


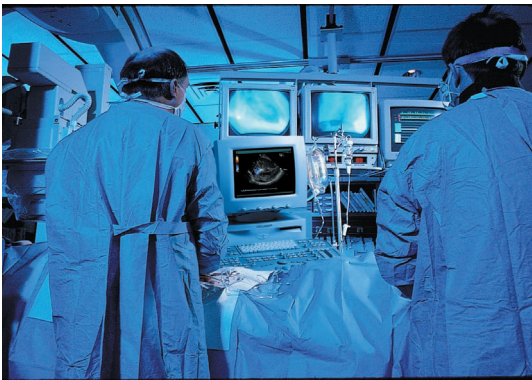
ACUSON AcuNav Diagnostic Ultrasound Catheter
Intracardiac Echocardiography Instructional Guide

ACUSON AcuNav diagnostic ultrasound catheter Intracardiac Echocardiography Instructional Guide

This instructional guide is an introduction to intracardiac echocardiography imaging. It contains directions to obtain proper positioning and basic views used with the ACUSON AcuNav™ diagnostic ultrasound catheter.

This guide assumes the following:

1. A femoral vein approach is used for the insertion of the AcuNav catheter.
2. The catheter operator is standing at the patient's right side, with the patient's head to the left of the operator.
3. The system orientation is with the Acuson  positioned to the left of the image vector. This corresponds to the inferior portion of the scan plane.



The intracardiac imaging terms used in this imaging guide are defined below:

Clockwise: describes the rotation of the catheter away from the operator.

Counterclockwise: describes the rotation of the catheter towards the operator.

Depth: increases or decreases the depth of penetration or field of view.

Home View: this refers to an ultrasound image that displays the right atrium, right ventricle, and tricuspid valve. The catheter is positioned in the mid-right atrium.

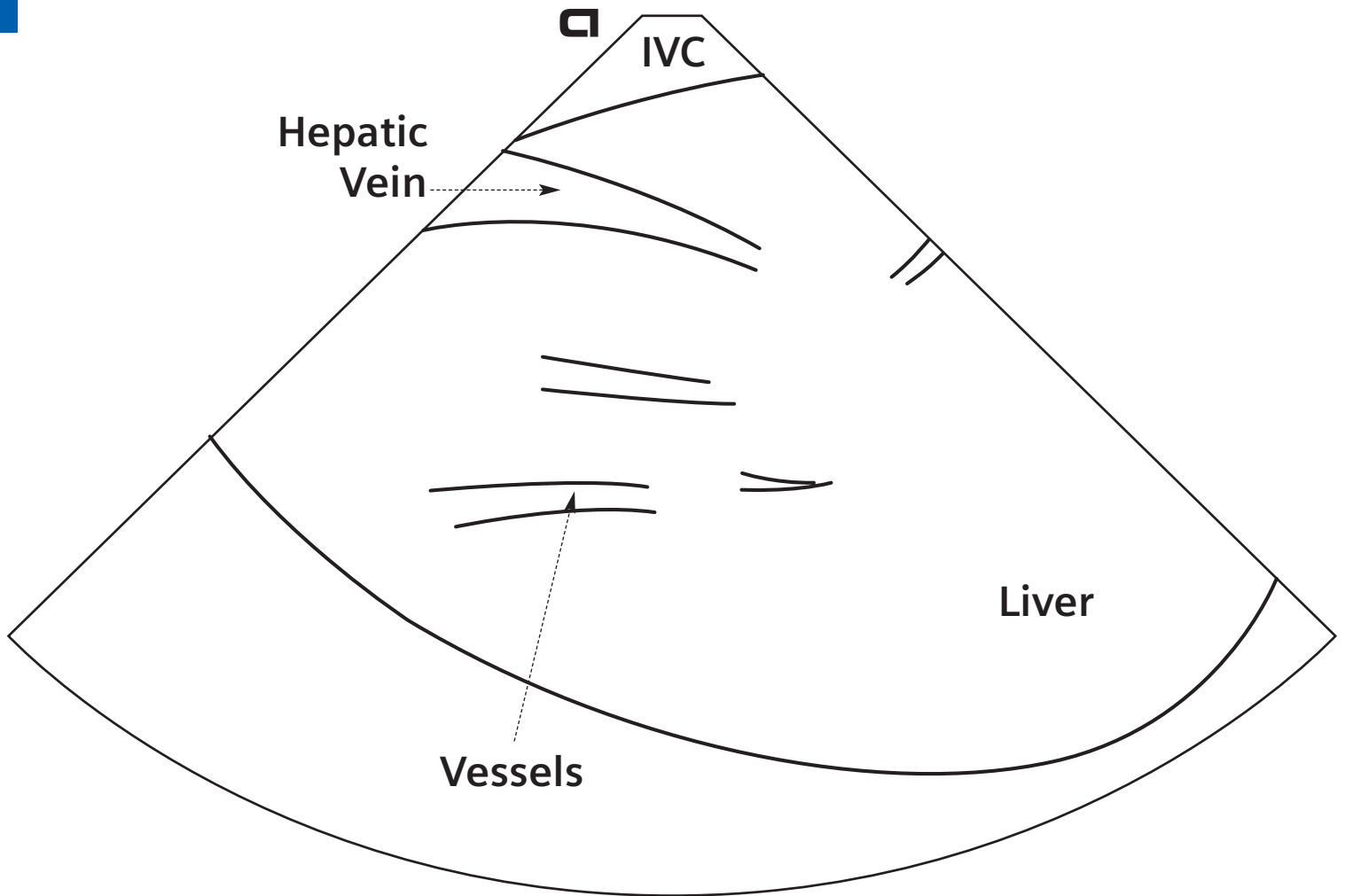
Neutral Position: the neutral position ridges located on the catheter handle are aligned. No steering or tension is applied.

Scan Plane: how ultrasound images the body; two-dimensional¹; a slice of an anatomical structure

Tension Control Knob: provides graduated tension to the steering mechanism of the catheter tip.

¹Tempkin B. Ultrasound Scanning: Principles and Protocols. Philadelphia, PA: W.B. Saunders Company; 1993;7.

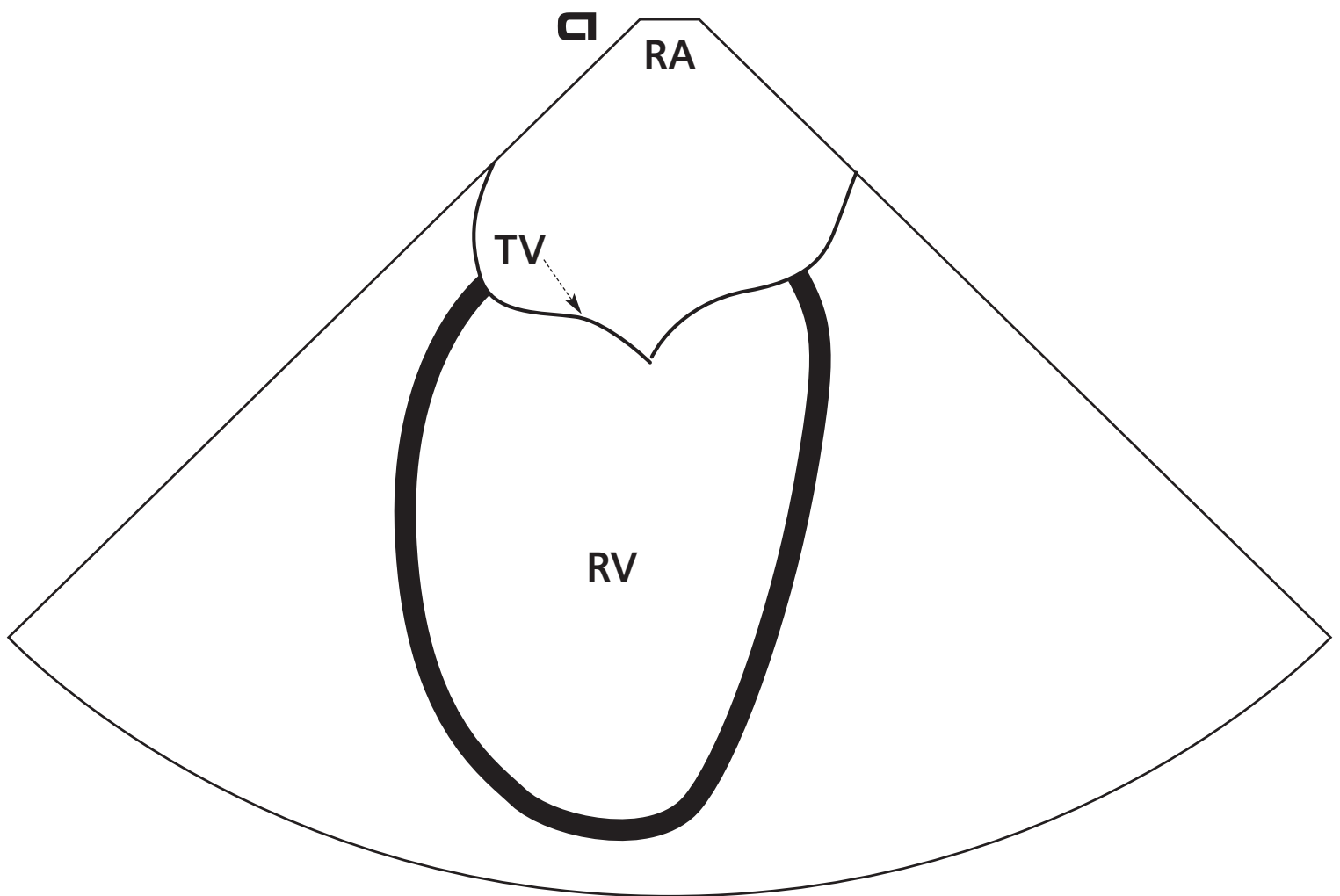
Liver



Liver

- Advance the catheter up the femoral vein into the inferior vena cava
- The liver will come in to view
- Adjust the "depth" button on the ultrasound system to display the entire liver

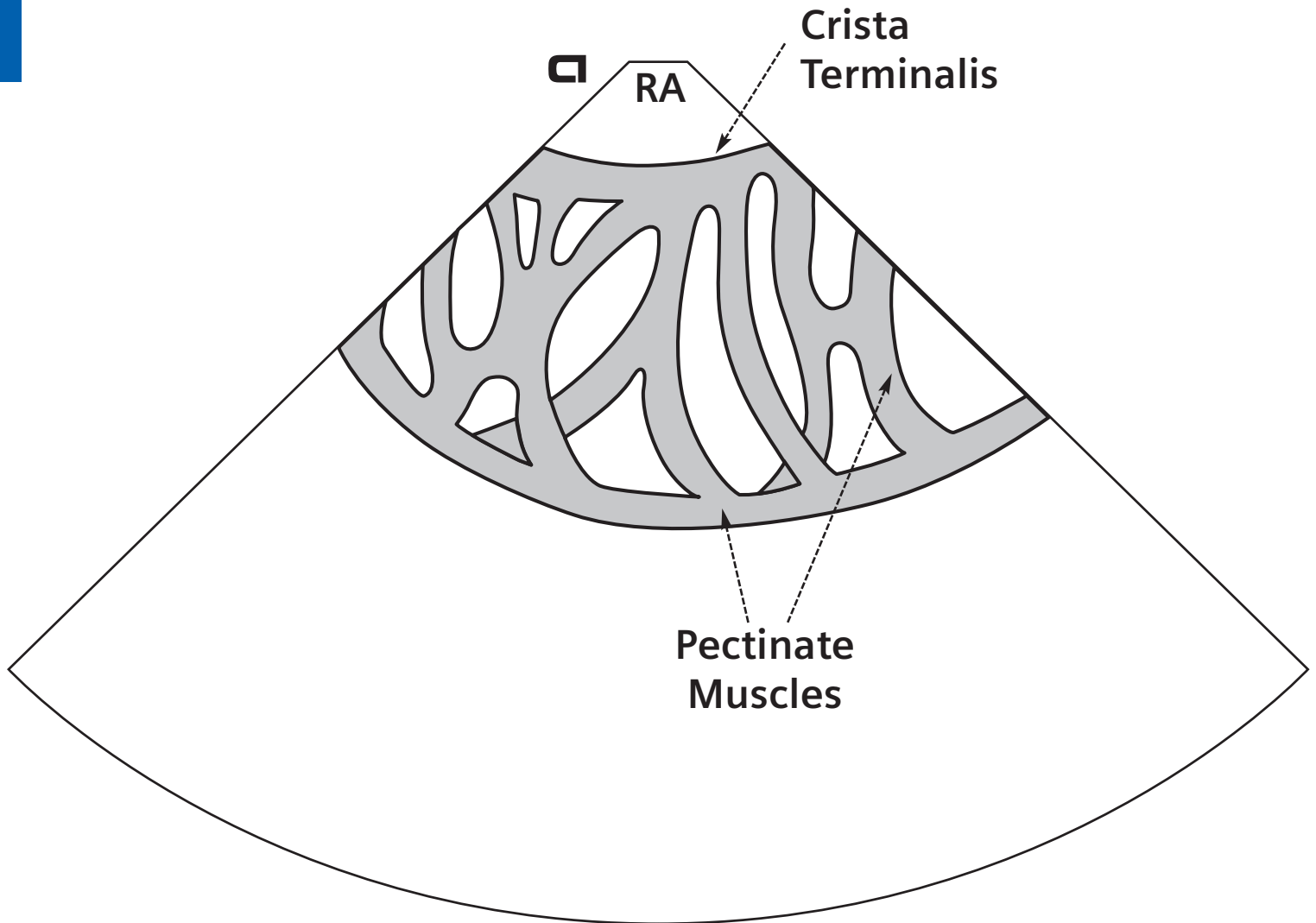
Right Atrium “Home View”, Tricuspid Valve, Right Ventricle



Right Atrium “Home View”, Tricuspid valve, Right ventricle

- Continue advancing past the liver to the mid right atrium
- The scan plane should be facing anteriorly
- The catheter is in *neutral position*

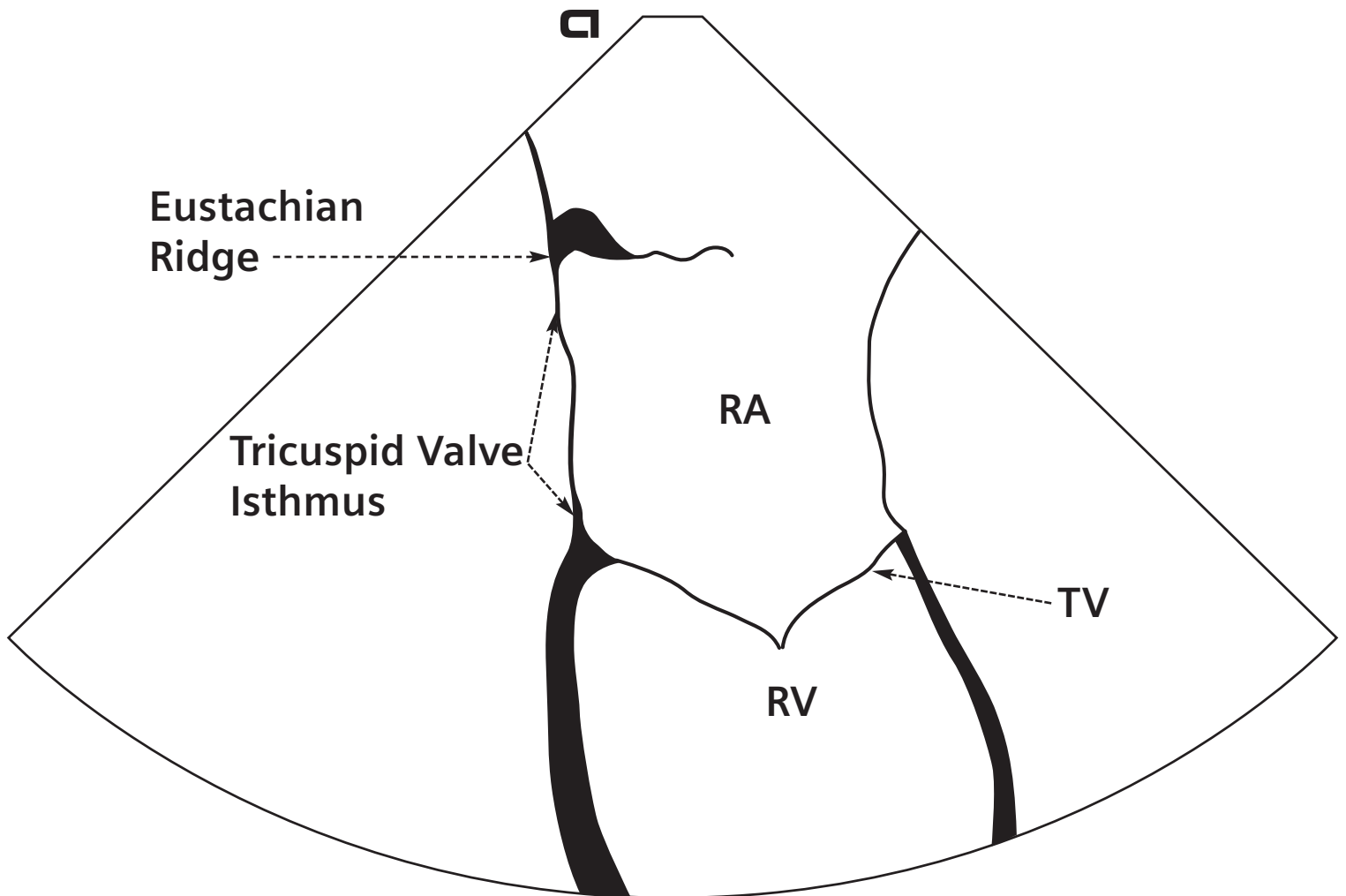
Crista Terminalis



Crista Terminalis

- Advance the catheter into the superior right atrium
- Rotate the catheter counterclockwise
- Adjust the "depth" knob on the ultrasound system to view more anterior structures
- Use a depth of 30-50 mm

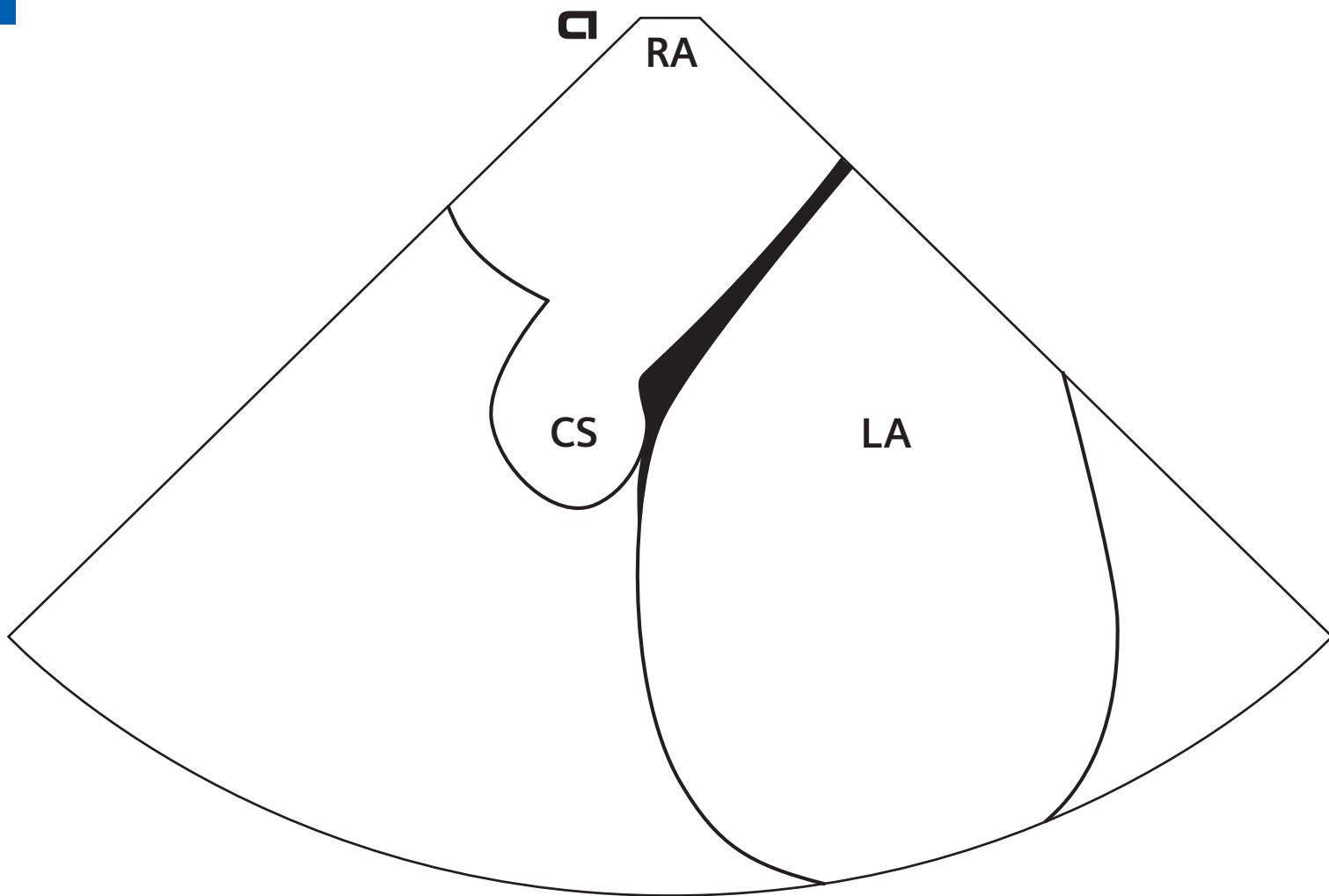
Eustachian Ridge, Remnant Eustachian Valve, Tricuspid Valve Isthmus



Eustachian Ridge, Remnant Eustachian Valve, Tricuspid Valve Isthmus

- Rotate the catheter clockwise from the crista terminalis to the "Home View"
- Withdraw the catheter to the inferior right atrium
- The isthmus is the area between the eustachian ridge and the tricuspid valve

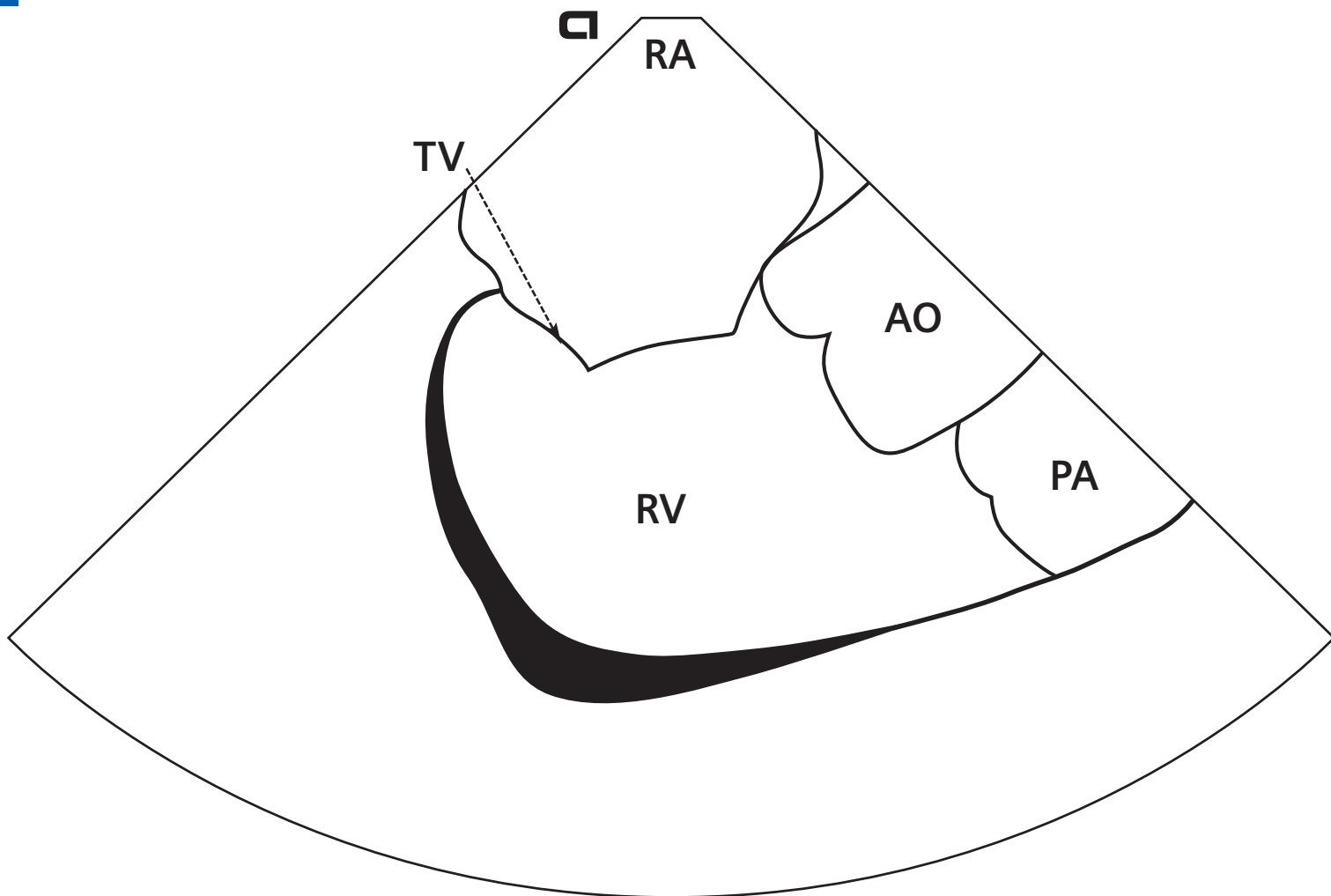
Coronary Sinus Ostium



Coronary Sinus Ostium

- Rotate the catheter clockwise to view the coronary sinus ostium
- Adjust "depth" knob to view anterior structures

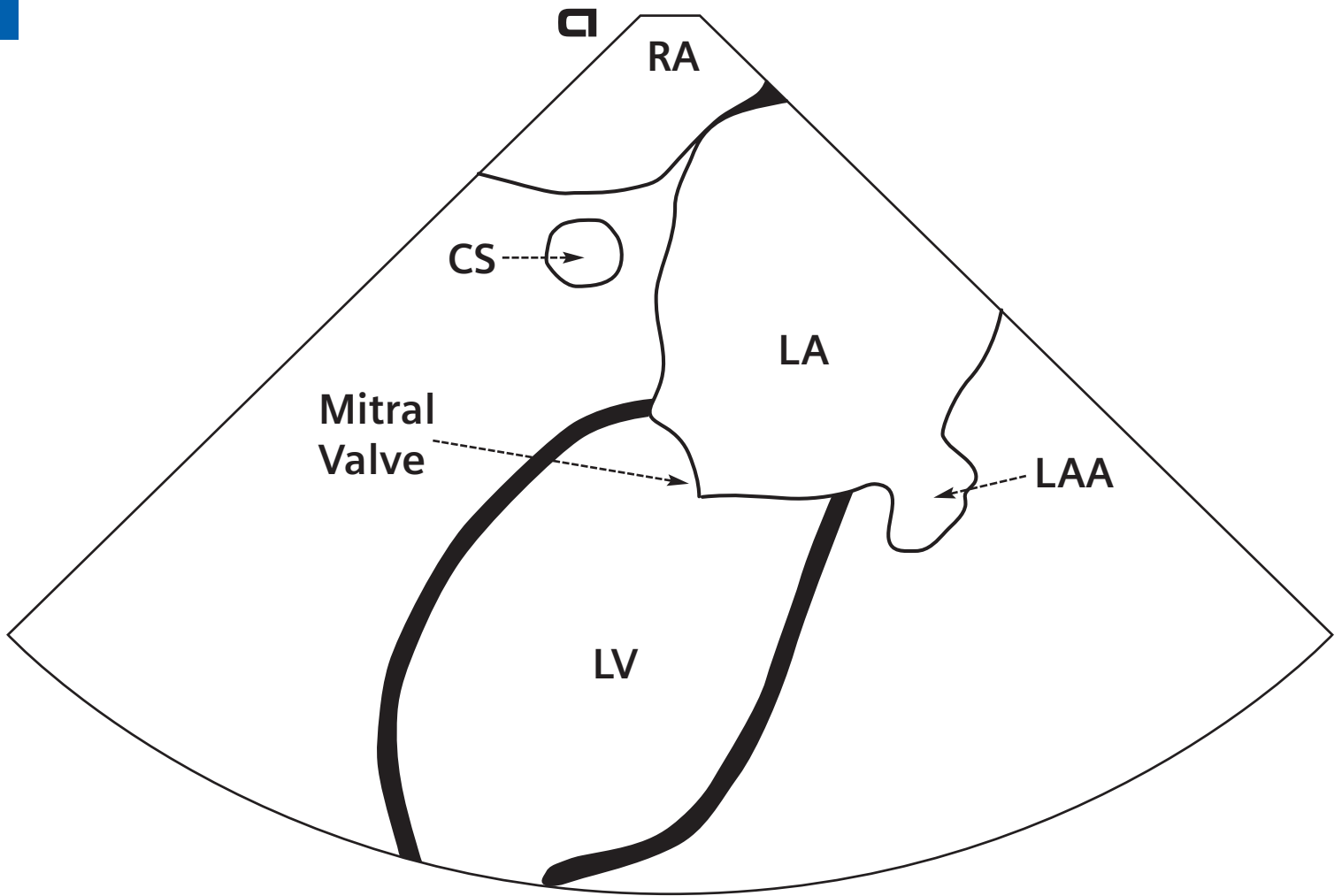
Aorta, Pulmonary Artery



Aorta, Pulmonary Artery

- From the mid right atrium "Home View," rotate the catheter clockwise
- No steering necessary

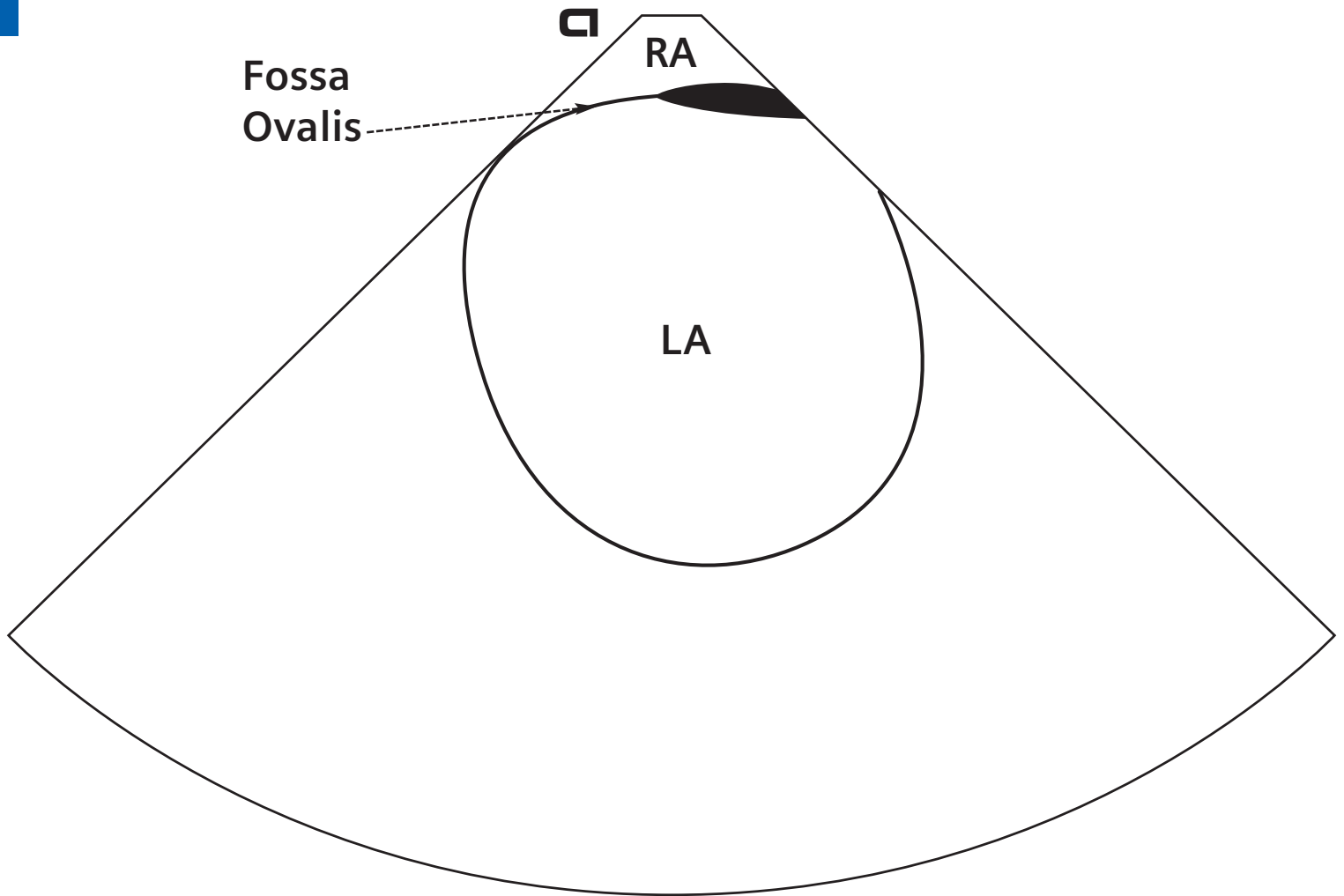
Left Atrial Appendage, Mitral Valve



Left Atrial Appendage, Mitral Valve

- Continue rotating the catheter clockwise past the aorta/pulmonary artery
- May need to utilize the left steering

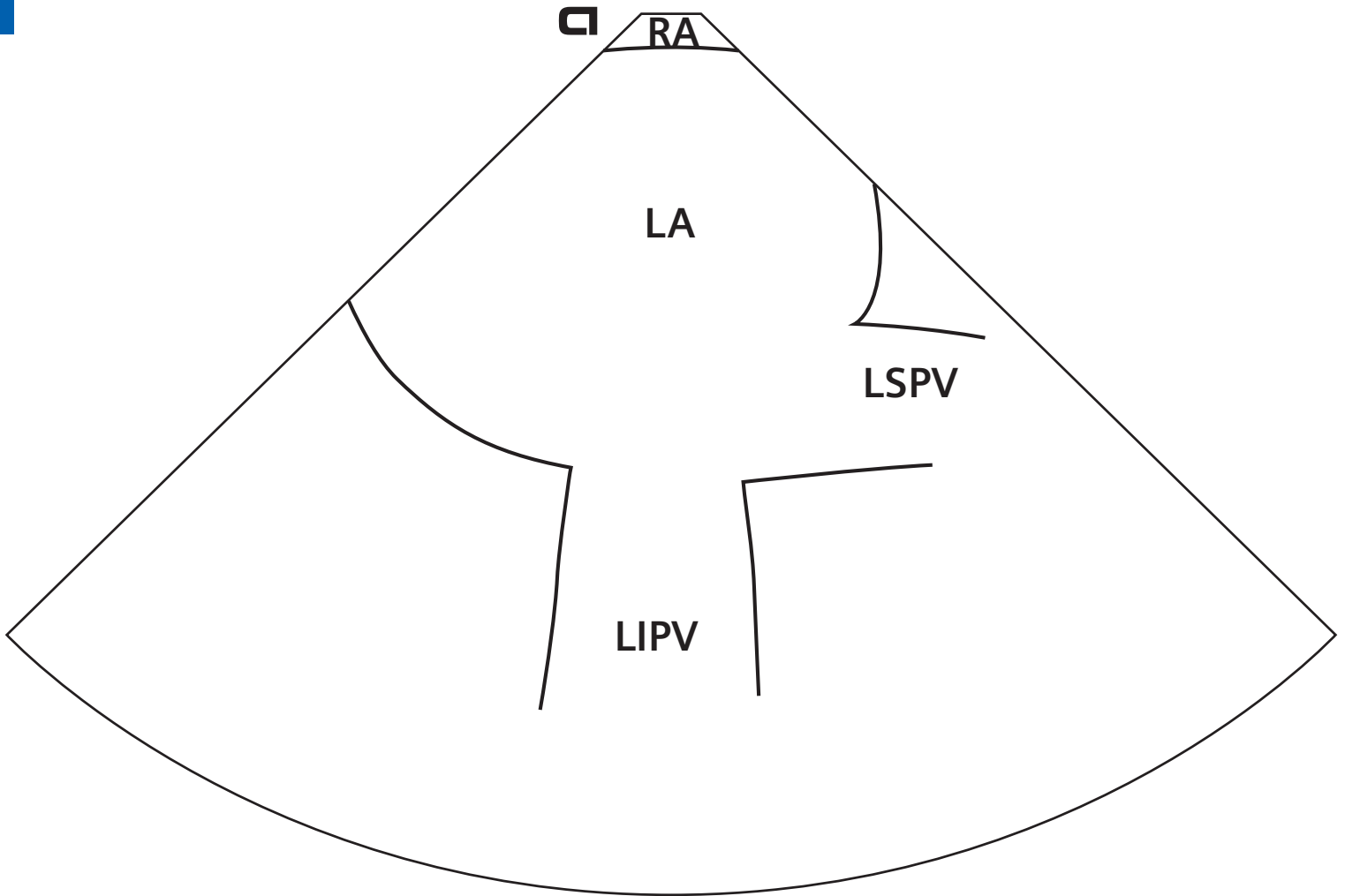
Intra-atrial Septum, Fossa Ovalis



Intra-atrial Septum, Fossa Ovalis

- Rotate the catheter clockwise
- May need to advance the catheter or tilt posteriorly to visualize the entire septum and the fossa ovalis
- Use the right/left steer to visualize fossa ovalis if needed
- Use the tension knob to hold this position

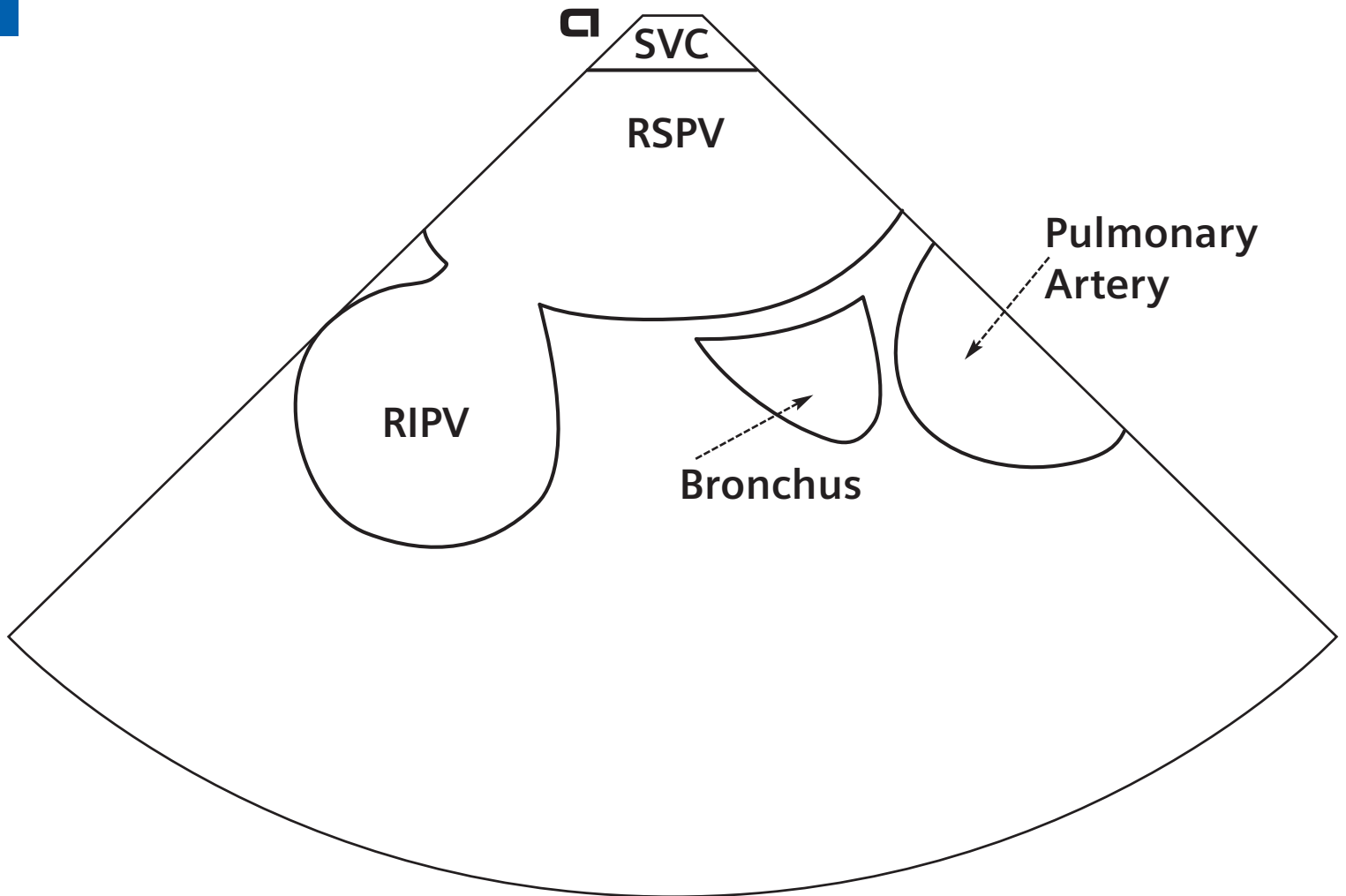
Left Pulmonary Veins



Left Pulmonary Veins

- From the intra-atrial septum, turn the steering and the tension to the off or neutral position
- Advance the catheter to visualize entire left atrium
- The left pulmonary veins can be seen from this view
- Utilize color Doppler to identify the left pulmonary veins

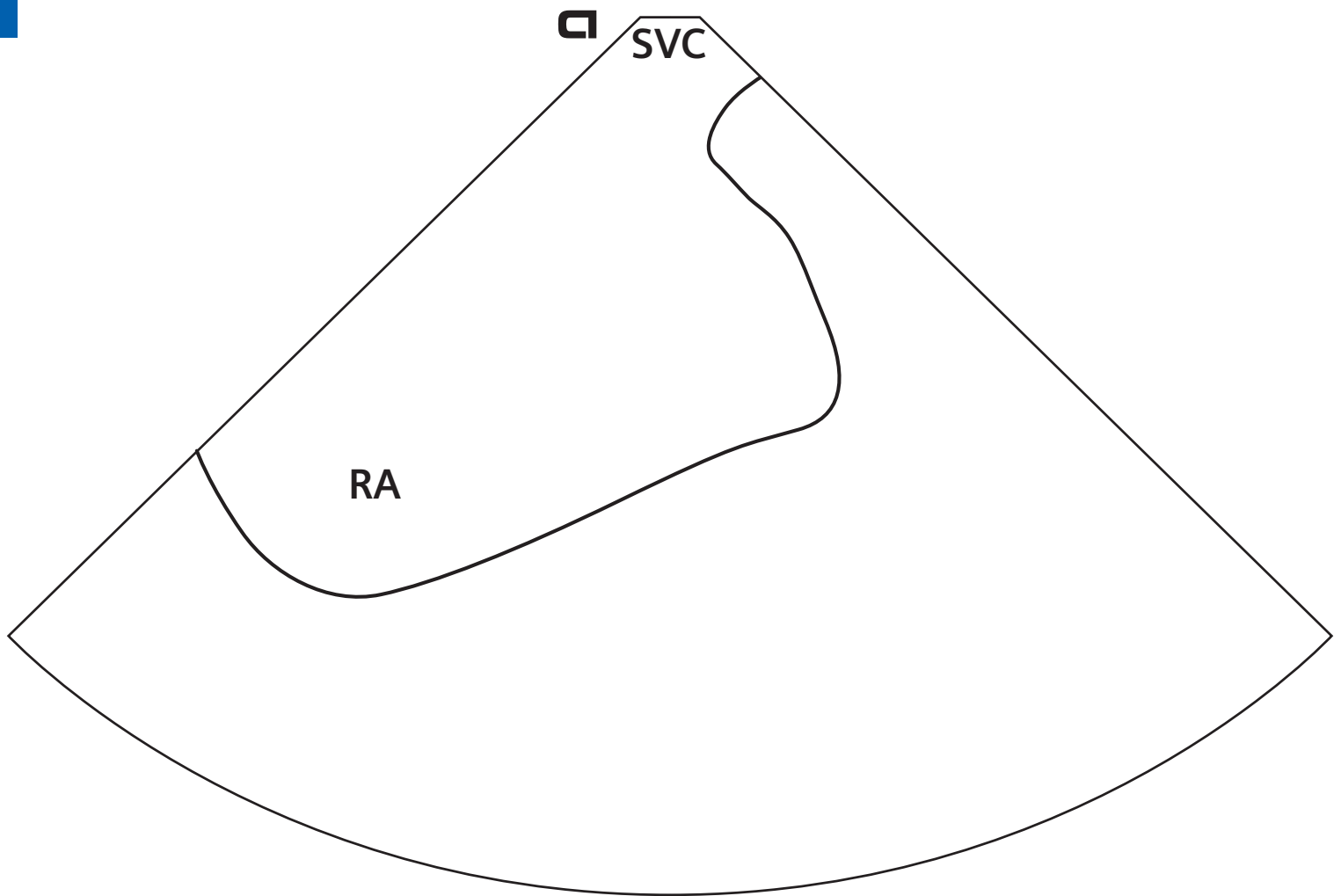
Right Pulmonary Veins



Right Pulmonary Veins

- Rotate the catheter clockwise past the left pulmonary veins
- Advance the catheter (may require advancing in to the superior vena cava)
- The right pulmonary veins can be seen from this view
- Right inferior and superior veins will appear in a cross-sectional view
- Use the left/right steer to obtain the long axis of the right pulmonary veins

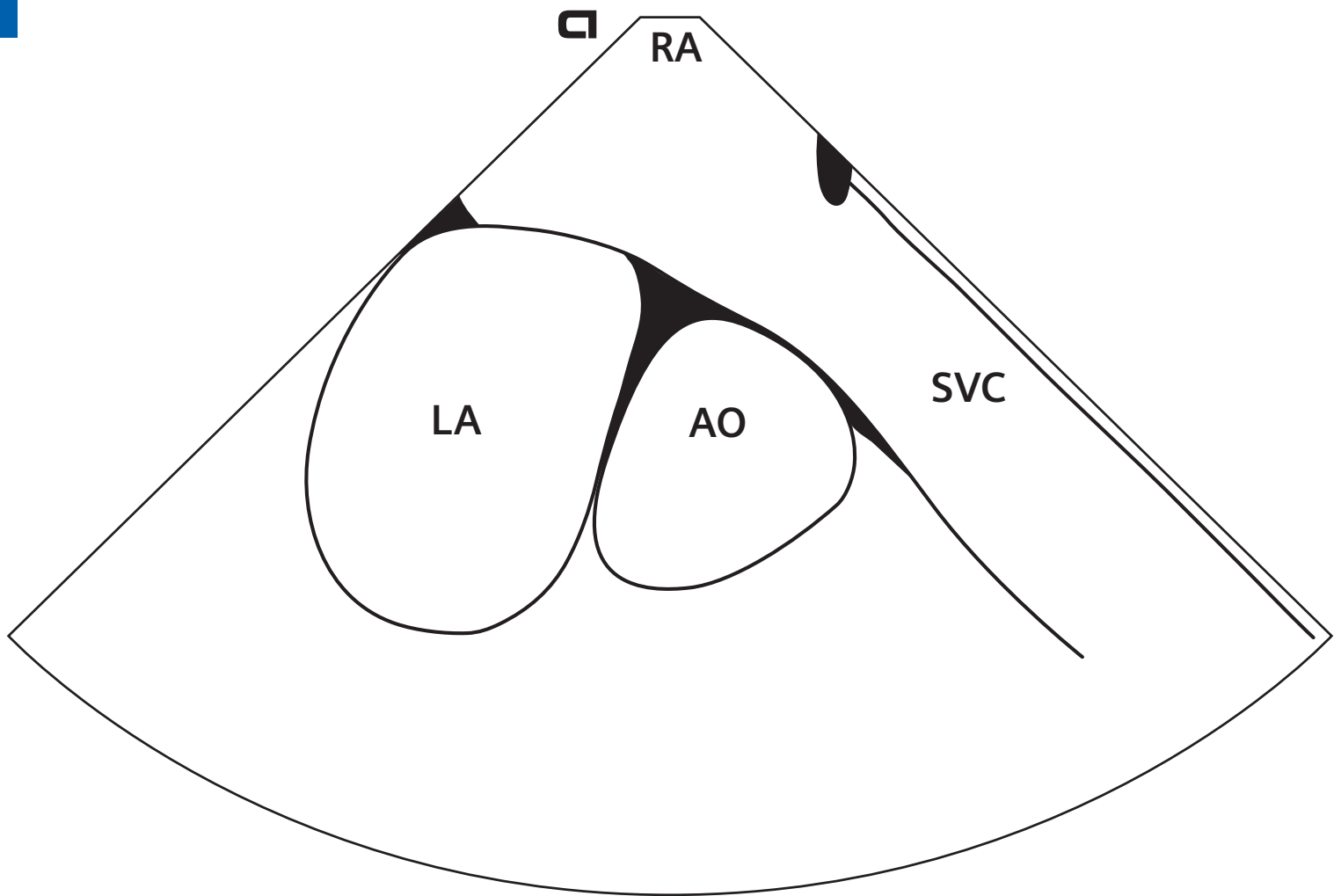
Superior Vena Cava, Right Atrial Junction



Superior Vena Cava, Right Atrial Junction

- Rotate the catheter counterclockwise until you reach the "Home View"
- The catheter should be positioned in the mid-high right atrium
- Tilt the catheter posteriorly

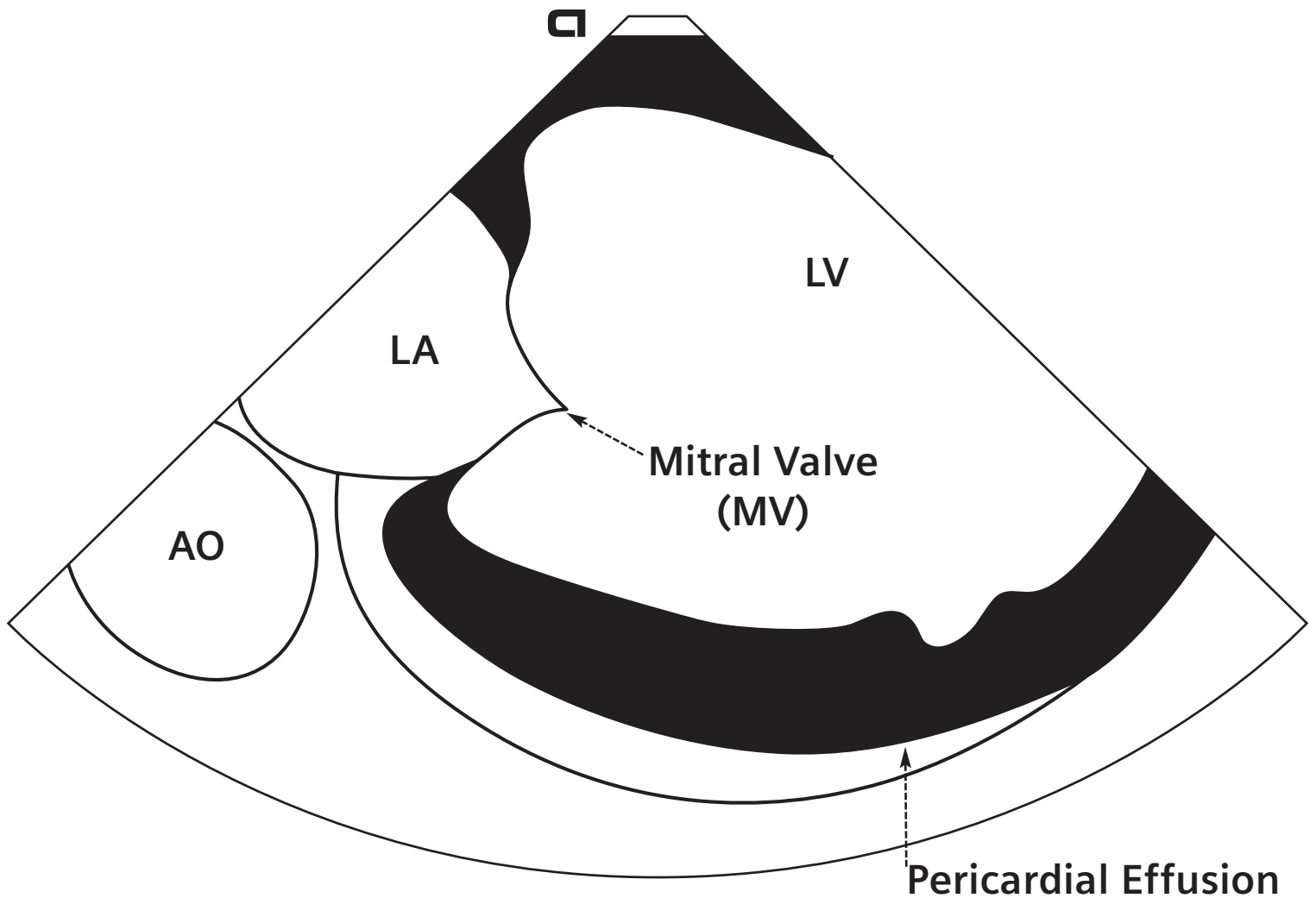
Intra-atrial Septum, Superior Vena Cava



Intra-atrial Septum, Superior Vena Cava

- Withdraw the catheter to the inferior right atrium
- Tilt the catheter posteriorly
- Slight right steer

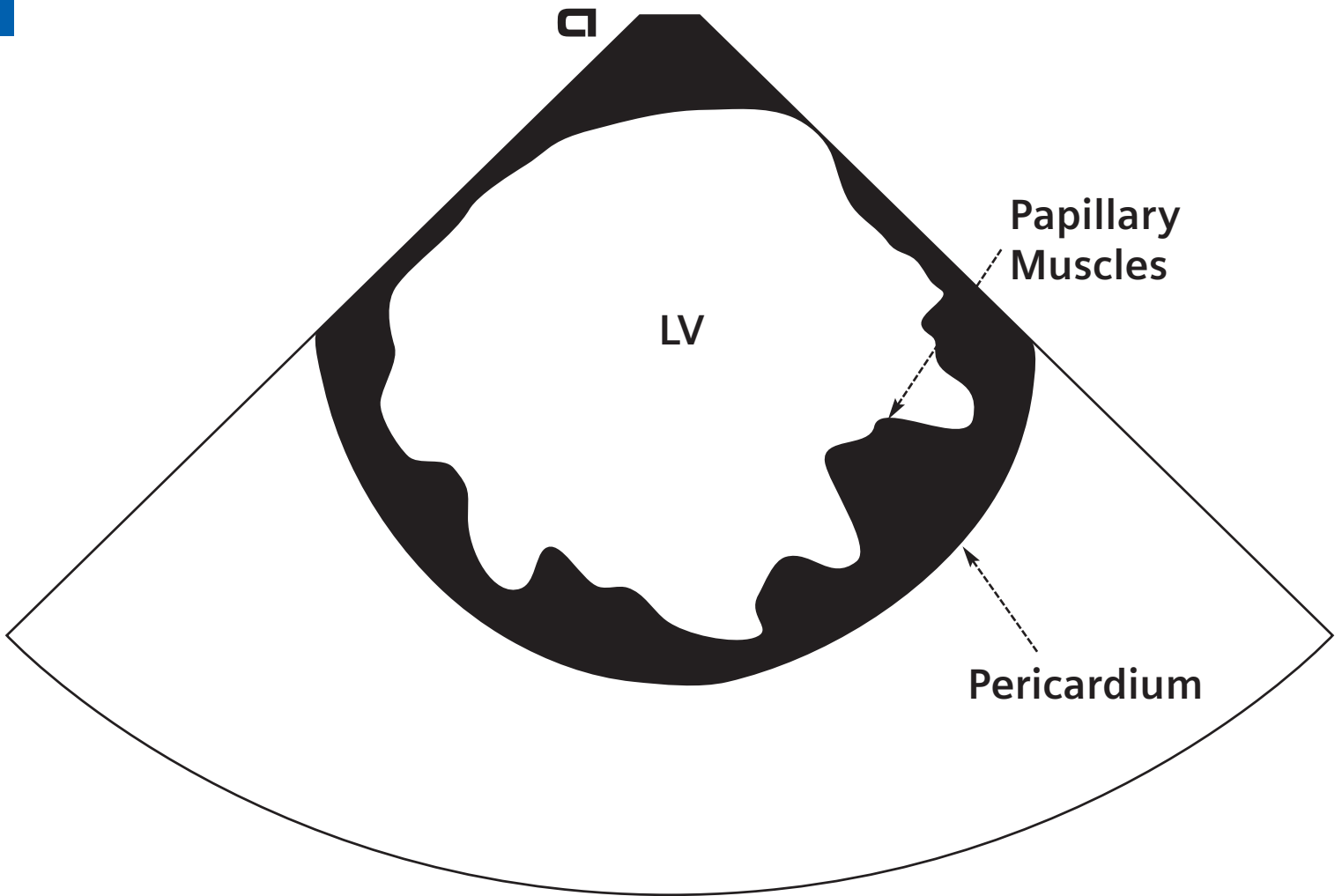
Left Ventricle Long Axis



Left Ventricle Long Axis

- From the "Home View", withdraw the catheter to the inferior right atrium so that the eustachian ridge is in view
- Tilt the catheter anteriorly
- Advance the catheter past the tricuspid valve annulus into the right ventricle
- Rotate the catheter clockwise to visualize the intra-ventricular septum

Left Ventricle Short Axis



Left Ventricle Short Axis

- From the left ventricle long axis view, use the right/left steering knob until short axis of left ventricle is visualized

Siemens **Medical**
Solutions that help

Siemens AG Medical Solutions
Henkestrasse 127
D-91052 Erlangen
Germany
Tel: +49 9131 84-0

www.SiemensMedical.com

Siemens Medical Solutions USA, Inc.
Ultrasound Division Headquarters
P.O. Box 7393
Mountain View, CA 94039-7393 USA
Tel: (1) 800-228-4128
From outside the USA: +1 800-228-4128

Europe: +44 20 8479 7950
Asia Pacific: +65 6341 0990
Latin America: +1 786 845 0697

Siemens Medical Solutions USA, Inc.
Ultrasound Division
P.O. Box 7002
Issaquah, WA 98027-7002 USA
Tel: (1) 800-367-3569
From outside the USA: +1 425-557-8704

© 2003 Siemens Medical
Solutions USA, Inc.

A91004-M2410-B201-1-4A00
Printed in USA
DB 0803 5.0