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Mehr 88, Oct 2009



# HEART TRANSPLANTATION TECHNIQUES



# History

- 1905 Carrel & Guthrie
- 1908 Mann ( Renal)
- 1918-1933 Mann (Biologic not Mechanic)
- 1920 Williamson (Renal auto transplant )
- 1930 Williamson ( Renal in a Twin)



Revolution in Organ Transplantation

# **MEDAWAR 1940**

# **SKIN COVERAGE**

Medawar 1944

## Skin Graft Reaction in Rabbits

- Cellular Infiltration (after 7-10 Days)
- Cellular Infiltration : Named Rejection
- Second Set Rejection : ( after 5-6 Days)
- Hyper acute Rejection

# Nobel Prize

- ❖ Medawar 1945 (Cellular & Ab Reaction)
- ❖ Medawar 1950 (Prophylactic Corticosteroid)
- ❖ Merrill (B&W) 1955 (First successful renal Tx in a twin)
- ❖ Merrill (B&W) 1960 (Mild Immune suppression in a nonidentical twin)
- ❖ Murray 1962 (Modern Immune suppression = Imuran)

Lillehie Minnesota

(1950)

**Shumway** 1960

Lower

Kondo

(Stanford)


**Barnard** 1966

Cape town





# Caves 1980 (transvenous Myocardial Biopsy)

- Borel 1972
  - *Tolypocalidum Inflatum*
  - Cyclosporin 1981
- 

# Donor Selection:

- >55
- Profound Hypotension
- Cardiac Arrest
- Global or regional Hypokinesia
- Valvular disease
- Sever LVH
- Sepsis
- HIV +
- HCV+ ?

- Active Malignancy
- CO , CO<sub>2</sub> >20% poisoning
- IV drug Abuse
- Great Disparity
- Q wave
- Cardiac Contusion & CPK MB elevation






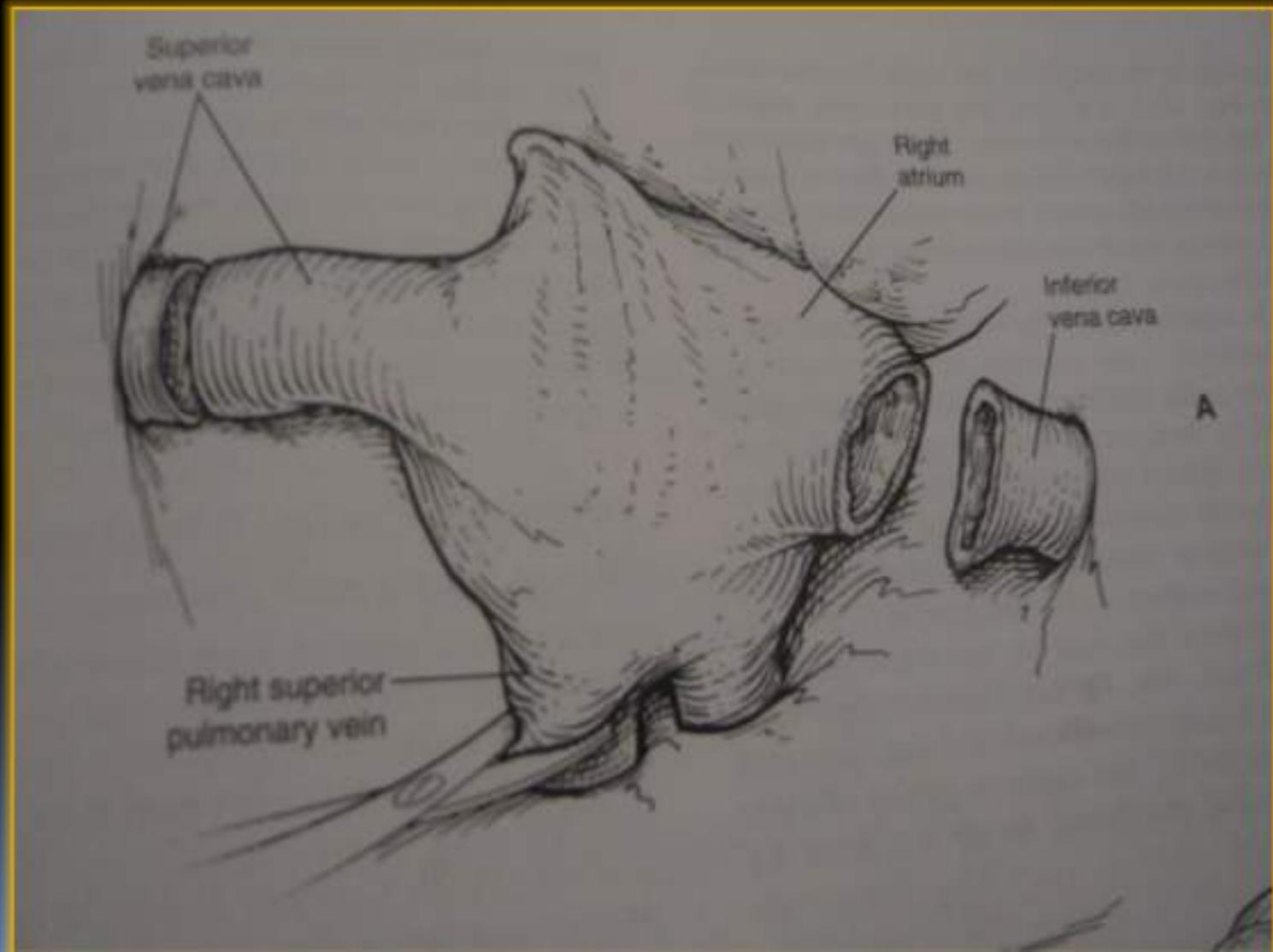
# SURGICAL TECHNIQUE

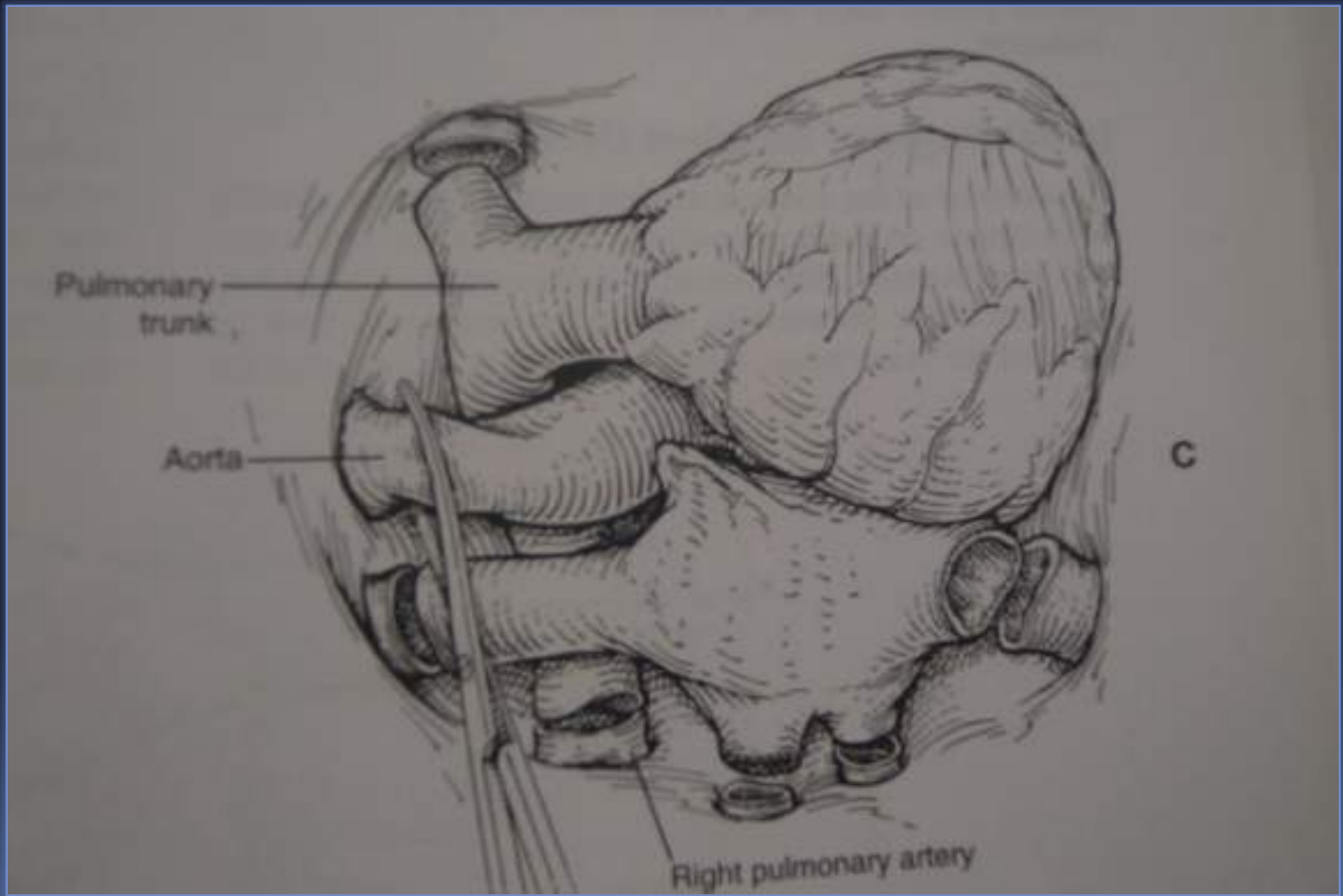


# Donor preparation

- Art. Line
  - Heparin 2 mg/Kg
  - Cardioplegia , K Level
  - Serum Irrigation
  - Gross Exam
  - Triple Plastic bag
  - Transfer technique
- 

# Donor Harvesting





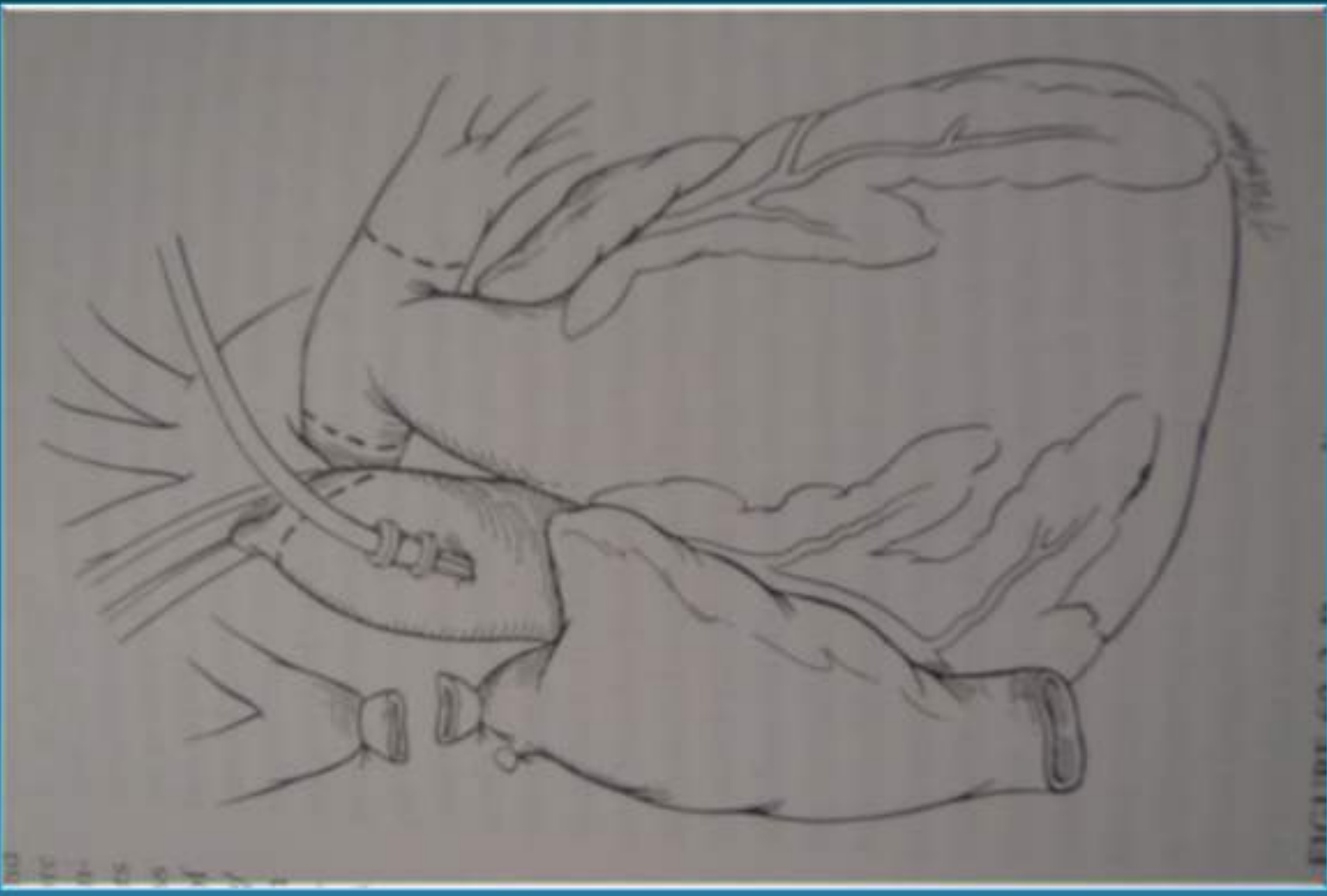



FIGURE 20.3

FIGURE 20.4



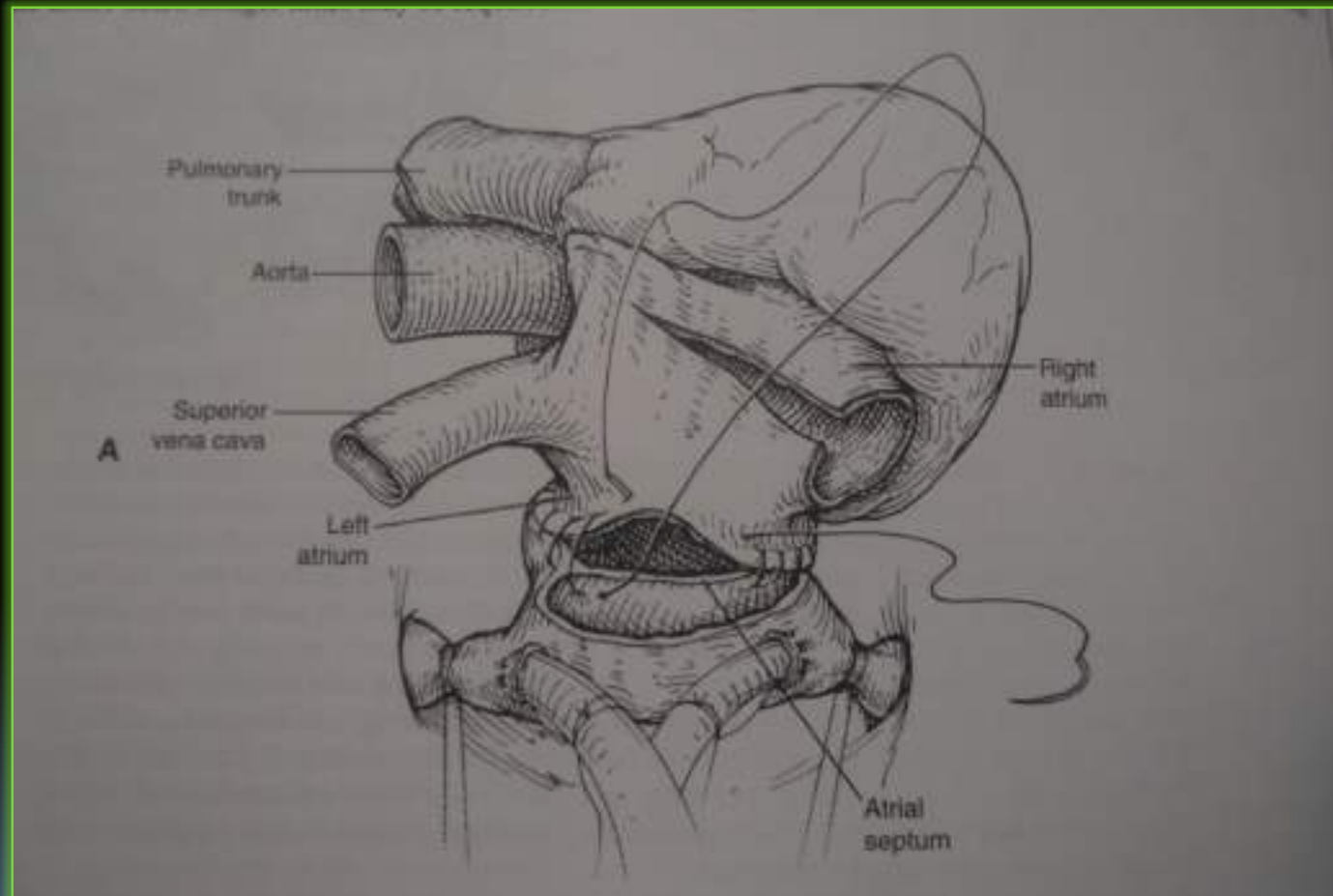
Operation beginning: 90 min  
Re-operation  
CVP line

**RECIPIENT PATIENT**

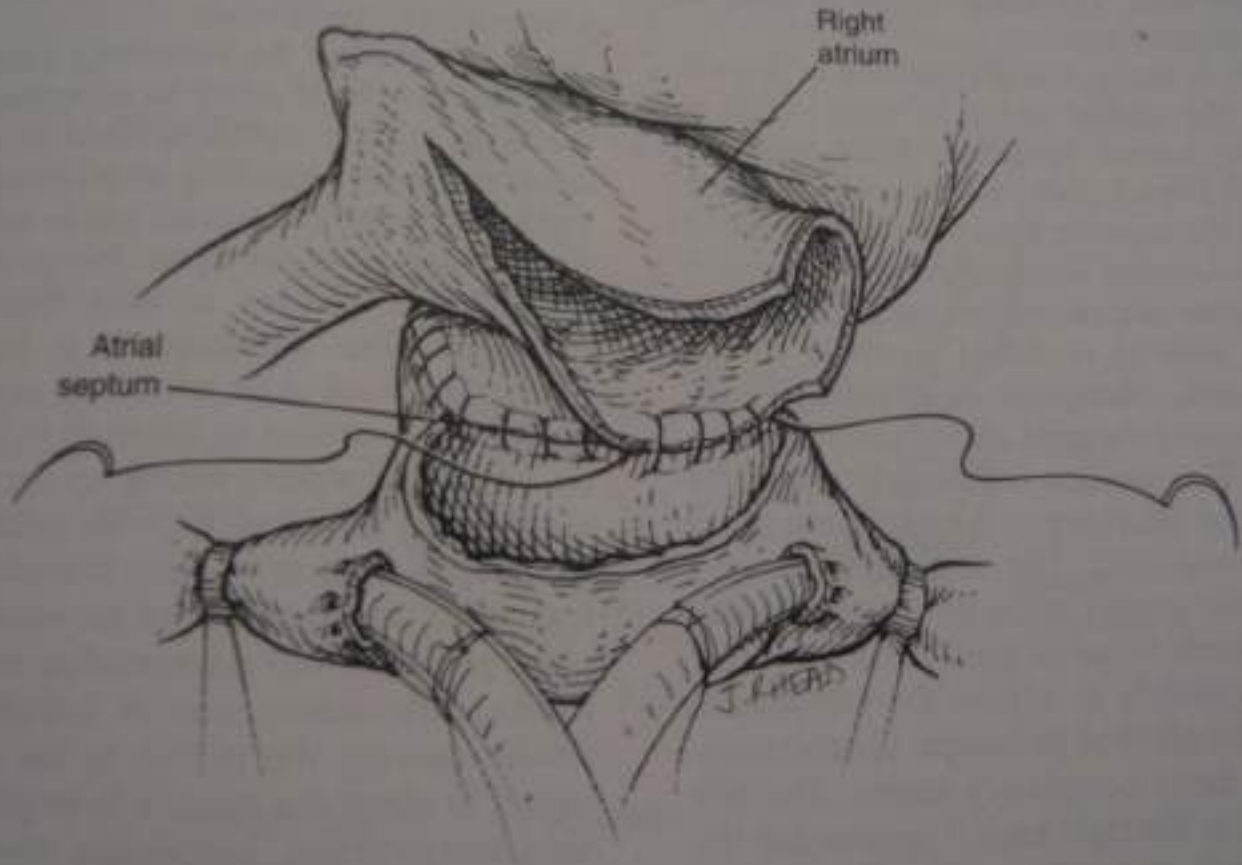
# Technical Options:

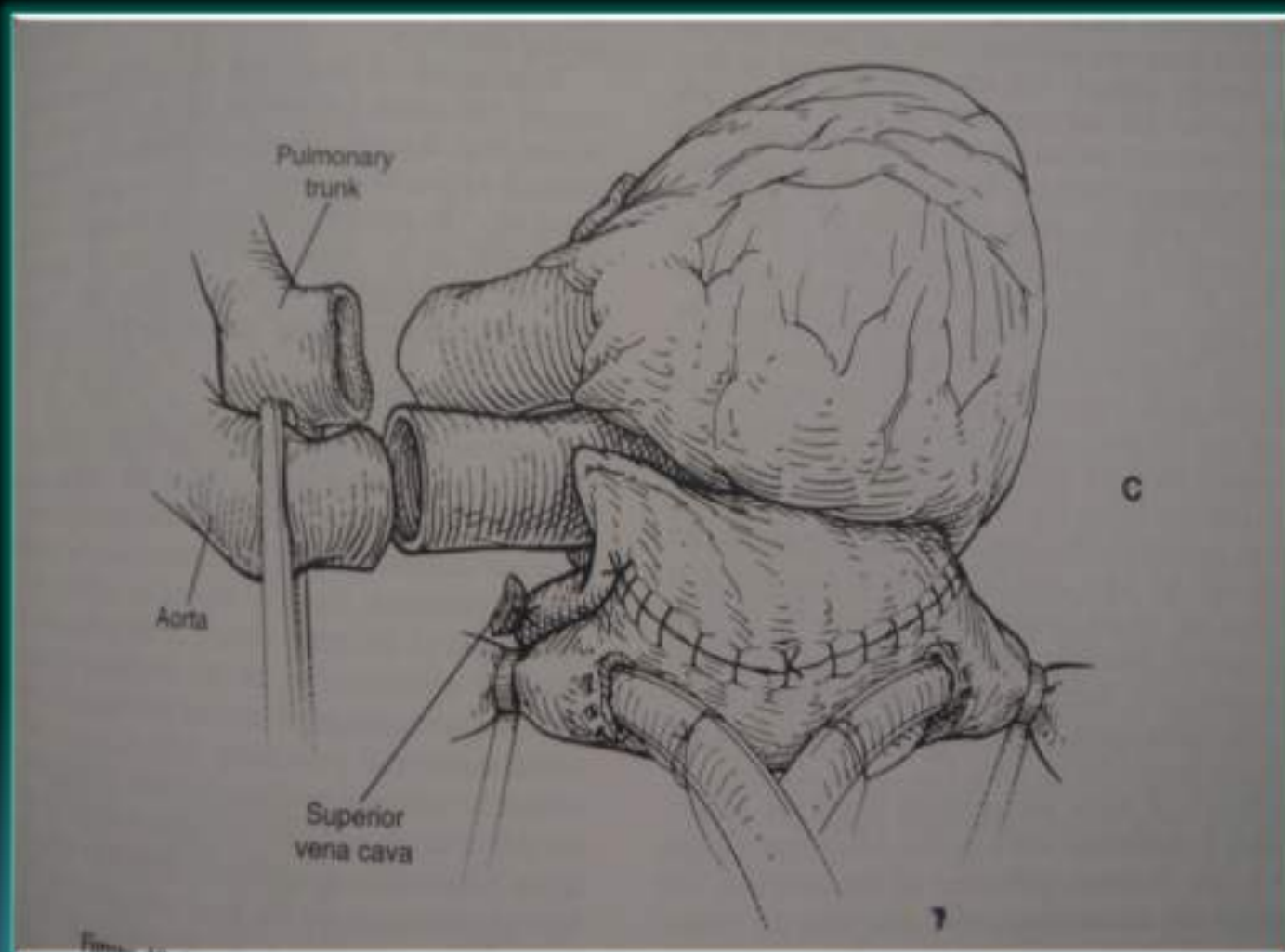
- Heterotopic
- XenoTransplantation
- Orthotopic
  - Classic
  - Bicaaval

# Classic Technique







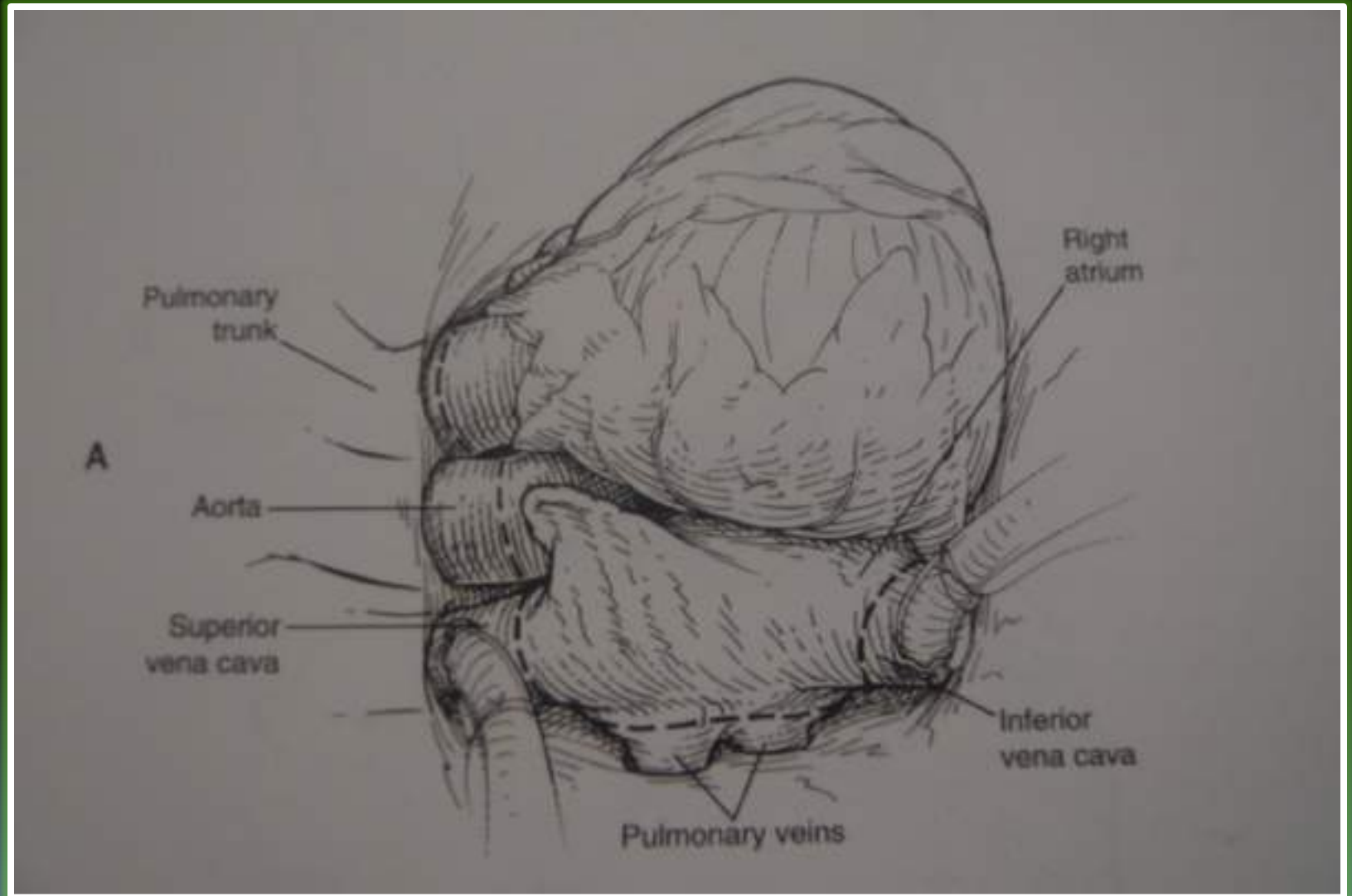


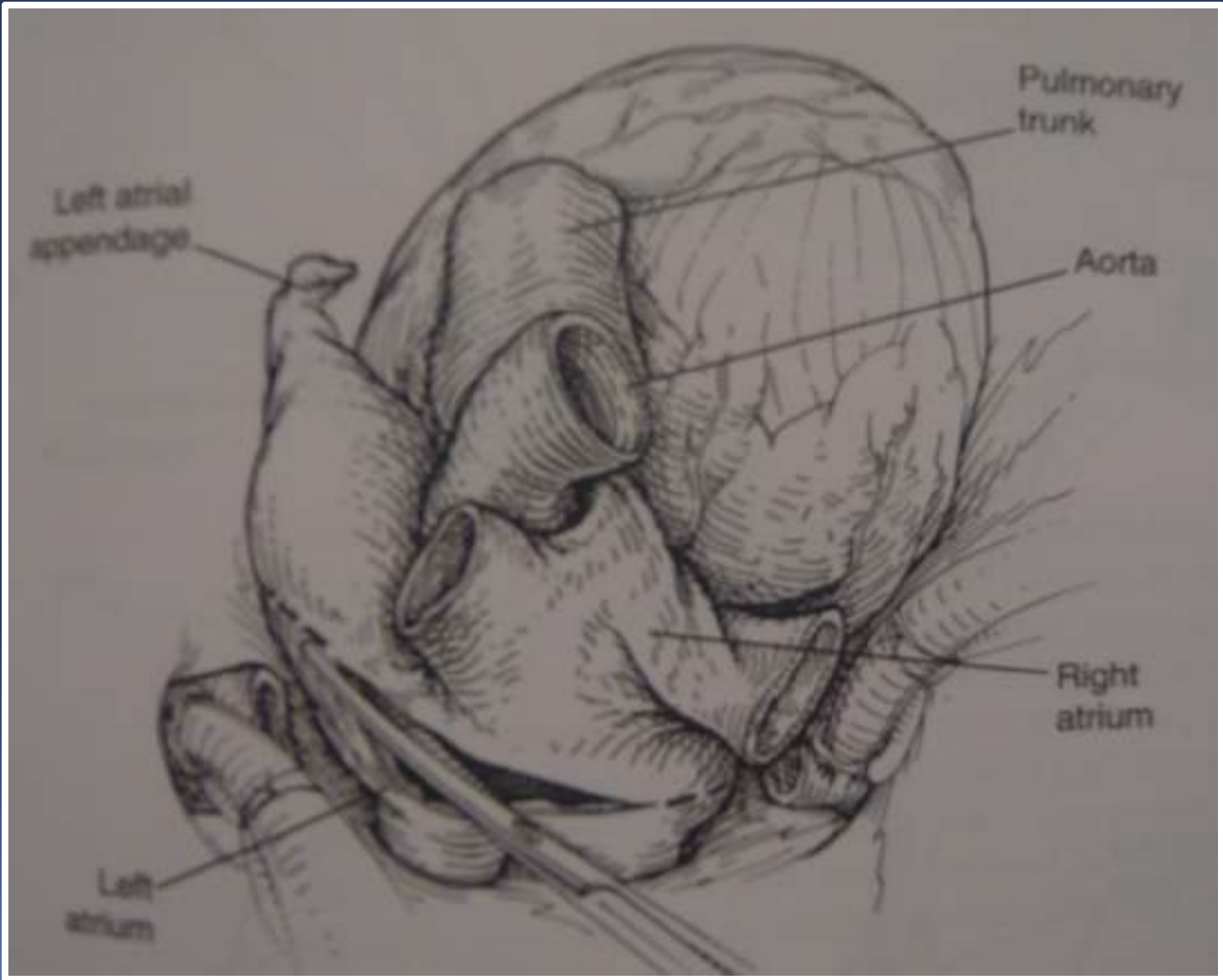
## Advantage & Disadvantages

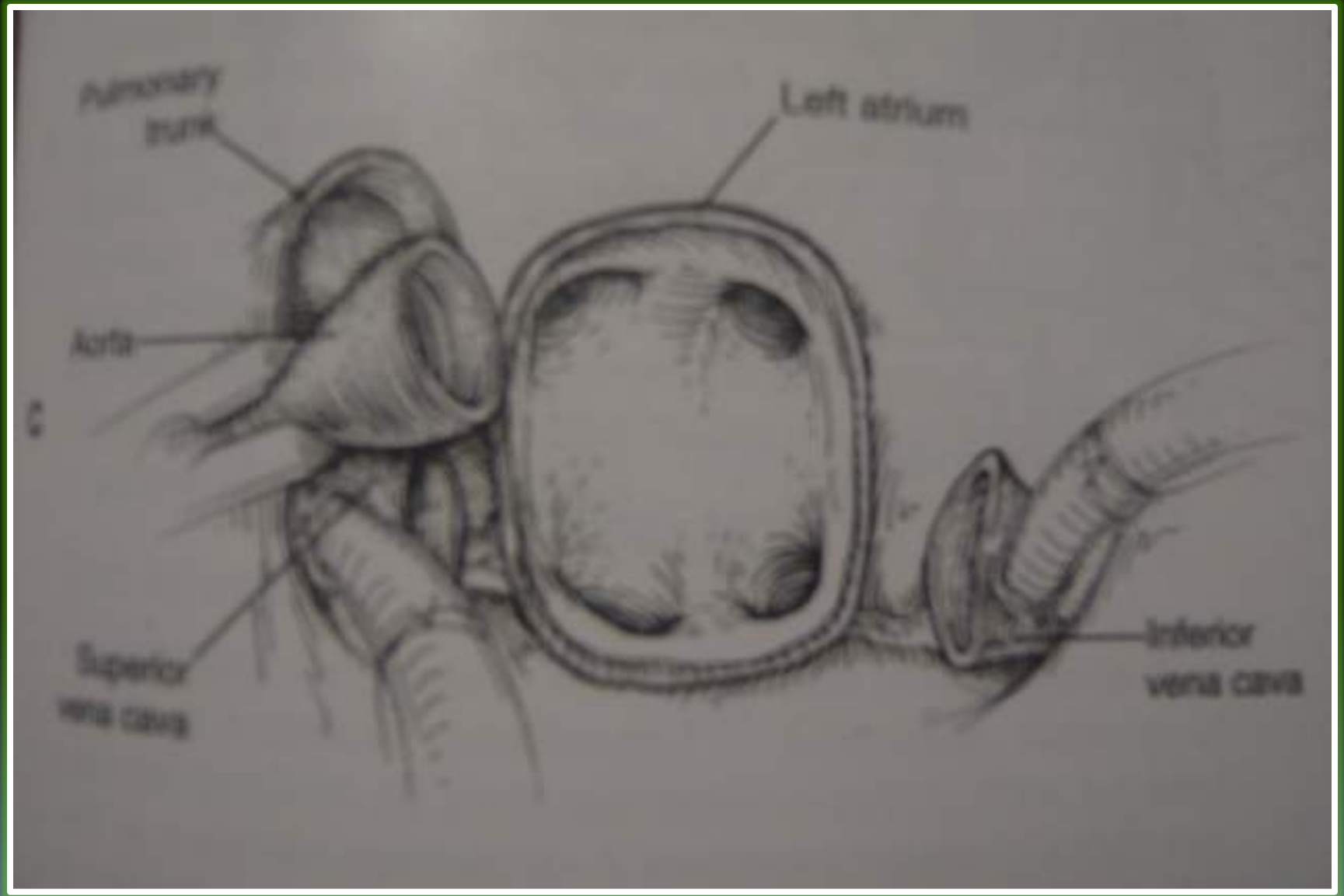
**LARG ANASTOMOSIS, MORE SIMPLE**

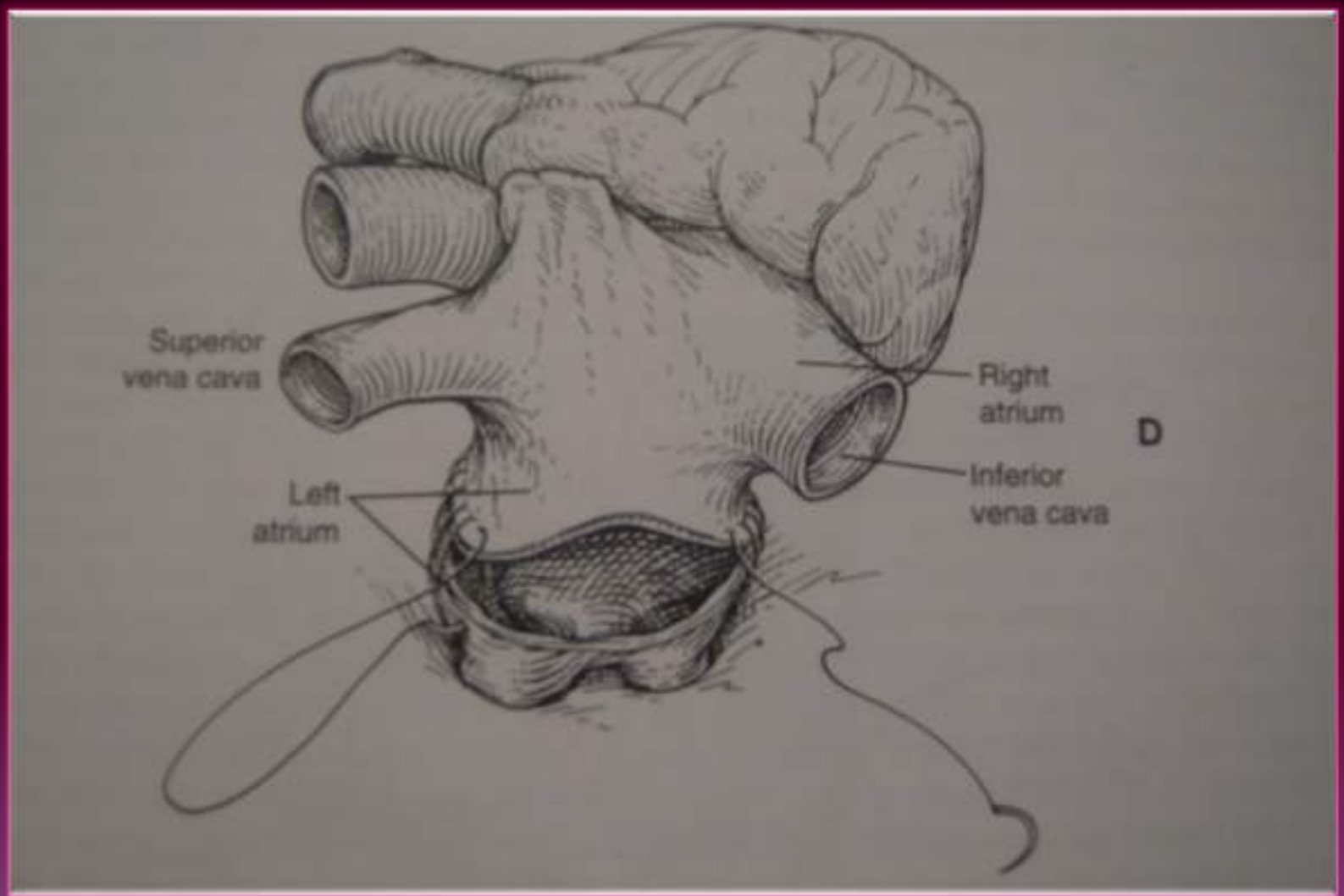
**LARG L.A, ARRHYTHMIA, TR**

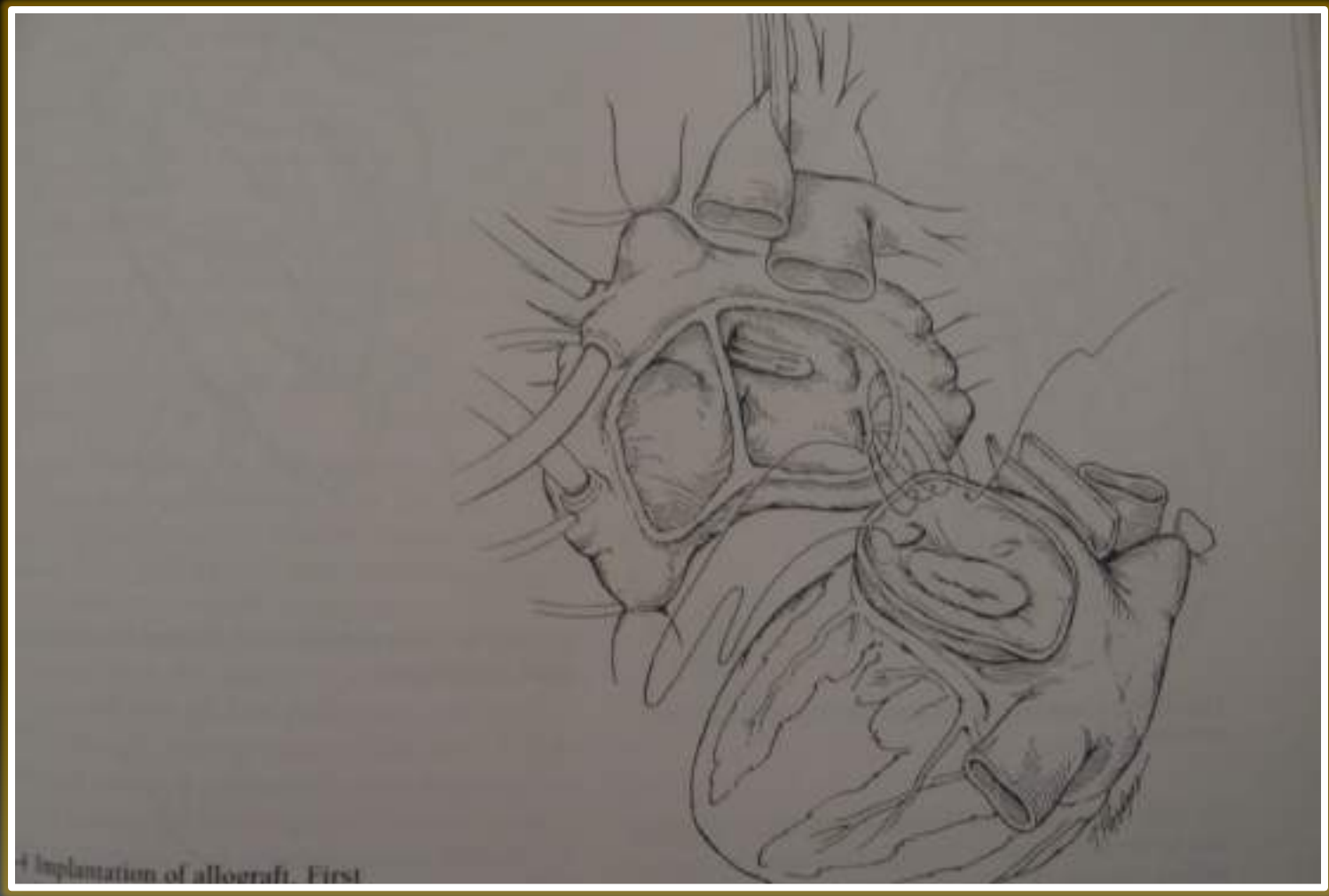
# Bicaval Technique











4 Implantation of allograft. First



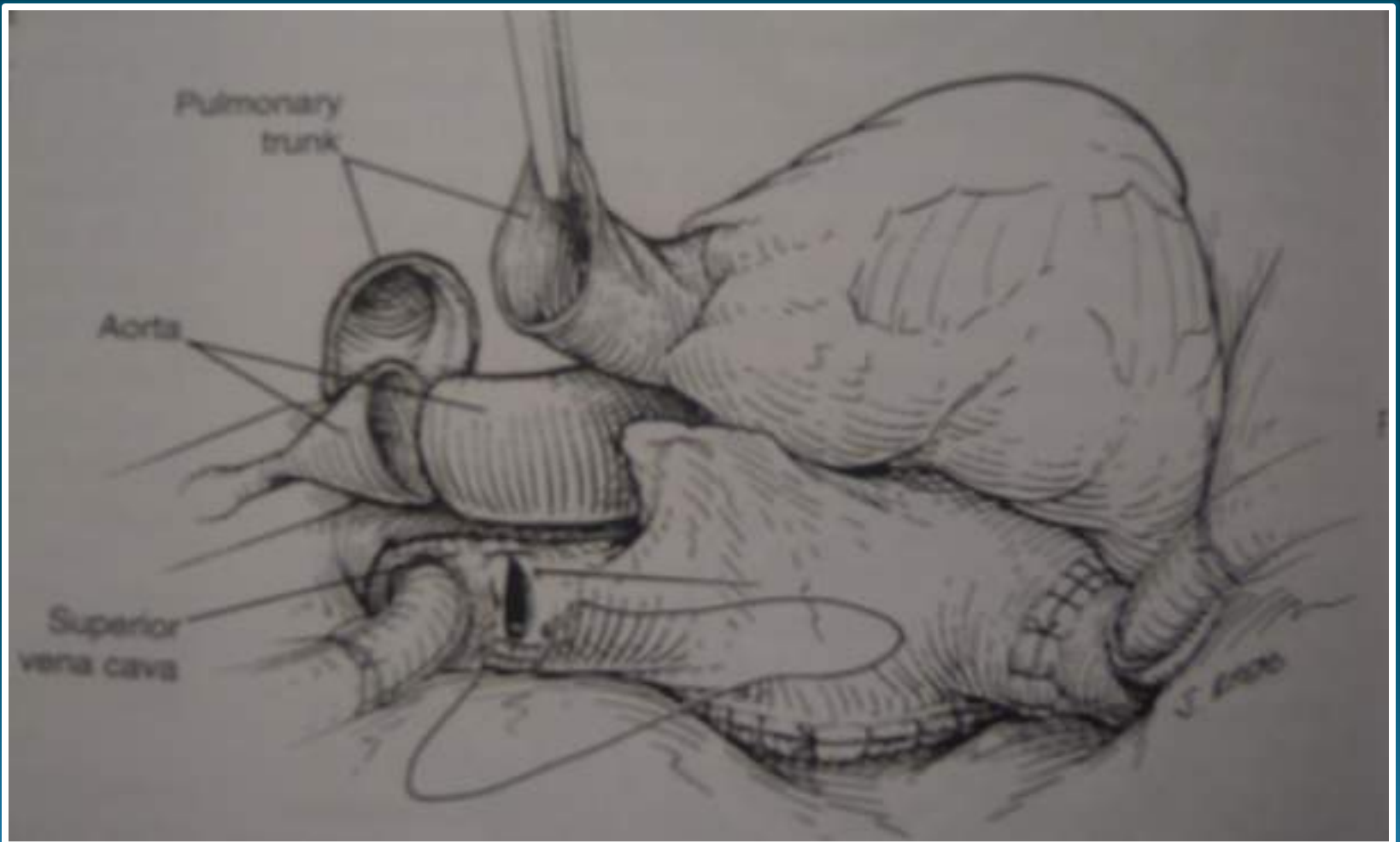


Superior  
vena cava



Inferior  
vena cava

173





## Advantages

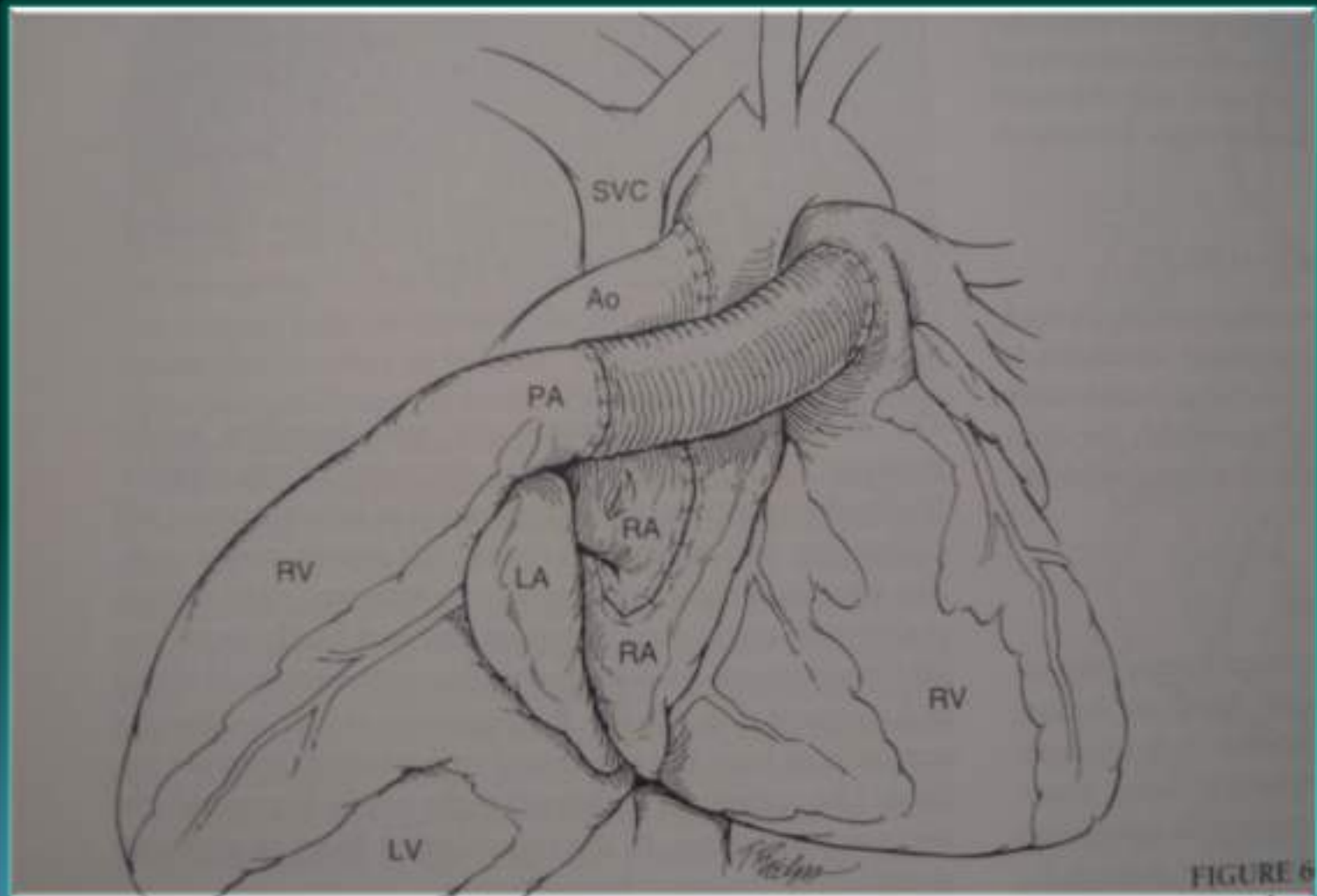
**LA PERFORMANCE**

**LESS ARRHYTHMIA**

**LESS TR**

**BETTER HEMODYNAMIC**

# Heterotopic Tx.





**THANK YOU**