

# Thoracoabdominal Diseases: Diagnosis and Management from the Root to the Renals

Written by Maria Vinall

## *Aortic Root Endocarditis: When Is Surgery Indicated?*

The overriding consideration when deciding on surgical intervention for aortic root endocarditis, said Gonzalo V. Gonzalez-Stawinski, MD, Cleveland Clinic, Cleveland, OH, must be a reasonable prospect of recovery with satisfactory quality of life. To determine when surgical intervention is indicated, Dr. Gonzalez-Stawinski directed the audience to the 2006 ACC/AHA Guidelines for the Management of Patients with Valvular Heart Disease [*Circulation* 2006;114], which he summarized as follows:

### **Native Endocarditis**

- Surgery is clearly indicated in the presence of aortic stenosis or aortic insufficiency that results in congestive heart failure: aortic or mitral regurgitation with elevated left ventricular end diastolic pressure or volumes, fungal or highly resistant organisms, conduction abnormalities, abscesses, or fistulas
- Surgery is reasonable for recurrent emboli and persistent vegetations despite appropriate antibiotic therapy
- Surgery may be considered for mobile vegetations  $\geq 10$  mm with or without embolization

### **Prosthetic Endocarditis**

- Surgery is indicated for patients in heart failure, rupture or splitting of the prosthesis, left ventricular outflow tract obstruction or worsening regurgitation, or development of complications (ie, abscess)
- Surgery is reasonable for persistent bacteremia or recurrent emboli despite appropriate antibiotic therapy
- Prompt surgical intervention should be undertaken in the presence of worsening aortic insufficiency, hemodynamic deterioration, enlarging vegetations, recurrent embolisms, new cardiac structural abnormalities, or protracted fever/bacteremia despite appropriate medical antibiotic therapy

“In the absence of the above, medical management may be appropriate for a select group of patients,” said Dr. Gonzalez-Stawinski, including uncomplicated prosthetic valve endocarditis caused by first infection with a sensitive organism.

## *Thoracoabdominal Aortic Aneurysm (TAA): When to Refer*

Robert S. Dieter, MD, Loyola University, Maywood, IL, reviewed the types of TAA and suggested criteria that can be used when referring patients for surgery.

### **Ascending Thoracic Aneurysms**

In the absence of special circumstances, such as Loeys-Dietz or Marfan Syndrome, Dr. Dieter suggested that patients with ascending thoracic aneurysms should be referred for resection when the diameter of the aneurysm is  $\geq 5.5$  cm ( $\geq 5$  cm in patients with high risk of aortic rupture, such as Marfan Ehlers-Danlon, or familial thoracic aortic aneurysm) and has a growth rate of  $\geq 0.5$  to 1 cm/year in symptomatic patients [Peripheral Arterial Disease eds Dieter RS, Dieter RA, Jr. Dieter RA III, McGraw-Hill 2009].

*Highlights from the*  
**American College  
of Cardiology 58<sup>th</sup>  
Annual Scientific  
Session**

### Bicuspid Aortic Valve (BAV) Aneurysms

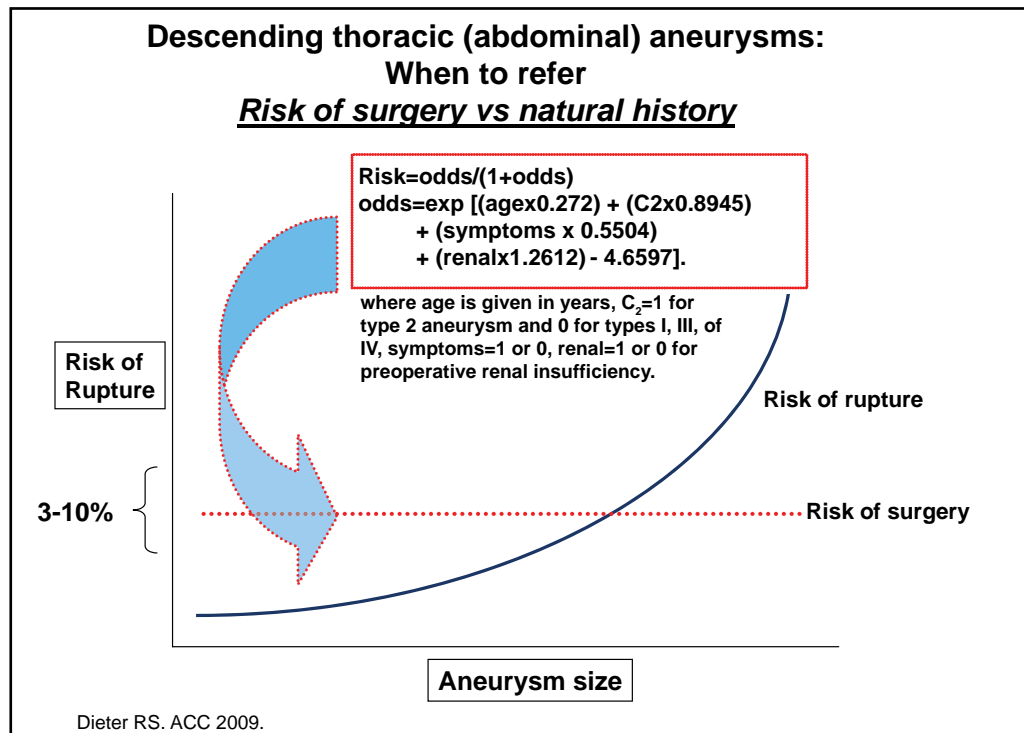
The indications for resection of aneurysms that are associated with a BAV include: [Braverman AC et al. *Curr Probl Cardiol* 2005; Cecconi M et al. *J Cardiovasc Med* (Hagerstown) 2006].

- Aortic diameter >5.0 cm
- Aortic ratio >1.5 or 1.4 in women who wish to become pregnant
- Growth rate >3 mm/yr
- Symptomatic aneurysm
- Large sinus of Valsalva aneurysm associated with BAV
- Patients with BAV undergoing valve replacement for valve dysfunction who have an aortic diameter >4 cm or a ratio >1.4

### Descending Thoracic Aortic Aneurysms

Patients with a descending TAA should be referred for resection if they are symptomatic, the aneurysm is >6 cm and has a growth rate >10 mm/year, and there are symptoms of compression (Figure 1).

**Figure 1. Descending Thoracic (Abdominal) Aneurysms: When to Refer.**



Patients with TAA, regardless of location, should be referred to a cardiovascular surgeon or to an aortic program that comprises clinicians, imaging specialists, and cardiovascular surgeons who are interested in following these patients for the long term.

*Highlights from the  
American College  
of Cardiology 58<sup>th</sup>  
Annual Scientific  
Session*

*Thoracoabdominal Dissections: Traditional and Evolving Management Strategies*

Bruce W. Lytle, MD, Cleveland Clinic, Cleveland, OH, used the results of several studies to provide a framework for understanding the possibilities and risks of endovascular and open surgery for TAAs.

In a comparison of procedure-related perioperative morbidity, mortality, and outcomes between patients who were treated with endovascular stent grafting (n=105) versus open surgical repair (n=93) of the descending aorta, Stone et al [Stone DH et al. *J Vasc Surg* 2006] showed a 50% reduction in mortality for patients in the endovascular group (7.6% vs 15.1% for patients in the open surgery group). The rates of reintervention and spinal cord ischemic (SCI) complications were similar. Although 48-month survival was lower in the endovascular group (54% vs 64% for open surgery patients; p=0.09), Dr. Lytle noted that many of these patients had significant comorbidities, and thus survival often was not related to their cardiovascular disease.

Results from a similar study, but in low-risk patients, showed relatively low 30-day mortality in both groups (2% and 12% in the endovascular and open groups, respectively). Although the stroke rate was similar in both groups (4%), respiratory failure was higher (20% in the open group vs 4% in the endovascular group), and SCI complications were lower in the endovascular group (3% vs 14% in the open group) [Appoo JJ et al. *J Thorac Cardiovasc Surg* 2006].

“When repairing TAAs, there are 3 choices,” said Dr. Lytle. “Open surgery, hybrid ‘debranching’ combined with endografting, and endografting with branch grafts.” All 3 have advantages and disadvantages.

Open surgery has the advantage of a relatively long track record of success; however, an important consideration is that it is major surgery that is best performed at an institution that has significant experience with the procedure. An analysis of 1-year mortality after TAA using data from a California administrative database showed that the mortality rate for elective TAA open repair ranges from 20% in persons aged 50 to 59 years to >40% in persons aged 80 to 89 years [Rigberg et al. *J Vasc Surg* 2006]. Other disadvantages are that, although it is possible with this procedure, spinal cord revascularization does not eliminate spinal cord ischemia, and operative morbidity is substantial, particularly respiratory and renal complications.

The objective of a hybrid strategy (ie, revascularization of the visceral branches followed by stenting) is, according to Dr. Lytle, to make a “huge” operation into a merely “big” operation. While there have been at least 2 reports that have shown that it can be done [Black SA et al. *J Vasc Surg* 2006; Resch TA et al. *J Endovasc Ther* 2006], it is still major surgery and it does not eliminate the potential for paraplegia. Questions also have been raised about long-term patency. In Dr. Lytle’s opinion, this approach includes disadvantages of both open surgery and endoscopic repair.

Dr. Lytle prefers a totally endograft-based approach; however, this is also a very large and complicated procedure that is not without problems, including graft patient interface (proximal fixation, aortic degeneration), spinal cord revascularization (not possible today), cost, graft availability, and operator experience. Like the hybrid approach, we do know that an endograft-only strategy works. [Greenberg RK et al. *Circulation* 2008]. Dr. Lytle concluded by saying, “Endoleaks can be repaired, and medium-term stability is high. Most importantly there is a major decrease in mortality.”

*Highlights from the  
American College  
of Cardiology 58<sup>th</sup>  
Annual Scientific  
Session*