Aortic root replacement, the “gold” standard: All that shines is not gold!

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Composite valve graft replacement of aortic root. Permission of Baylor College of Medicine.

Central Message

When aortic root repair is needed, composite valve graft replacement can be performed with low risk and good long-term results.

See Article page 1041.

In this issue of the *Journal*, Di Marco and colleagues¹ report on a remarkable series of patients undergoing composite valve graft (CVG) replacement for aortic valve and root pathology. Their experience spans 33 years (1978-2010) and analyzes the results of 1045 patients. The classic Bentall operation² was used in 95 patients (9.1%), whereas modified Bentall operations were performed in 24 patients (2.3%) with the Cabrol coronary artery graft interposition technique³ and in 926 patients (88.6%) with the Kouchoukos coronary artery button reattachment technique.⁴ A mechanical CVG was used in 727 cases (69.6%), whereas a biologic CVG was used in 318 (30.4%). Only 55 patients (5.3%) had Marfan syndrome, 127 patients (12.1%) underwent reoperation, and 930 repairs were performed electively (89%). The early results were excellent, with an operative mortality of 5.3% (55 of 1045 patients).

An important contribution by Di Marco and colleagues¹ is their extensive long-term follow-up. Despite a cohort of patients extending across 3 decades, nearly all early survivors (966 of 990 hospital survivors; 97.6%) were available for follow-up, although the mean follow-up time was a modest 62.1 ± 58.6 months. There were 164 late deaths (16.6%), and most were the result of tumor, sudden cardiac death, or stroke. Di Marco and colleagues¹ convincingly point out that patients with aortic dissection had a lower long-term survival than did those without aortic dissection (27.2% vs 43.3% at 20 years of follow-up). With respect to clinical events at 20 years, 90.1% of early survivors remained free of thromboembolic events, 98.4% were free of endocarditis, 90.3% were free of hemorrhagic events, and 91.3% were free of any further aortic reoperation.

Although Di Marco and colleagues¹ report only a small number of patients with Marfan syndrome (5.3%, most of whom received a mechanical CVG), they allude to concerns with aortic valve-sparing approaches to aortic root replacement⁵ and refer to a small study conducted by Fleischer and associates,⁶ who found histologic

abnormalities in the aortic valves of patients with Marfan syndrome, as justification for their avoidance of valve-sparing techniques in such patients. Because their experience ends in 2010, however, and most experienced institutions have shifted to valve-sparing approaches in such patients, it would be reasonable to presume that their contemporary use of valve-sparing techniques has very likely increased. An example detailing this shift would be Price and coworkers,⁷ because their group evaluated 165 adult patients with Marfan syndrome, including 98 patients who underwent valve-sparing repair and 67 patients who underwent a modified Bentall operation. They demonstrated that both procedures could both be done quite safely and with similar late survivals, freedoms from root reoperation, and freedoms from endocarditis; however, Price and coworkers⁷ point out that valve-sparing procedures resulted in significantly fewer thromboembolic and hemorrhagic events, having spared those patients from long-term anticoagulation.

In summary, in this issue of the *Journal*, Price and coworkers,⁷ report one of the largest series detailing CVG replacement of the aortic valve and root disease. Their outstanding results, excellent follow-up, and durability of repair provide a backdrop against which valve-sparing techniques, as well as other surgical alternatives to aortic root repair, can be compared for decades to come.

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City at which
the American
Association
for Thoracic
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founded.

June of 1918,
George Dehelly
of LeHavre,
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approved
as the first
International
Member of the
Association

August 16, 1938,
Robert Gross
performed the
first ligation of
a patent ductus
arteriosus.

In June of 1948,
Dwight Harken
and Charles Bailey
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Commissurotomies.

In July of 1951
William Muller
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pulmonary
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to protect
pulmonary
vasculature.

June 24, 1955,
Denton A. Cooley
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first aortic arch
replacement.

In July
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original
publication,
The Journal of
Thoracic Surgery
was renamed
the Journal of
Thoracic and
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