SUMMER/FALL 2012

Welcome to the newsletter created just for you: sonographers who perform pediatric echocardiograms in a primarily adult echo lab and for interested referring physicians. Each issue features tips on echocardiography of congenital heart disease, short case reports, congenital heart center news, and information on upcoming educational programs.

We send this newsletter as an electronic file each quarter. If you or any of your colleagues would like to be on our distribution list, please send an email to:

gregory.b.frary@osfhealthcare.org

Please include your name and facility affiliation.

Copies of all of our newsletters can also be accessed on our website at www.childrenshospitalofil.org Click on "Congenital Heart Center" on the right side, then click on "Sonographer Newsletters" on the right side.

We want you to be successful in performing studies even on newborns that may have critical heart disease. After all, prompt diagnosis and emergency treatment will yield the best outcome for our patients. If you have any questions regarding necessary views or anatomy while doing an emergent echo, please call the Congenital Heart Center "on call" cardiologist. They will always be glad to speak with you. The "on call" cardiologist can be reached by calling 309.655.7257.

Thank you for your efforts to provide the best diagnostic images for children and adults suspected with congenital heart disease. We look forward to hearing from you!

Sonographer Tip:

Determining Aortic Arch Orientation (Arch Sidedness)

Determining aortic arch sidedness (normal left arch versus abnormal right aortic arch) is an additional critical step in a complete echocardiogram for congenital heart disease. There are many reasons for knowing the position of the aortic arch. Most of the reasons are for determining the surgeon's approach to repair of certain vascular anomalies. The most common anomaly is that of

persistent arterial duct (PDA) ligation. It is necessary to know the arch sidedness for repair of a coarctation of the aorta. Tracheal and/or esophageal surgical repairs can be complicated by not knowing the aortic arch anatomy. It is the sonographers' responsibility to perform a continuous sweep from the ascending aorta to the first branch of the aortic arch (innominate artery) and show it coursing to the **right** side of the patient. This shows that the patient has a **left** aortic arch. The sweep then continues up the innominate artery to show its bifurcation into the right common carotid (RCA) and right subclavian artery (RSA). If you cannot demonstrate this bifurcation to the RSA and RCA, you must consider anomalous origin of the right subclavian artery.

A **right** aortic arch is demonstrated if the first branch of the aortic arch courses to the patients **left**. You must then demonstrate its bifurcation to the left common carotid artery (LCA) and the left subclavian artery (LSA). If you cannot demonstrate this bifurcation to the LSA and LCA, you must consider anomalous origin of the left subclavian artery. In this case, a vascular ring may also be present.

Sequence of the Arch Sweep

First…. **The thymus gland is our friend**. The thymus gland is a specialized organ of the immune system, and is largest during the neonatal and pre-adolescent years. The thymus tissue atrophies in the teens and later years. The thymus gland is located anatomically in the anterior superior mediastinum, in front of the heart and behind the sternum.Thymus tissue is an excellent ultrasound transmitter, and usually allows a nice acoustic window in the suprasternal notch area. See Figure 1

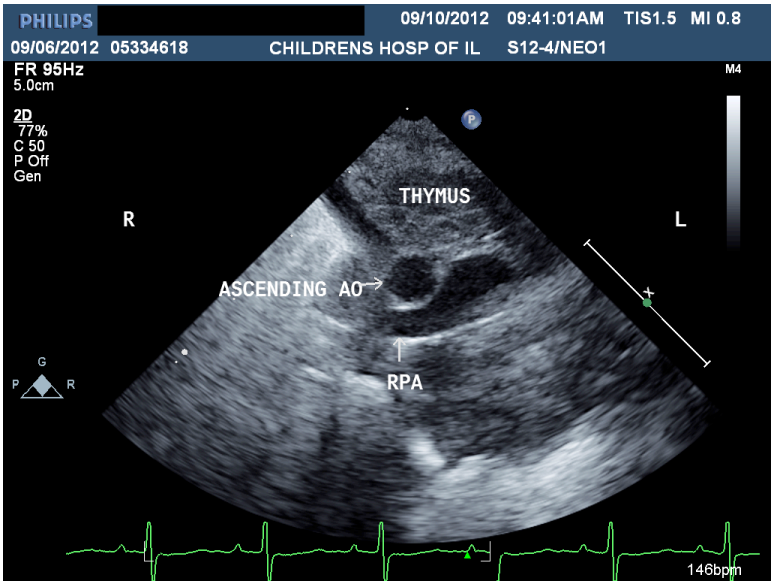

Figure 1

Your clip length should be set for maximum time or maximum beats to show the entire sweep duration.

•Begin in the suprasternal notch short axis view. This should show the ascending aorta in cross section with the long axis of the right pulmonary artery below it. This is to establish the patients' left-right orientation. See Figure 1.

- Slowly sweep superiorly towards the patient's head. In a normal **left** aortic arch, the first vessel arising from the aortic arch (innominate artery) will course to the patient's **right** side. At this point, rotate the transducer slightly clockwise to bring the innominate artery into the long axis orientation.
- Continue the sweep towards the patient's right side. You should now see the innominate artery branch superiorly into the right carotid artery and more rightward and laterally into the right subclavian artery. This completes the sweep. See Figure 2

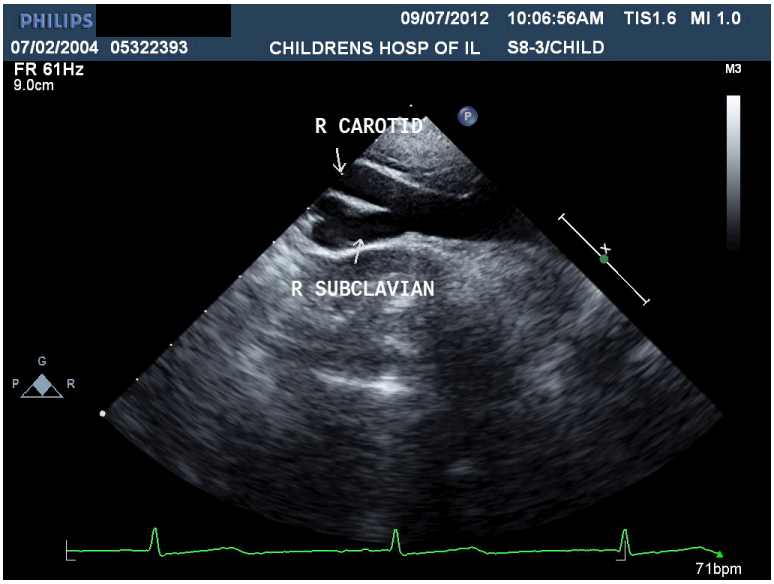

Figure 2

Click on this link to see a real time demonstration of the aortic arch sweep.

http://www.youtube.com/watch?v=EDF3rFwdCmQ&feature=youtu.be