Hole – Leave it or repair it?
SGK – 17.06.2016

Francesca Bonassin, MD
University Heart Center, Cardiology
Adult Congenital Heart Disease Program
francesca.bonassin@usz.ch
Case 2: AVSD requiring re-do surgery

'... the same old trouble that you've always been through’
(red hot chili peppers)
AVSD requiring re-do surgery

2½ year old boy
AVSD requiring re-do surgery

2½ year old boy
Repaired cAVSD
AVSD requiring re-do surgery

2½ year old boy
Repaired cAVSD
- LAVV stenosis
- LAVV regurgitation
- ↑ pulm. pressures
AVSD requiring re-do surgery

Congestive heart failure

2½ year old boy
Repaired cAVSD
- LAVV stenosis
- LAVV regurgitation
- ↑ pulm. pressures
AVSD requiring re-do surgery

Congestive heart failure

Acute myeloid leukaemia

2½ year old boy

Repaired cAVSD

- LAVV stenosis
- LAVV regurgitation
- ↑ pulm. pressures
AVSD requiring re-do surgery

2½ year old boy
Re-do LAVV surgery
Re-do LAVV surgery

- Unloading of LV
- Unloading of LA
- Arrhythmia (?
- Heart failure ↓

Benefits

Risks
Re-do LAVV surgery

Benefits

- Unloading of LV
- Unloading of LA
- Arrhythmia ↓ (?)
- Heart failure ↓

Risks

- Operation risk
- AV-Block
- LAVV stenosis
- Residual LAVVR
- LVOTO
Re-do LAVV surgery

Benefits
- Unloading of LV
- Unloading of LA
- Arrhythmia ↓ (?)
- Heart failure ↓

Risks
- Operation risk
- AV-Block
- LAVV stenosis
- Residual LAVVR
- LVOTO

Guidelines?
Repair or replacement if:

- Symptoms
- Arrhythmias
- Progr. LV-dilatation or LV-dysfunction

Level of Evidence: B – no references given
Table 5  Indications for intervention in atriioventricular septal defect

<table>
<thead>
<tr>
<th>Indications</th>
<th>Classa</th>
<th>Levelb</th>
</tr>
</thead>
</table>

Indications for reoperation $\Rightarrow$ Indications for primary surgery
<table>
<thead>
<tr>
<th>Indications</th>
<th>Class&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Level&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AV valve regurgitation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Symptomatic patients with moderate to severe AV valve regurgitation should undergo valve surgery, preferably AV valve repair</td>
<td>I</td>
<td>C</td>
</tr>
</tbody>
</table>
### Table 5  Indications for intervention in atroventricular septal defect

<table>
<thead>
<tr>
<th>Indications</th>
<th>Class</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AV valve regurgitation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Symptomatic patients with moderate to severe AV valve regurgitation should undergo valve surgery, preferably AV valve repair</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>• Asymptomatic patients with moderate or severe left-sided valve regurgitation and LVESD &gt; 45 mm and/or impaired LV function (LVEF &lt; 60%) should undergo valve surgery when other causes of LV dysfunction are excluded</td>
<td>I</td>
<td>B&lt;sup&gt;35&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
Table 5 Indications for intervention in atrioventricular septal defect

<table>
<thead>
<tr>
<th>Indications</th>
<th>Class(^{a})</th>
<th>Level(^{b})</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AV valve regurgitation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Symptomatic patients with moderate to severe AV valve regurgitation should undergo valve surgery, preferably AV valve repair</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>• Asymptomatic patients with moderate or severe left-sided valve regurgitation and LVESD &gt;45 mm and/or impaired LV function (LVEF &lt;60%) should undergo valve surgery when other causes of LV dysfunction</td>
<td>I</td>
<td>B(^{35})</td>
</tr>
</tbody>
</table>

Level of Evidence: B – reference: Mitral valve guidelines

Table 5  Indications for intervention in atrioventricular septal defect

<table>
<thead>
<tr>
<th>Indications</th>
<th>Class^a</th>
<th>Level^b</th>
</tr>
</thead>
</table>


Level of Evidence: B – reference: Mitral valve guidelines
### Table 5 Indications for intervention in atrioventricular septal defect

<table>
<thead>
<tr>
<th>Indications</th>
<th>Class&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Level&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AV valve regurgitation:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Surgical repair should be considered in asymptomatic patients with moderate or severe left-sided AV valve regurgitation who have signs of volume overload of the LV and a substrate of regurgitation that is very likely to be amenable for surgical repair</td>
<td>IIa</td>
<td>C</td>
</tr>
</tbody>
</table>
The probability of a durable valve repair is of crucial importance.
Difficulties in repair

TEE – LAVVR with 2 Jets
Difficulties in repair

It is not a mitral valve!

TEE – LAVVR with 2 Jets
Difficulties in repair

TEE – LAVVR with 2 Jets
Pitfalls in LV-valve repair

Mitral valve - MVP

Left AVV in AVSD
Pitfalls in LV-valve repair

Mitral valve - MVP

Left AVV in AVSD
Pitfalls in LV-valve repair

Mitral valve - MVP

Left AVV in AVSD

AML

PML

Anterior bridging leaflet

Posterior bridging leaflet

Mural leaflet

‘Cleft’
Mitral valve - MVP

Left AVV in AVSD
Pitfalls in LV-valve repair

Mitral valve - MVP

Left AVV in AVSD
Pitfalls in LV-valve repair

Risk of stenosis

Mitral valve - MVP

Left AVV in AVSD
Reoperations After Repair of Partial and Complete Atrioventricular Septal Defect

John M. Stulak, MD, Harold M. Burkhart, MD, and Joseph A. Dearani, MD
Reoperations After Repair of Partial and Complete Atrioventricular Septal Defect

John M. Stulak, MD,1 Harold M. Burkhart, MD,1 and Joseph A. Dearani, MD1

146 patients / 45 years

Complete AVSD (50 patients)

- 80% severe LAVV-regurgitation
- 21 LAVV repair (42%) → 5 reoperations
- 21 LAVV replacement (42%) → 6 reoperations
- 10% LVOTO relief
Complete AVSD (50 patients)

- Early mortality: 4% (5.2% pAVSD)
- 10y survival: 91% (77% pAVSD)
- 10y freedom from subsequent LAVV reOP: 48%
- PM-Implantation: 18%
Risk of complete AV-Block

- 7%/18%\(^1\) – 37%\(^2\)
- Replacement > repair\(^3\)

\(^1\)Stulak, ATS 2010
\(^2\)Moran, Circ 2000
\(^3\)Malhotra, ATS 2008

29 years, male
Reoperations After Repair of Partial and Complete Atrioventricular Septal Defect

John M. Stulak, MD,¹ Harold M. Burkhart, MD,¹ and Joseph A. Dearani, MD¹

Third, the decision to operate on the asymptomatic patient with severe LAVV regurgitation in the setting of a prior AVSD repair currently poses a clinical dilemma, for which there is no consensus. It is recom-
It is not a mitral valve!!!

"...perhaps the indications for LAVV surgery should be expanded to...patients with prior AVSD repair."
Conclusions

• Residual AV-valve regurgitation is common
• It is not a mitral valve!
• Repair is challenging
  • Postop AV-valve stenosis
  • Postop AV-Block
  • Postop LVOT-obstruction