**Isolated Persistent Fifth Aortic Arch**

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**Abstract**

**Background**

A persistent fifth aortic arch is considered a rare congenital finding and its embryologic development in humans remains controversial. Until 2015, only sixty-two cases have been reported within the literature, where forty are described as a proximal-to-distal aortic connection, and twenty-two are described as an aortic-to-pulmonary connection. Almost all of these reported cases are associated with other congenital heart defects; most commonly described in the setting of pulmonary atresia or interrupted aortic arch.

**Case Description**

The patient is a preterm infant girl of twin gestation (monochorionic diamniotic) induced at 34 weeks to a healthy 24 year-old mother due to increased velocity of both umbilical arteries. Upon delivery, no significant resuscitation was required, nor was she noted to have any dysmorphic features.

On day of life 2, she was noted to have a soft systolic murmur which persisted and an echocardiogram was completed on day of life 5. This revealed a persistence of the fifth aortic arch (4 mm in diameter) arising from the ascending aorta (proximal to the innominate artery) continuous with the descending aorta and inferior to the true left aortic arch (4 mm in diameter, **Figure 1**). There was no significant obstruction. Other findings included a small atrial septal defect (ASD), small patent ductus arteriosus (PDA) with minimal left to right shunt, and no other intra-cardiac or extra-cardiac anomalies.

Her NICU course was uneventful, and she was dismissed with outpatient follow-up demonstrating normal growth and development. She has had serial echocardiograms showing closure of the PDA and no true aortic arch obstruction.

**Conclusion**

This case illustrates that patients can present with a persistent fifth aortic arch without significant congenital heart defects or genetic syndromes. In comparison to published case reports, this isolated presentation may have a much lower incidence, or due to its inconsequential nature may be underdiagnosed and therefore underrepresented in the published literature.

**Figures**

Figure 1: (A) 2D images from the suprasternal notch demonstrating the persistent fifth aortic arch (\*) inferior to the true aortic arch (#). (B) Color flow and Doppler showing no significant obstruction.

**FIGURE 1**

