

All that glitters is not gold

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Mister Hugh H Bentall was an innovative cardiothoracic surgeon, participating in the first cardiopulmonary bypass cases in Europe [1] and inventing potassium cardioplegia [2]. He also was an expert on 18th century English tall-case clocks (Figure 1) and an excellent educator at the Royal Postgraduate Medical School, Hammersmith Hospital, London. But it was his invention of composite aortic valve-root conduit replacement [3] that sustains his name in current clinical practice almost 60 years later. Most of us learned about his operation in the 1970s, and it has been a mainstay of cardiac surgery for the past half-century. The procedure, however, is limited by its inclusion of a valve prosthesis in the aortic position, with consequent valve-related complications. One might argue that the Bentall procedure should no longer be considered the “gold standard” treatment for aortic root aneurysms. The excellent follow-up data presented in the current issue by the Katowice group would support this view.

In assessing outcomes in 204 patients with aortic root aneurysms managed surgically over a 10-year period, Gocol and associates [4] have contributed importantly to current knowledge. It is appropriate to start with a comment about the biostatistics used in this

*“All that glitters is not gold —
Often have you heard that told.
Many a man his life hath sold
But my outside to behold.
Gilded tombs do worms enfold.
Had you been as wise as bold,
Young in limbs, in judgment old,
Your answer had not been inscrolled
Fare you well. Your suit is cold”*

William Shakespeare,
Merchant of Venice, Act II Scene 7

study. Single-center series have advantages, primarily related to detailed understanding by the authors of every aspect of each patient's course. The disadvantage, of course, is a small sample size. With only 23 deaths, 6 reoperations, and 30 other events in the entire study, any multivariable analysis could only support 2–3 variables — an inadequate number for proper risk adjustment (and the full multivariable model is never presented). However, a descriptive review of the data always is valuable, and several concepts are evident in this series. First, selection bias is present with older patients being selected for bio-Bentall procedures, which is standard. Without a proper multivariable analysis, much of the inferior survival associated with bio-Bentall operations could have been related to older age at baseline. However, tissue valves tend to deteriorate faster beyond 10 years, so even more significant decrements in bio-Bentall outcomes are likely past the duration of this study.

The most striking finding of this analysis is the dearth of valve-related complications after aortic valve repair (valve-sparing root replacement). This observation is consistent with other reports [5, 6], and if a composite major adverse cardiac event (MACE) outcome



Figure 1. London tall-case clock from 1770 selected by Mr. Bentall for the author in 1986 — still gracing the author's entry hall almost 40 years later while keeping perfect time

were to be analyzed [7], valve repair likely would win hands down. Moreover, the mechanical Bentall group was younger, so proper risk adjustment might have lowered associated survival, and especially with longer follow-up, accumulating valve-related complications might have compromised survival [8]. So, the data clearly suggest the superiority of valve repair for aortic root aneurysms, as compared to Bentall procedures employing either type of prosthetic valve. The Katowice group should be complemented on achieving an approximately 50% repair rate in their series. Even in experienced centers, the rule is 27% repair for aortic insufficiency [9, 10] in recent years. However, the goal of cardiac surgical practice now should be to increase repair rates for all patients with aortic insufficiency toward 90%, as in the case of mitral repair [11]. The advent of aortic ring annuloplasty could help in that regard [12, 13], but expanding aortic valve repair clearly is an appealing next developmental step. In summary, one must conclude that Mister Bentall's reputation and contributions may still "glitter", but his operation no longer is the "gold standard" for management of aortic root aneurysms.

Article information

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