVOT). Multiple views are required to ensure that the entire right ventricle has been visualized. Assess right ventricular size and systolic function, and make linear measurements at the base, mid-point, and RVOT.

## *Tricuspid valve*

The tricuspid valve has three leaflets: anterior, posterior, and septal. The morphology and function of the valve should be assessed (use Doppler for functional evaluation). Where tricuspid regurgitation is present, measurement of peak regurgitant flow velocity aids in the estimation of pulmonary artery systolic pressure. The subvalvular apparatus (papillary muscles and chordae) is seen particularly well in the transgastric right ventricular long-axis view. Measurement of the tricuspid annulus is useful for cardiothoracic surgeons in planning tricuspid valve repair.

## *Pulmonary valve*

The pulmonary valve has three cusps. The morphology and function of the valve should be assessed (use Doppler for functional evaluation). Measure the diameter of the pulmonary valve annulus.

## *Pulmonary artery*

Assess the morphology of the pulmonary artery and its two main branches (right and left pulmonary arteries), and measure the diameter of the main pulmonary artery. The pulmonary artery can be affected by stenosis or dilatation. It can also contain thrombus (pulmonary embolism), which may be visualized on TEE imaging.

**Further reading**

Rudski LG, Lai WW, Afilalo J, et al. 2010. Guidelines for the echocardiographic assessment of the right heart in adults: a report from the American Society of Echocardiography. *J Am Soc Echocardiogr*. **23**: 685–713.