



The aortic valve (AV) has been used as a surrogate marker for the superior vena cava-right atrium (SVC-RA) junction during the placement of central venous catheters” Hinton et al (2019).

Abstract:

**INTRODUCTION:** The aortic valve (AV) has been used as a surrogate marker for the superior vena cava-right atrium (SVC-RA) junction during the placement of central venous catheters. There is a paucity of evidence to determine whether this is a consistent finding in children.

**MATERIAL AND METHODS:** Eighty-seven Computed Tomography (CT) scans of the thorax acquired at local children’s hospitals from April 2010 to September 2011 were retrospectively collected. The distance between the SVC-RA junction and the AV was measured by dual consensus. The cranio-caudal level of the junction and the AV were referenced to the costal cartilages (CCs) and anterior intercostal spaces (ICSs).

**RESULTS:** The results confirmed that the SVC-RA junction has a variable relationship to the AV. The junction was on average 3.1 mm superior the AV. This distance increased with age. In the <1 year-old age group the junction was on average 1.3 mm superior to the AV (range: -6 to 11 mm). In the 1-2 years-old age group: 3.5 mm (range: -8 to 15 mm). In the 3-6 years-old: 3.8 mm (range: -9 to 13 mm). In the >7 years-old age group: 4 mm (range: -11 to 16 mm). The surface anatomy of the SVC-RA junction was variable, ranging from the 2nd ICS to 6th CC.

CONCLUSION: The SVC-RA junction has a predictable relationship to the AV, and this can be used as an adjunct marker for accurate placement of central venous catheters except in the smallest neonates.

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### Reference:

Hinton, L., Fisher, N.J., Taghavi, K., O'Hagan, L.A. and Mirjalili, S.A. (2019) Pediatric Central Venous Catheterization: the Role of the Aortic Valve in Defining the Superior Vena Cava-Right Atrium Junction. *Clinical Anatomy*. May 6th. . doi: 10.1002/ca.23399.

