

## Vascular Ring Imaging Ten Years' Experience

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### **Background:**

Airways obstruction and stridor are common in children, a portion of these are caused by abnormalities in the embryologic development of the aorta and pulmonary arteries, known as vascular rings and slings. In most centers Computerized Tomographic Angiography (CTA) is used to evaluate these abnormalities. Recently we have begun performing MRI/A instead of CTA in order to avoid ionizing radiation exposure and iodinated contrast administration.

### **Aim:**

The goal of this work is to summarize our experience in imaging of vascular rings both by CT and MRI.

### **Methods:**

A retrospective analysis of imaging data from January 2002 to October 2012 was performed. The study group included 35 patients with suspected aortic arch abnormalities by either physical examination and/or echocardiography, including fetal echocardiography (age range: 2 days-41 years, mean age: 63 months; weight range 3.1 kg-57). Seventeen patients were scanned using CTA and eighteen patients using MRI/A. All the studies were supervised and interpreted by a dedicated team of a cardiologist and a radiologist for detecting cardiovascular and extravascular abnormalities.

### **Results:**

Among the CTA (N=17), 10/17 patients had a vascular ring associated with double aortic arch, 5/17 had right aortic arch with aberrant Lt subclavian artery. Among the MRI/A (N=18); 7/18 patients had vascular ring associated with double aortic arch. 11/18 patients had vascular ring associated with right aortic arch and aberrant Lt subclavian. Both CTA and MRI/A findings were confirmed by the operative findings. No difference was found in the accuracy of pre-operative diagnosis between CTA or MRI/A findings.

### **Conclusion:**

Cardiac MRI/A and CTA are comparable modalities for evaluating vascular rings. In our experience MRI/A, is a non-inferior imaging modality compared to CTA, not exposing the patients to the inherent risks of ionizing radiation and iodinated administration.