Percutaneous Atrial Septal Defect Closure in an Adult with Ebstein Anomaly as a Palliative Therapy for Recurrent Stroke

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I, Alex Cubberley, DO NOT have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.
Background

- 72-year-old female presented with recurrent CVAs despite multiple anticoagulants, aspirin, and statin therapy.

- History of Ebstein's Anomaly (uncorrected), severe tricuspid regurgitation with RV dilation on chronic Milrinone therapy, hypertension, and type 2 diabetes mellitus

- Diagnosed with Uterine Cancer 4 months prior to intervention with chest port placement, hysterectomy, and chemotherapy.
Background

- Holter monitor previously did not detect any atrial arrhythmias.

- One month later she suffered a CVA that was attributed to new atrial fibrillation, started on apixaban.

- Despite compliance with anticoagulation, she suffered another CVA a month later on Apixaban.

- She was changed to Dabigatran, developed another CVA, presenting with facial droop and dysarthria and was found to have a new left parietal defect with evidence of old infarcts as well.
Work Up

• A multispecialty “Heart-Brain Team” approach was undertaken
  ▪ Neurology, Adult Congenital Cardiology, Heart failure and Interventional Cardiology.

• Due to recurrent CVAs despite anticoagulation, our patient elected to undergo percutaneous ASD closure.
Work Up

Transesophageal Echocardiogram 1
Work Up

Transesophageal Echocardiogram 1
• TEE showed thrombus on Permacath tip.

• Procedure cancelled and Permacath removed by IR

• Afebrile throughout hospital course

• Patient returned to Cath lab 3 days later for ASD Closure
Transesophageal Echocardiogram 2
ASD
Intervention

- US guided femoral vein and artery access for device and swan ganz access.
- Amplatzer 1.5mm Jtip Guidewire across ASD, parked in LUPV
- Jr4 Supertorque Plus Guide
- Amplatzer II Sizing balloon across ASD
Balloon Occlusion of ASD
Intervention

- Amplatzer 1.5mm Jtip Guidewire across ASD, parked in LUPV
- Jr4 Supertorque Plus Guide
- Amplatzer II Sizing balloon across ASD
- Further Sizing by 3D TEE
Intervention

- Amplatzer 1.5mm Jtip Guidewire across ASD, parked in LUPV
- Jr4 Supertorque Plus Guide
- Amplatzer II Sizing balloon across ASD
- Further Sizing by 3D TEE
## Hemodynamics During Balloon Occlusion of ASD

<table>
<thead>
<tr>
<th>Time Points</th>
<th>Pulmonary Artery Pressure (mmHg)</th>
<th>Pulmonary Artery Saturation (%O₂)</th>
<th>Aorta Saturation (%O₂)</th>
<th>Cardiac Output (L/Min)</th>
<th>Cardiac Index (L/min/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre ASD occlusion</td>
<td>26/4/13*</td>
<td>58.0</td>
<td>91.6</td>
<td>4.11</td>
<td>2.12</td>
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<tr>
<td>5 minutes after balloon occlusion of ASD</td>
<td>32/6</td>
<td>64.0</td>
<td>96.3</td>
<td>4.39</td>
<td>2.26</td>
</tr>
<tr>
<td>10 minutes after balloon occlusion of ASD</td>
<td>35/6</td>
<td>64.7</td>
<td>96.4</td>
<td>4.93</td>
<td>2.54</td>
</tr>
<tr>
<td>After ASD device deployment</td>
<td>36/8</td>
<td>63.0</td>
<td>94.0</td>
<td>4.87</td>
<td>2.51</td>
</tr>
</tbody>
</table>

*PCWP 9 mmHg
Intervention

- Sheath exchanged: Amplatzer Trevisio Angled 10fr 80cm
- Deployment of ASD Occluder-25mm Cribriform Amplatzer (Abbott)
Final Fluoroscopy

- Post Deployment

- There was no change in RV function and no residual interatrial shunt after the procedure noted on TEE.
Post Intervention

- Patient discharged home on Rivaroxaban and Clopidogrel for 6 months before being transitioned to Rivaroxaban and aspirin.
- Discharged home on Milrinone (0.250mcg/kg/min)
- Weaned off Milrinone 3 months post intervention
- No new neurological symptoms