## VSD

<table>
<thead>
<tr>
<th>Position</th>
<th>Pressure (mm Hg)</th>
<th>Oxygen Saturation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVC</td>
<td>Mean = 6</td>
<td>75</td>
</tr>
<tr>
<td>RA</td>
<td>Mean = 6</td>
<td>75</td>
</tr>
<tr>
<td>IVC</td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>RV</td>
<td>80/0.12</td>
<td>80</td>
</tr>
<tr>
<td>PA</td>
<td>80/40, mean = 55</td>
<td>80</td>
</tr>
<tr>
<td>PCW</td>
<td>Mean = 5</td>
<td>95</td>
</tr>
<tr>
<td>FA</td>
<td>80/54, mean = 62</td>
<td>95</td>
</tr>
</tbody>
</table>

SVC, superior vena cava; RA, right atrium; IVC, inferior vena cava; RV, right ventricle; PA, pulmonary artery; PCW, pulmonary capillary wedge; FA, femoral artery.
How much Qp? How much Qs?

\[
\frac{Q_p}{Q_s} = \frac{\text{Aorta - mixed venous}}{\text{Pulmonary vein - pulmonary artery}}
\]

\[
\frac{Q_p}{Q_s} = 95\% - 75\% / 95\% - 80\% = 20/15
\]

- A. 1.33
- B. 1.50
- C. 1.75
- D. 2.00
- E. 2.25
The patient then receives 100% oxygen therapy

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</tr>
</thead>
<tbody>
<tr>
<td>SVC</td>
<td>Mean = 6</td>
<td>85</td>
</tr>
<tr>
<td>RA</td>
<td>Mean = 6</td>
<td>85</td>
</tr>
<tr>
<td>RV</td>
<td>80/0,12</td>
<td>—</td>
</tr>
<tr>
<td>PA</td>
<td>80/30, mean = 50</td>
<td>95</td>
</tr>
<tr>
<td>PCW</td>
<td>Mean = 5</td>
<td>—</td>
</tr>
<tr>
<td>FA</td>
<td>80/54, mean = 62</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: FA blood gas = 7.44, pCO₂ = 37 torr, pO₂ = 525 torr.
How much is the Qp:Qs now?

A. 5.0
B. 4.2
C. 3.7
D. 3.1
E. 2.9

\[
\frac{Q_p}{Q_s} = \frac{\text{Aorta - mixed venous}}{\text{Pulmonary vein - pulmonary artery}}
\]
What is it wrong?

<table>
<thead>
<tr>
<th>Position</th>
<th>Pressure (mm Hg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA</td>
<td>Mean = 5</td>
</tr>
<tr>
<td>RV</td>
<td>60/8</td>
</tr>
<tr>
<td>MPA</td>
<td>60/8</td>
</tr>
<tr>
<td>PCWP</td>
<td>Mean = 20</td>
</tr>
<tr>
<td>LV</td>
<td>120/24</td>
</tr>
</tbody>
</table>

RA, right atrium; RV, right ventricle; MPA, main pulmonary artery; PCWP, pulmonary capillary wedge pressure; LV, left ventricle.

Severe pulmonary regurgitation!
What I am looking at?
And when it does not make sense?

SVC: 72% / RA: 85% / RV: 83%
MPA=83% / RPA=84% / LPA0=85%
LA=92% / RPV=99% / LPV=83%
Severe cyanotic disease
Major aortopulmonary collaterals
If the heart has no room
If the heart has no room
Find the difference
ASD
To close or not to close?
ASD closure
A very narrow aorta
A very unusual case

Female term new-born (2.7kg)

• Uncomplicated pregnancy
• Urgent caesarean section for foetal bradycardia
• Normal Apgar-scores and umbilical artery pH

Severe cardiogenic shock at 4-hours of life
ECHOCARDIOGRAPHY

- Structurally normal heart
- Severe biventricular systolic dysfunction
- **Despite** persistent ductus arteriosus (PDA)
- Thrombotic structure at LMCA ostium

→ Placement of peripheral VA-ECMO in the cath lab
INTERVENTION

- Selective coronarography with a 4.2 JR catheter
- Complete thrombotic LMCA occlusion
INTERVENTION

- Intracoronary thrombolysis (Actilyse®, Altéplase 0.1mg/kg over a few minutes)
- 0.014” HI-TORQUE PILOT™ guidewire followed by a PROGREAT® Microcatheter were advanced in the LMCA

→ Minimal left coronary flow was re-established

INTERVENTION

- After subsequent intracoronary thrombolysis, LCA flow was restored
- Residual peripheral thrombus in the mid LAD
INTERVENTION II

• Insufficient systemic perfusion on VA-ECMO due to recirculation via PDA

• 12-h later transcatheter retrograde PDA-closure with an Amplatzer™ Duct Occluder II (5x4mm)
WHAT NEXT?

• Troponin-T levels gradually dropped from 220'000ng/L to 700ng/L
• Echo demonstrated steady improvement in LV function with patent LMCA/LAD under Adrenalin, Levosimendan, and VA-ECMO support
• BUT unsuccessful VA-ECMO weaning after 3-weeks
• Autoptic findings showed pervious coronary arteries
CONCLUSIONS

• Acute myocardial infarction in structurally normal heart is a very rare cause of neonatal cardiogenic shock
• It has a high mortality rate
• In this case, paradoxical embolization from the placenta was postulated due to perinatal manifestation in absence of other risk-factors
• After stabilisation on VA-ECMO, early intracoronary thrombolysis should be considered as rescue strategy