Redo-surgery:
Nightmare or opportunity

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The necessity
The necessity

• Preservation of the ventricle power
  – Pressure/volume/ischemic load

• Correction of the energy dissipation points
  – Obstruction
  – Regurgitation
  – Shunts
  – Mis-connections
The nightmare
Hostile environment

- Sternal and thoracic deformities
- Vascular adhesions
- Cavities volume / pressure overloaded
Unfavourable heart and Vs position
A challenging heart-lung complexe

Multiple lesions
- Ignored, neglected
- Residual
- Iatrogenic
A challenging heart-lung complexe

Secondary lesions

Myocardial
- Chronic cyanosis
- Myocardial fibrosis
- Subendocardial necrosis
- Chronic dilatation

Valvular
- Chronic insufficiency

Arrhythmia
Major problems of the redo’s

- Bleeding
- Iatrogenic cardiac damage
- Cannulation difficulties
- Long CPB times
- Perfusion difficulties
The ultimate nightmare

We are still only palliative !!
The opportunity
Very often feasible

- Tactical and technical challenge
Tactical challenge

- Risks vs. benefits

![Mortality vs. Time Graph](image)
Tactical challenge

• **Correction before the development of irreversible secondary lesions**

• **Corrections as complete as possible**
  – 1st operation
  – Re-operations

• **Exhaustion of the cardiac potential**
The toll of redo’s

Mortality = f (sternotomies)
The toll of « cardiac incisions »

Mortality = f (heart incisions)
Reduction of the redo risk

- Documentation +++
- Establishment of priorities
- Plannification of the surgical re-entry
- Plannification of perfusion
Documentation

• **Coronary anomalies**

• **Anatomy of the peripheral arteries / veins**
Establishment of priorities
Hybride procedures

- Pulmonary regurgitation
- Distal Stenoses of the PA ‘s
- MAPCA ‘s
- Tricuspid regurgitation
- Aortic regurgitation
- Residual VSD
- Ventricular desynchronisation
Hybride approach
Sternal re-entry:

My way

- 1st reoperation
- 2nd reoperation
  - No excessive volume overload
  - Right atrium vs right ventricle
  - Membrane between heart and sternum
- Classical sternotomy / central cannulation
Sternal re-entry: My way

- 2nd reoperation
  - Volume overload
  - No membrane

- ≥ 3rd reoperation

- Special situations

Peripheral cannulation
Sternotomy on a decompressed heart
Special situations

Atrio-pulmonary „Fontan“

Central homografts
Pseudo-aneurysms
Right heart

- Minimal dissection
- Operation on a decompressed, beating heart
Left heart

- Aortic valve
- Residual communications

Risk of air suction and embolisation
Ventricular fibrillation
Aortic cross-clamping
Reduction of the subsequent risk

• Preparation of the redo
• Paving the way for a subsequent intervention
Preparation of the redo

• **Lateral position of the conduits**
• **Adaptation of a pleuro-pericardial layer or synthetic membrane**
• **Separation of both circulations**
Paving the way ...
Which conduit for which patient?
Infants and children

Normal PVR
Adults
Conclusions

Redo in GUCH patients

• Certainly a necessity
• At times a nightmare
• Frequently an opportunity