Always keep an open mind

Victor Tsang, MD

From the Cardiothoracic Unit, Great Ormond Street Hospital, London, United Kingdom.

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Address for reprints: Victor Tsang, MD, Cardiothoracic Unit, Great Ormond St Hospital, Great Ormond St, London WC1N 3JH, United Kingdom (E-mail: victor.tsang@gosh.nhs.uk).

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Central Message

Can the creative impulse in the adaptation of the original Leiden Convention used for patients with transposition of the great arteries to patients with “normal” cardiac anatomy change practice?

See Article page 2260.

During the past decades, several nomenclatures have been presented to classify the coronary artery anatomy in patients with transposition of the great arteries (TGA). In this issue of the *Journal*, Gittenberger-de Groot and colleagues¹ have proposed a modified version of the widely used Leiden Convention. The purpose of the modification is to extend the use of Leiden Convention from the TGA setting into the setting of a bicuspid aortic valve and normally related great arteries. It would also take into account the number of arterial orifices leaving the single coronary sinus and whether there is an interarterial or intramural course of the anomalous coronary artery.

The original Leiden Convention (sinus 1, sinus 2, and nonfacing sinus, etc), a hallmark of simplicity for complexity, is more understandable than the other presented classifications (like Yacoub types A-D, etc). The “new” issue in the “modified” version, however, is the use of a comma when there are 2 orifices in the 1 sinus and an asterisk when the coronary artery has an interarterial or intramural course.

In real life, a baby with TGA was admitted to the cardiac ward at night. An unusual coronary configuration was identified. The telephone conversation with the cardiology fellow included, “And the coronary anatomy [based on the original Leiden Convention] was 2LCxR.” The left and right coronary arteries came from sinus 2, with an intramural left coronary artery crossing the posterior commissure. It was clear, with a good description of the risky nature of arterial switch and coronary transfer. In the modified version, this would be coded as 2LCx*,R. Try to imagine how we could translate this very important message over the telephone at night!

Intramural or interarterial coronary artery is a rare lesion, even in the setting of TGA. If the modified coding is not routinely used, there may be a risk of miscoding at the source and misinterpretation at the receiving end. Similar

concerns apply to the modified coding system in structurally normal hearts, with an estimated incidence of rare coronary anomalies ranging between 0.1% and 1%. The comma and asterisk are not that intuitive, and at times they may be counterproductive. In the context of the coronary arterial pattern on bicuspid aortic valve, the uncertainty of the presence or absence of a commissure or raphe before surgery adds to the questionable benefit of the modified Leiden Convention. The new coding system, however, may still be useful in an audit process.

This is a reasonable attempt to modify an original coding system with simple and effective translation into an arbitrary system for the purpose of capturing the wider spectrum of coronary anomalies. One can argue that this study earns to be published in the *Journal* so that it gets visibility and can receive feedback in time from practicing surgeons and cardiologists as to whether the modification is fit for purpose, as a clinically meaningful and easily adopted coding system for the rare and complex coronary artery anatomy, especially in structurally normal hearts.

Reference

1. Gittenberger-de Groot AC, Koenraadt WM, Bartelings MM, Bökenkamp R, DeRuiter MC, Hazekamp MG, et al. Coding of coronary arterial origin and branching in congenital heart disease: the modified Leiden Convention. *J Thorac Cardiovasc Surg*. 2018;156:2260-9.