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Sequential Segmental Analysis of the Congenitally Malformed Heart

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Description

All congenitally malformed hearts, like normal hearts, have three building blocks, namely the atrial chambers, the ventricular mass, and the arterial trunks. Initial approaches to description and categorization were based on the need to recognize the limited potential for variation in each of these so-called cardiac segments [1-4]. When some of us sought to modify these early approaches [5], our failure to recognize the fact that the terms concordance and discordance had been used to describe harmony or disharmony between the segments, rather than the fashion in which the components were joined, or not joined, together led to decades of ongoing controversy. The initial use of concordance and discordance to account for the relations between the topological arrangement of the segments [1,2] was reasonable, because at that time it was difficult to be sure of how, for example, the cavities of the atrial and ventricular chambers were joined across the atrioventricular junctions. The development of cross-sectional echocardiography changed all that. Thus, when the concept of sequential segmental analysis was promoted [5], attention was concentrated on the potential anatomic variations across the atrioventricular and ventriculoarterial junctions [5]. Junction connections, of course, cannot be established without knowledge of segmental topology, so the arrangements within the segments remained the starting point for analysis. As intimated above, the reason for subsequent dissent came because concordance and discordance were used specifically to define the feature now known as “connections,” using these terms to distinguish these variants from other arrangements such as double inlet or double outlet [5].

Within the original concept, however, patients having double inlet left ventricle within the segmental combination codified were also described as exhibiting atrioventricular concordance [1,4]. One of the fundamental differences between the usual heart and the heart showing double inlet left ventricle, nonetheless, lies in the way that the atrial cavities join the ventricular cavities across the atrioventricular junctions. We now overcome these conceptual difficulties between the segmental and sequential segmental approaches by avoiding the use of “concordance” and “discordance” to describe the fashion in which cavities are joined together across the atrioventricular and ventriculoarterial junctions. Instead, we specify the existence of concordant or discordant connections. Sequential segmental analysis, therefore, has evolved with the passage of time [5,6]. Despite the changes, it continues to follow its initial basic and simple rules. Morphology, connections, and relations of the segmental components are recognized as three individual facets of the cardiac make-up. Clarity in describing these features is considered more important than brevity. It is the desire to achieve optimal clarity that has led to the changes in descriptions made during the process of evolution. No apologies are made for these changes, made in response to valid criticisms, which have eradicated initially illogical points from the system to its advantage. Should further illogicalities become apparent, they will similarly be extirpated.

Segmental analysis depends on the ability to distinguish the morphology of the individual atrial and ventricular chambers, and to recognize the nature of the arterial trunks taking origin from the ventricular mass. This is not as it may seem, because when the heart is congenitally malformed, these chambers or arterial trunks may lack some of the morphologic features that most obviously characterize them in the normal heart. For example, the most obvious feature of the morphologically left atrium in the normal heart is its connection to the pulmonary veins. In hearts with totally anomalous pulmonary venous connection, these veins connect to extra cardiac sites, yet it is still possible to recognize the remnant of the left atrium.

It was considerations of this type that prompted the establishment of the concept now used to underpin the recognition of the cardiac chambers and great arteries, which is known as the morphologic method.

The principle states that cardiac structures should be recognized in terms of their intrinsic morphology, one part of the heart not being defined in terms of other structures that are themselves variable.

Conclusion

While applying this idea to the atrial chambers, the associations of the incredible veins are quickly precluded as markers of morphological rightness or leftness, just on the grounds that the veins don't generally interface with their normal atrial chamber. Septal morphology is of little assistance when the actual septum is missing, and the atrial vestibule is precluded as a marker since it is normally ailing in hearts with atrioventricular valvar atresia. Luckily, there is one more part of the atrial chambers that is all around present, specifically the extremity. When decided on the degree of its contained pectinate muscles, this component consistently recognizes morphologically both ways atrial limbs.

References

1. Van Praagh R, Ongley PA, Swan HJC (1964) Anatomic types of single or common ventricle in man: morphologic and geometric aspects of sixty necropsied cases. Am J Cardiol 13(3):367–86.
2. Van Praagh R, Van Praagh S, Vlad P, Keith JD (1964) Anatomic types of congenital dextrocardia. Diagnostic and embryologic implications. Am J Cardiol 13(4):510–31.
3. de la Cruz MV, Nadal-Ginard B (1972) Rules for the diagnosis of visceral situs, truncoconal morphologies and ventricular inversions. Am Heart J 84(1):19–32.

4. Van Praagh R (1972) The segmental approach to diagnosis in congenital heart disease. Birth Defects 8:4–23.
5. Shinebourne EA, Macartney FJ, Anderson RH. (1976) Sequential chamber localization: the logical approach to diagnosis in congenital heart disease. Br Heart J 38(4):327–40.
6. Anderson RH, Ho SY (1997) Sequential segmental analysis- description and categorization for the millenium. Cardiol Young 7(1):98.