Aortic Dissection

- Aortic dissection can occur with wire and catheter manipulation, balloon advancement or THV delivery system advancement and/or THV deployment
- Use caution with:
 - Severely obliterated sinuses of Valsalva
 - Sinuses of Valsalva less than 5 mm larger than annulus
 - Significant THV oversizing
 - Porcelain aorta
 - Narrowed calcified STJ
 - Calcification of native vasculature



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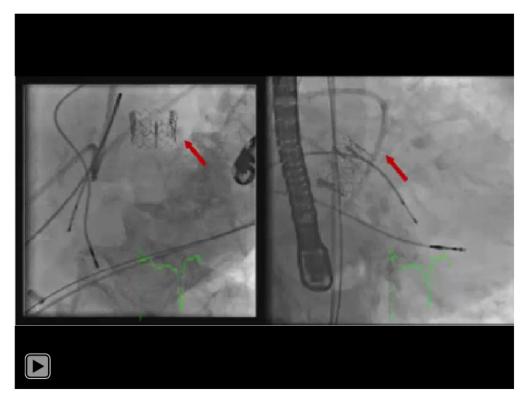
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Annular Rupture

THV Oversizing May Cause Annular Rupture Post THV Deployment

- Leads to hemodynamic collapse
- Management includes CPB and surgical intervention



Click Above to Play Video

Previous generation device used for illustration

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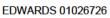
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Periaortic Hematoma

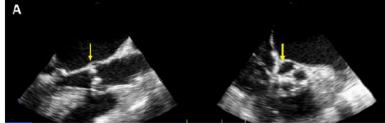
Predisposing Conditions

- Advanced age
- Female gender
- Small body weight
- Steroid dependent
- Presence of bulky calcification
- Disparity between volume of cusp calcium and volume of the sinus of Valsalva
- Mismatch between annulus and device diameter
- Severe intra-procedural hypertension immediately following the procedure

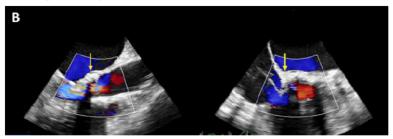
Management

- Rigorous BP control (systolic BP < 130 mmHg)
- Give protamine
- Keep patient intubated and sedated x 24 h
- Consider pericardial drainage if fluid present

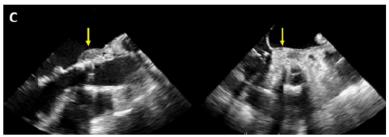
Genereux et al., Catheter Cardiovascular Interv. 2012 79(5): 766-776.



Panel A shows pre-procedural TEE (short- and long-axis views) showing a heavily calcified aortic valve with no peri-aortic hematoma



Panel B shows apparition of a small peri-aortic hematoma posterior and lateral to the aorta immediately after valve deployment



In Panel C, the hematoma appeared mildly larger (yellow arrows)



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Coronary Occlusion

Coronary Occlusion Will Usually Result From the Displacement of a Calcified Leaflet in Front of an Ostium During THV Deployment

- This risk should be assessed early on in the patient screening process in all patients except those who are bypassed and have no residual significant myocardium perfusion by their native arteries
- Factors that should be evaluated and considered before THV positioning and deployment
 - Degree of calcification on leaflets
 - Annulus to coronary ostia distance
 - Length of the valve leaflet
 - Width of the Valsalva sinuses
 - Movement of the leaflets during BAV
 - Patency of coronaries during BAV
 - Expanded height of the intended THV



Webb et al., Circulation 2006 113: 842-850



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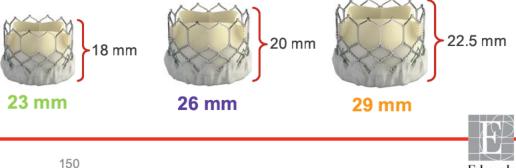
EDWARDS 01026728

Coronary Occlusion

Tips For Detecting Potential Coronary Occlusion Prior to THV Deployment

- Thorough prescreening with • Aortogram, CT and Echo
- Reference expanded heights of THV
- During pre-dilation, note bulky calcification on valve moving toward ostium of coronaries
 - Use an aortogram during BAV to assess coronary flow
- Intraprocedural aortogram or TEE prior to THV implantation







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