Demolishing the Tower of Babel

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Received 20 September 2011; accepted 27 September 2011

Keywords: Aortic root • Aortic valve • Leaflets • Sinuses

When writing ‘Through the Looking Glass’, Charles Dodgson, better known as Lewis Carroll, and himself a philosophy don at the University of Oxford, has Humpty Dumpty stating ‘When I use a word, it means just what I choose it to mean – neither more nor less’. Alice is somewhat taken back by this statement, and asks whether it is possible to make words mean so many different things? Humpty Dumpty simply responds ‘The question is, which is to be the master – that’s all’. The exchange is particularly pertinent to the review in which the Working Group for Aortic Valve Surgery of the German Society of Thoracic and Cardiovascular Surgery discuss the current state-of-affairs concerning definitions of the aortic root [1]. Not unreasonably, as based on the results of their excellent questionnaire, they liken the current situation to the Tower of Babel. It is to be hoped that their equally excellent suggestions for the appropriate use of terms will now lead to the demolishing of the current tower. As they point out in their introduction, the appropriate and uniform use of words has become crucial in the current era, since failure to use standardized and consistent definitions has now been shown to jeopardize the quality of gathered data [2]. It is difficult to argue, therefore, with the conclusion of their summary, stating that stringent adoption of consistent and standardized definitions for the components of the aortic root will be essential if we are to take full advantage of the tools available in this modern era for collection of data and analysis of surgical management.

Previously, we could not be sure of the extent of the disagreement among surgeons concerning the words used to describe the components of the aortic root. It is an amazing achievement, therefore, for the Working Group to have collected and collated responses from over 500 cardiac surgeons working in all continents of the World. It is equally amazing, to me, to see the discrepancies amongst the responses. The disparity shows that we have a long way to go before we achieve the consensus rightly demanded by the members of the Working Group. It is gratifying, nonetheless, to note that the responses of the responders largely endorse the recommendations made recently in the joint editorial prepared by Robert Frater and myself [3], albeit that the almost as many responders hold contrary views.

With regard to differences concerning ‘leaflet’ as opposed to ‘cusps’, these are of minimal consequence, since those favouring neither of the terms individually are happy to use them as synonyms. As the Working Group points out, nonetheless, ‘leaflet’ is to be favoured from the stance of etymology. There is then the added advantage that it is now generally accepted that the moving units of the atrioventricular valves should also be described as leaflets. It is more concerning to note the discrepancies relating to the description of the semilunar hinges of the leaflets within the aortic root. I had always presumed that all surgeons considered the remnants of these hinges, having removed the valvar leaflets, as representing the enigmatic ‘annulus’. As the results of the questionnaire show, this is far from the case. The Working Group make a strong case for following the lead of echocardiographers, and defining as the annulus the virtual ring created by joining together the nadirs of the valvar attachments. This is to be preferred in the sense that this plane represents the diameter of a true ring. It remains the case, nonetheless, that in the absence of strict anatomical landmarks, the surgeon can never be sure of where the echocardiographer has made his or her measurements. A strong case can surely be made, therefore, for simply describing the plane as the diameter of the entrance to the aortic root, but it is highly unlikely that ‘annulus’ will disappear from the surgical lexicon, so the solution offered by the working group has much to commend it, not least that this was also the definition that Robert Frater persuaded me as offering the best option for our own editorial [3].

The same goes for the suggested definition of ‘commissure’. In this regard, however, I am surprised that the Working Group did not request an opinion for the best way of describing the overall zone of apposition of the valvar leaflets between the peripheral commissures and the valvar centroid. It is surely the snug apposition of the valvar leaflets along these junctions which is the key to valvar competence? All surgeons will check the extent or deficiency of such apposition when assessing diseased valves in terms of their potential repair as opposed to replacement. I would suggest that the junctions need to be recognized, and can be described simply as the zones of apposition. It then follows that there will be three such zones in the normal constructed valve, but only one in the setting of the bifoliate or bicuspid valve, albeit extending across the full diameter of the aortic root. There will also be but one zone of apposition in the so-called unicuspid and unicommissural valve, but with the difference that in this setting the zone of apposition is typically positioned eccentrically within the narrowed root. Attention to such details can aid markedly in understanding the structure of the normal as opposed to the diseased aortic root.

I congratulate the Working Group in providing such an excellent guide to the description of the aortic root. Based as it is on
evidence, and on logic, it is to be hoped that those who may have submitted different responses will now follow the opinions of the majority. In this context, we should also note that majority consider the valve itself to be composed only of the leaflets. This is, perhaps, the most surprising outcome to me of the entire questionnaire, since as the Group point out in their discussion, disease processes involving the root extend well beyond the moving components. An alternative, of course, is again to use the example of the atrioventricular valves [4], and to describe the aortic valvar complex. It is equally logical, and much simpler, to follow the recommendation of the Working Group, and to describe the aortic root.

REFERENCES