



**Dipartimento Cardiologico A. De Gasperis  
Azienda Ospedaliera Niguarda Ca' Granda - Milano**

# **Analisi sequenziale nelle cardiopatie congenite complesse**

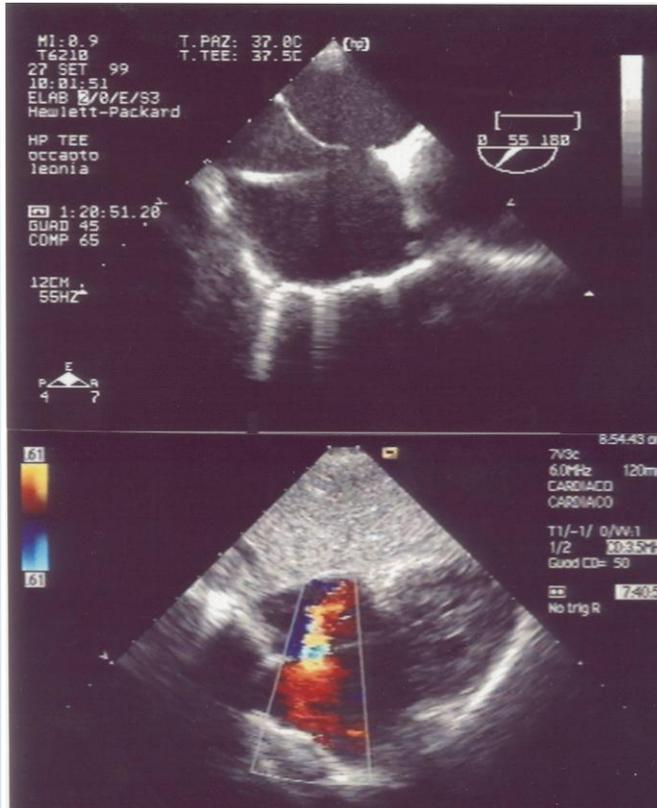
**Gabriele Vignati**

**Congresso di Ecocardiografia**

Milano 29 ottobre 2008

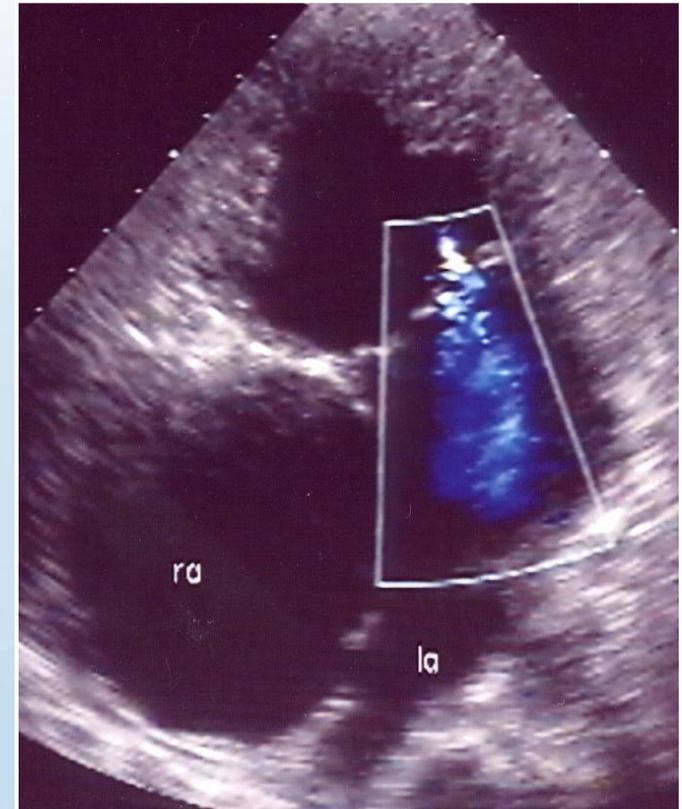


**Incidenza: 7-8 per 1000**



**difetto interatriale**

Miscellanea  
di  
malformazioni



**atresia della tricuspide**



# Classificazione cardiopatie congenite

- **15-20% forme minori**
- **45-60% moderata complessità**
- **15-20% forme complesse**



# Cardiopatie complesse

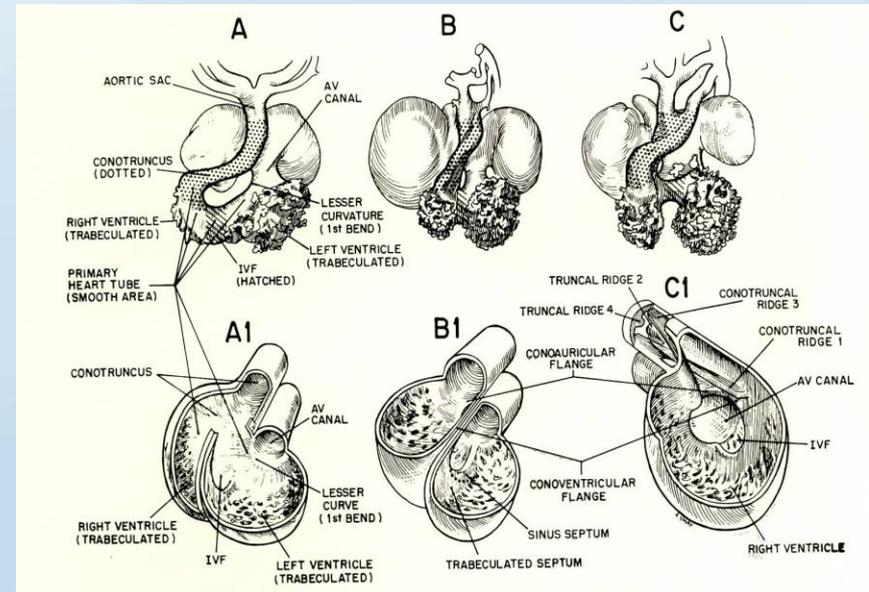
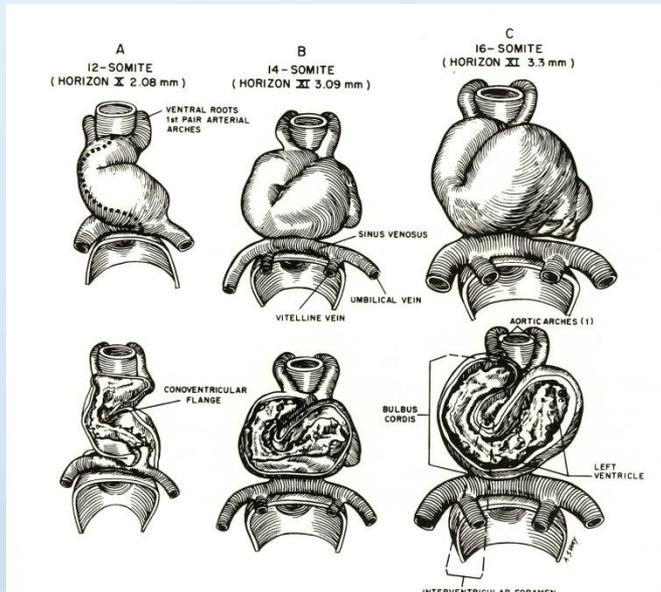
## Elementi caratterizzanti

- **Associazione di più anomalie strutturali**
- **Modificazioni sostanziali dell'emdinamica**



# Cardiopatie complesse

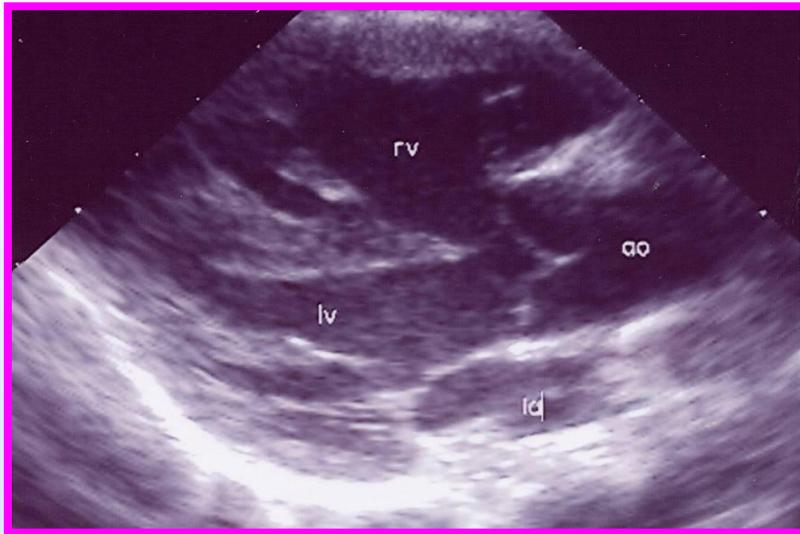
- Associazione di più difetti anatomici non è casuale
- Dipendente da disturbo specifico nella morfogenesi



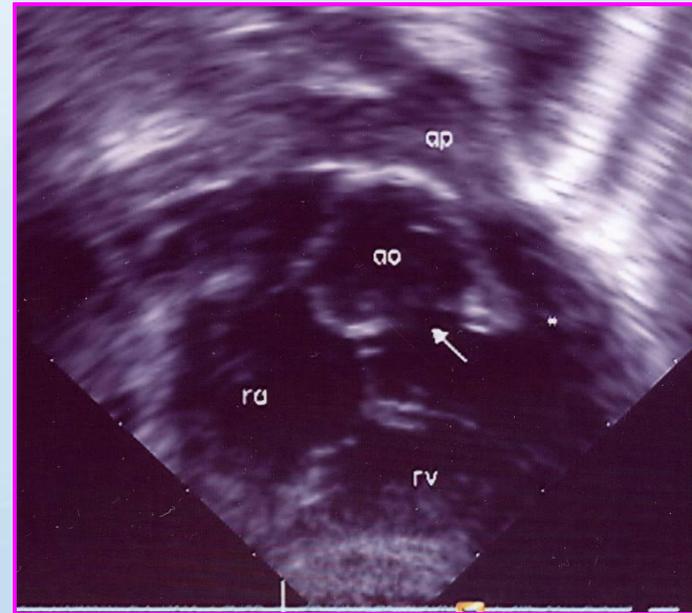


# Cardiopatie complesse

Associazione di più difetti anatomici



**Tetralogia di Fallot**





# Analisi sequenziale

- **Modo standardizzato di analisi del cuore che consente la diagnosi delle varie lesioni sia che esse siano conosciute o meno**
- **Suddivisione del cuore in tre segmenti: atri, ventricoli, grandi arterie**

Van Praagh R 1972

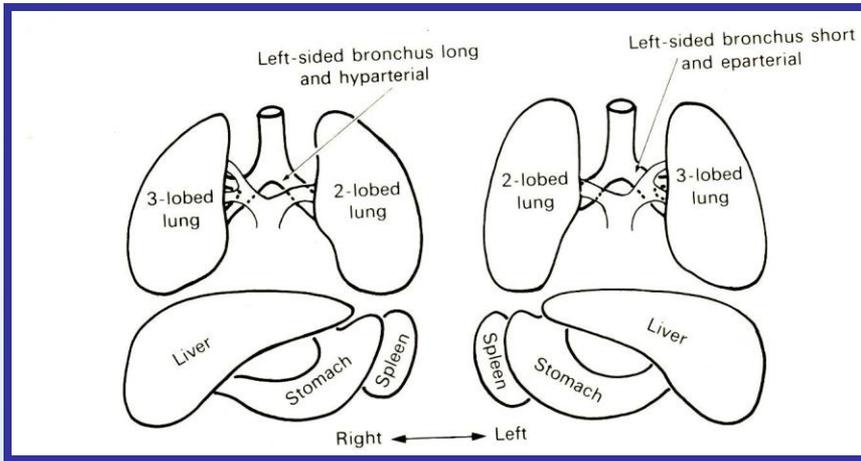


# Analisi sequenziale

- Definizione della posizione degli atri o “situs”
- Definizione dei rapporti tra atri e ventricoli e tra ventricoli e grandi arterie in base alla:
  - morfologia dei ventricoli
  - modi di connessione tra i vari segmenti
- Analisi delle anomalie associate compresa la posizione del cuore nel torace



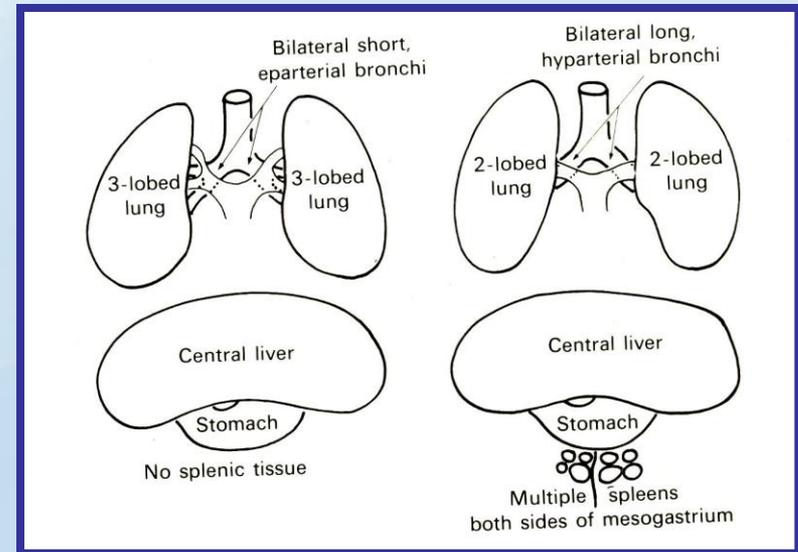
## Sito viscerale



- solitus
- inversus
- ambiguus

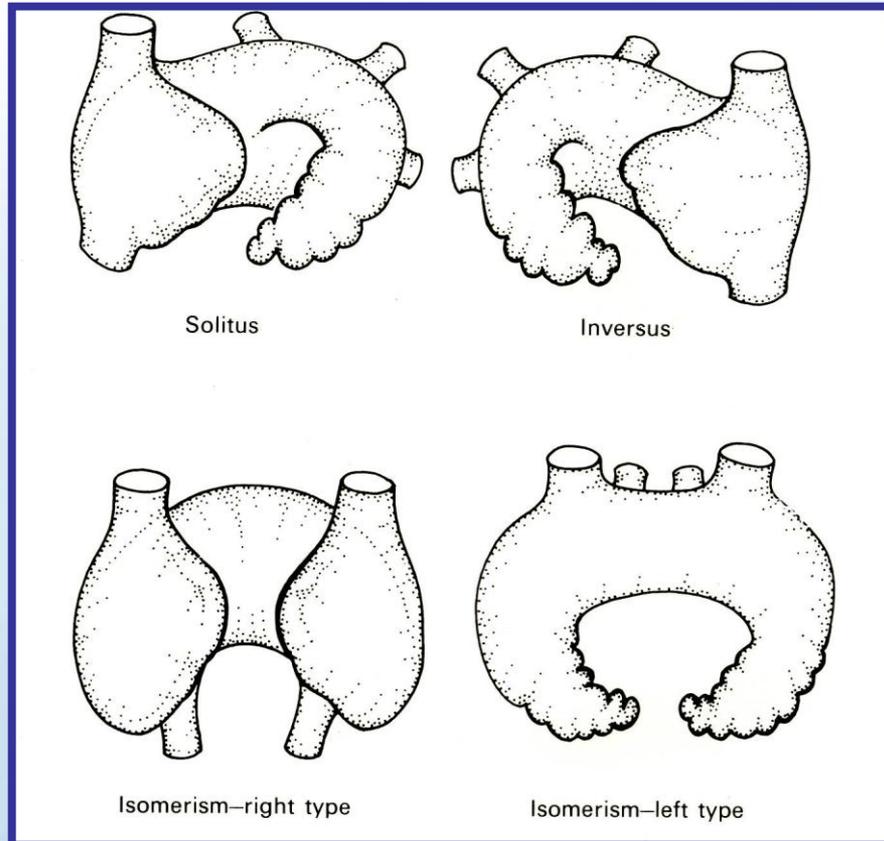
•Bronchi

•Atri





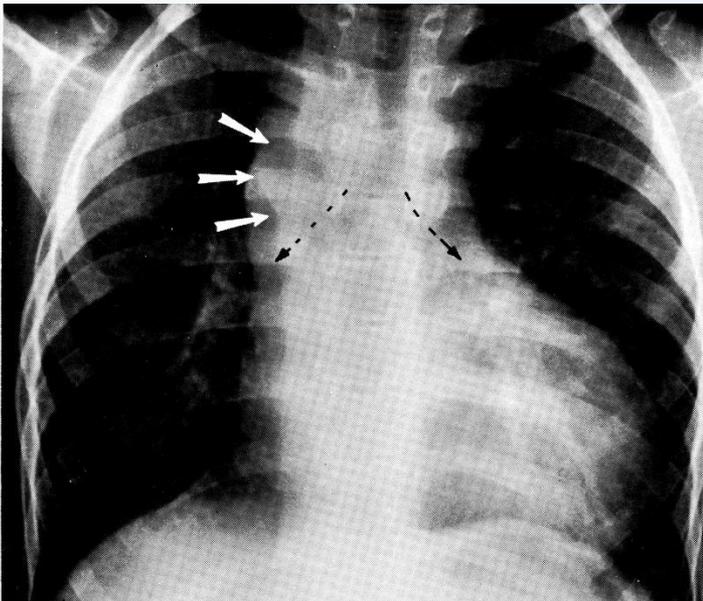
## Sito atriale



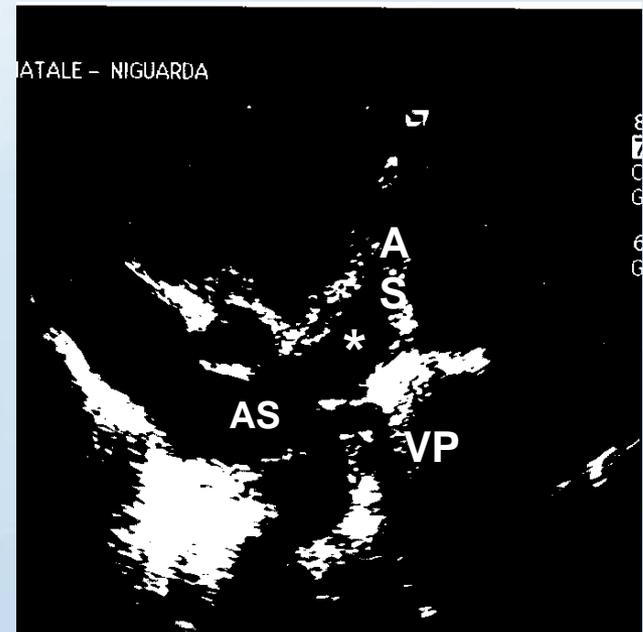


## Come determinare il sito?

Rx torace



Eco



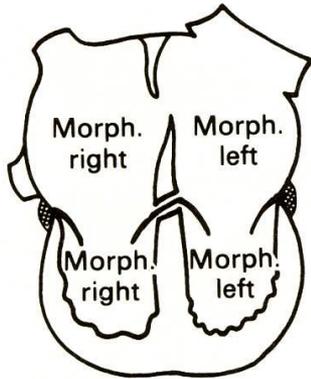


## Connessioni Atrio-Ventricolari

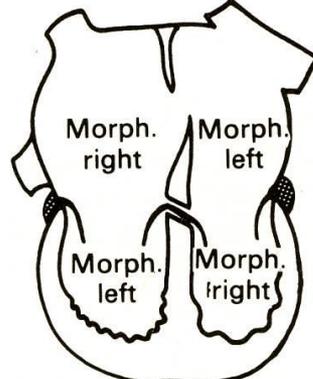
•tipo

•modo

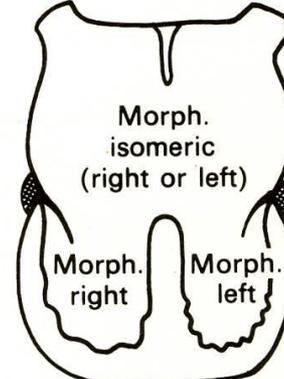
(a)



Atrioventricular concordance

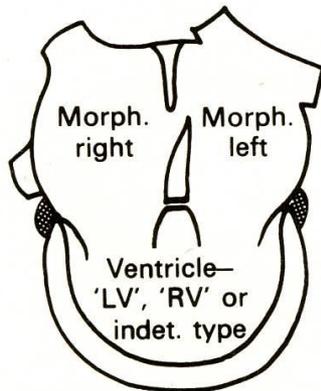


Atrioventricular discordance

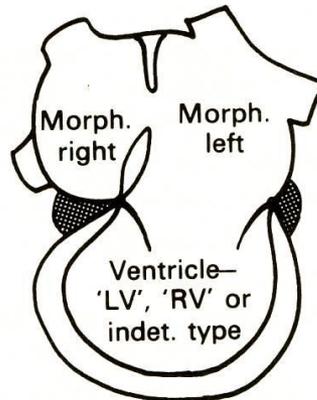


Ambiguous AV connection

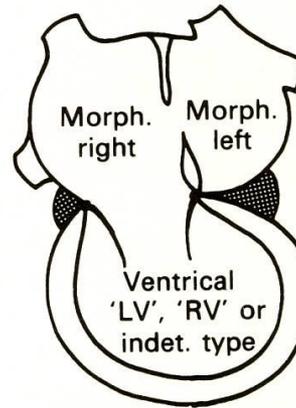
(b)



Double inlet ventricle



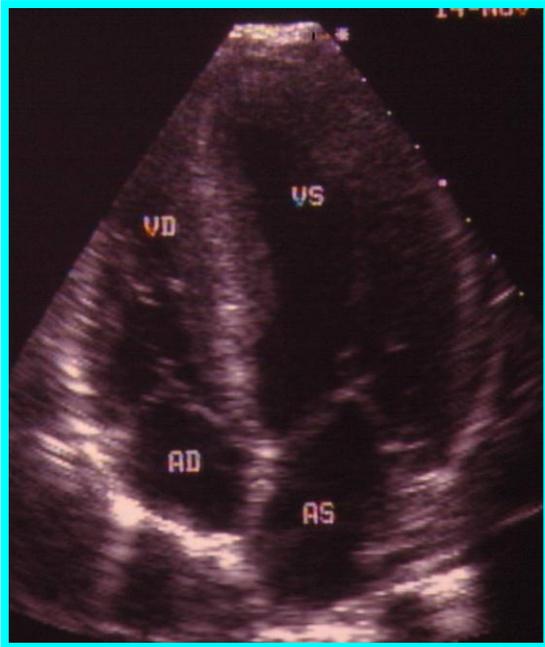
Absent right AV connection



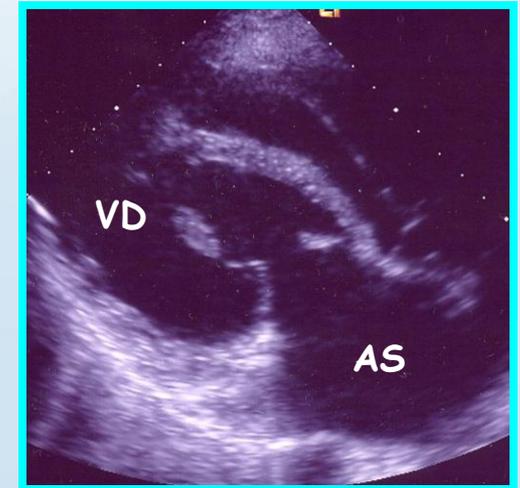
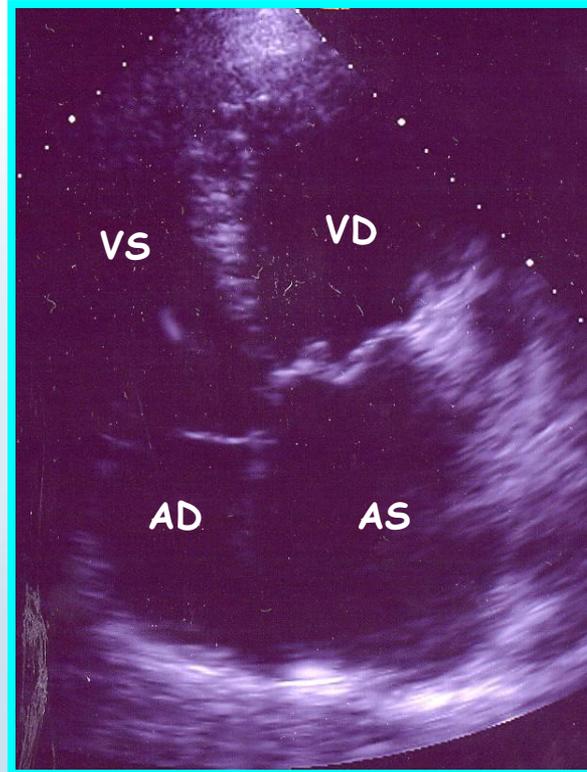
Absent left AV connection



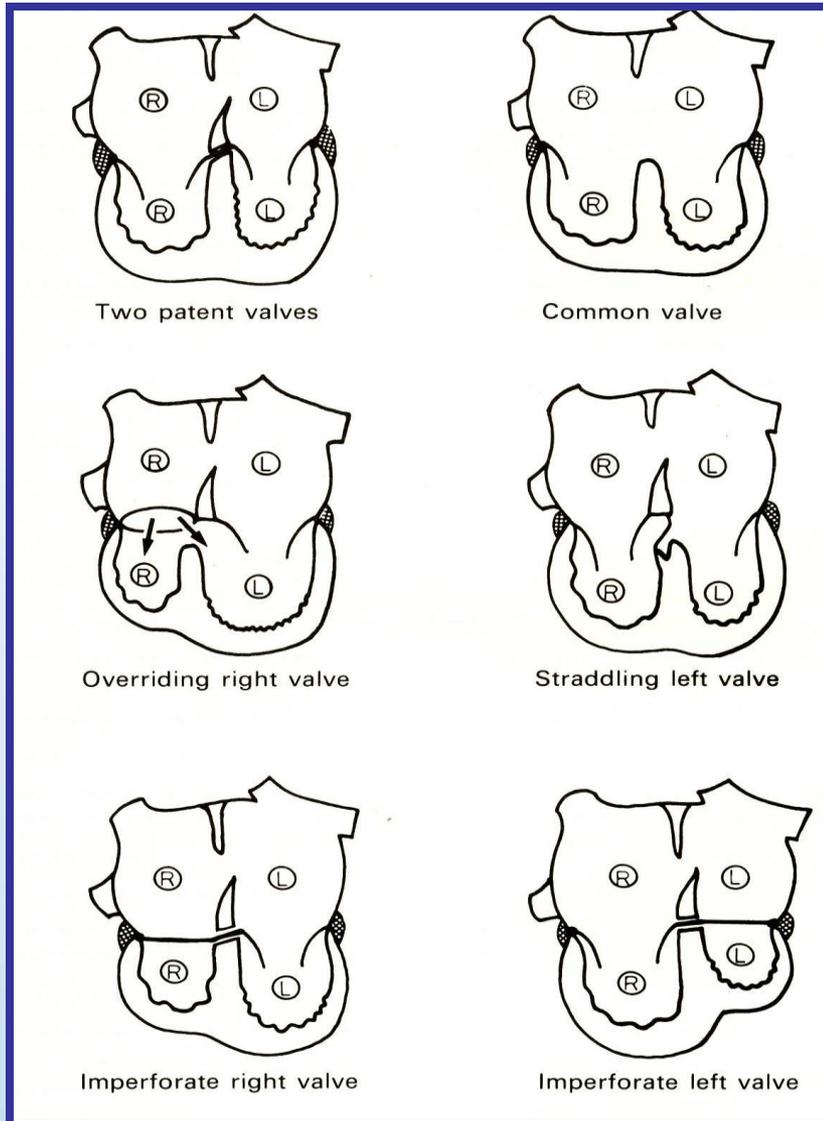
## Connessioni atrio-ventricolari



**concordante**



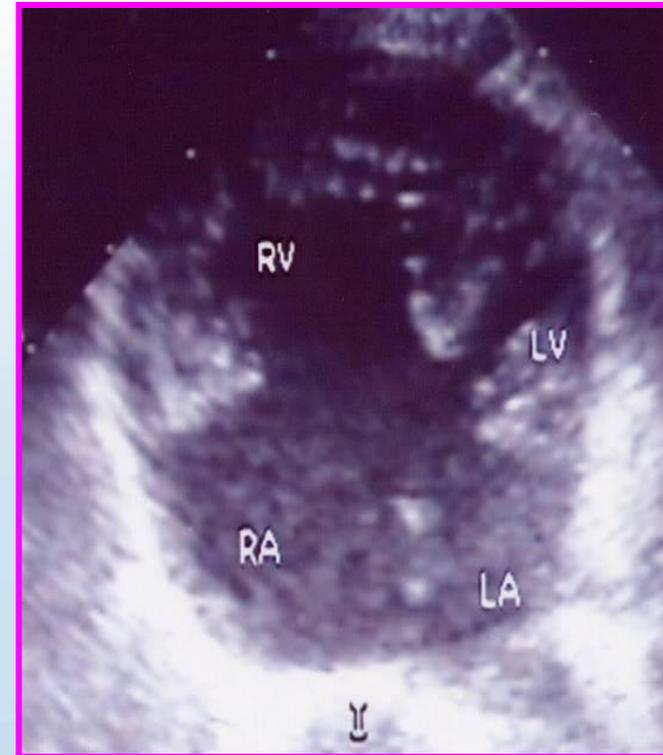
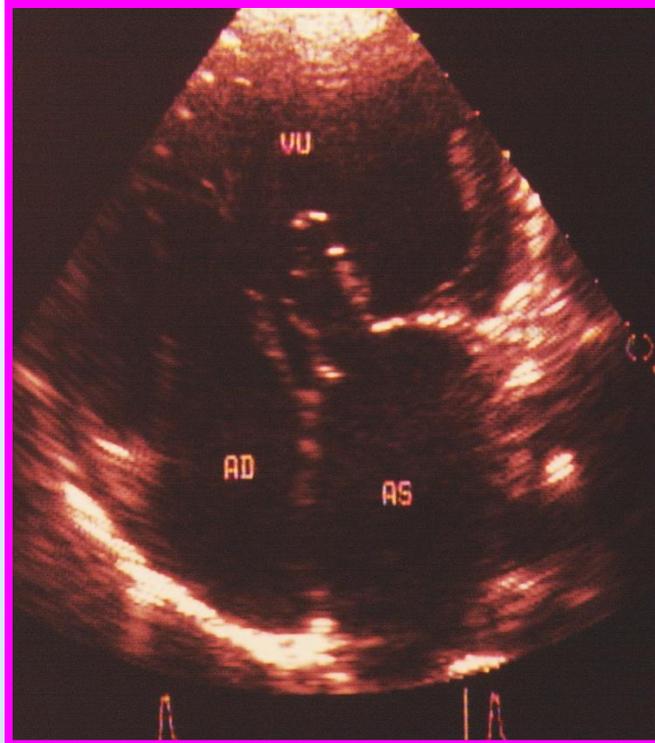
**discordante**



## Modi di connessione



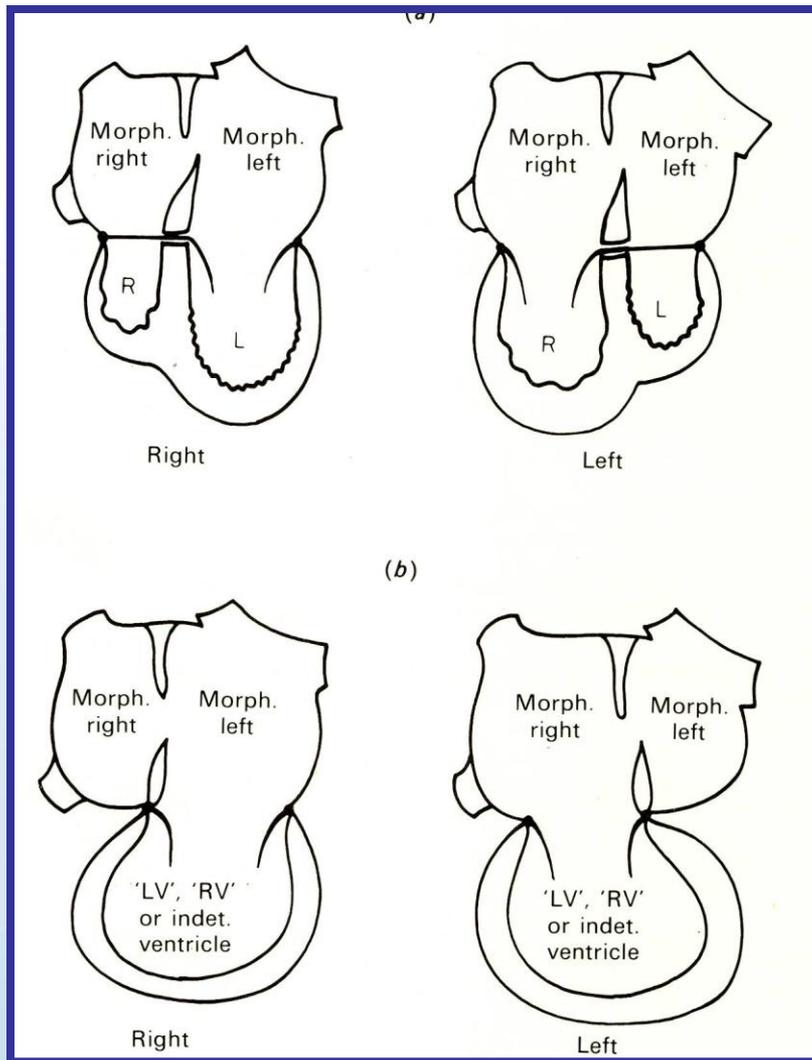
## Modi di connessione

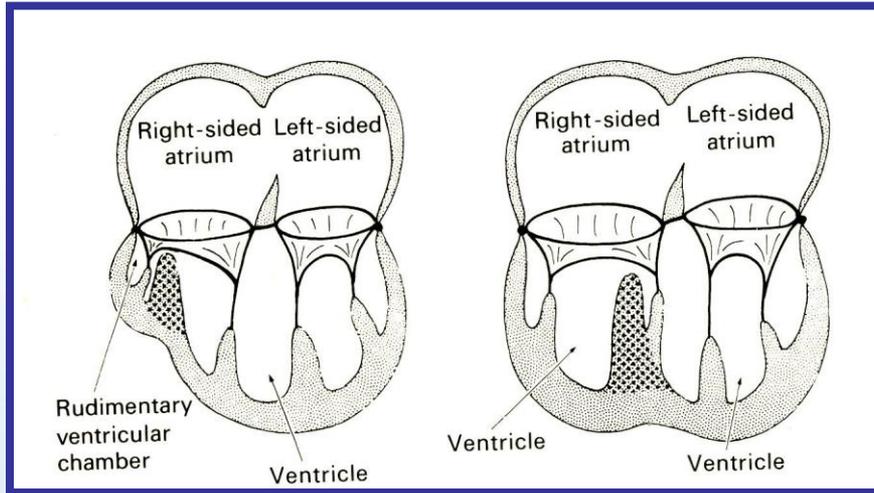




## Assente connessione

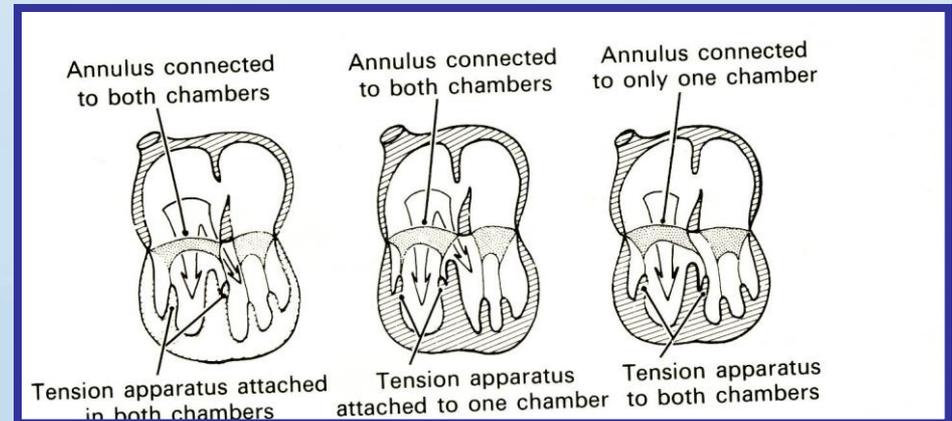
- Valvola imperforata
- Valvola assente





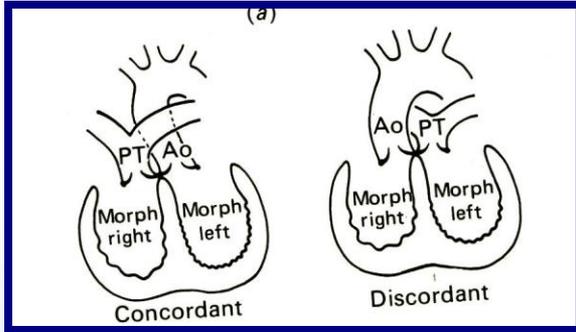
• **Straddling**

• **Overriding**

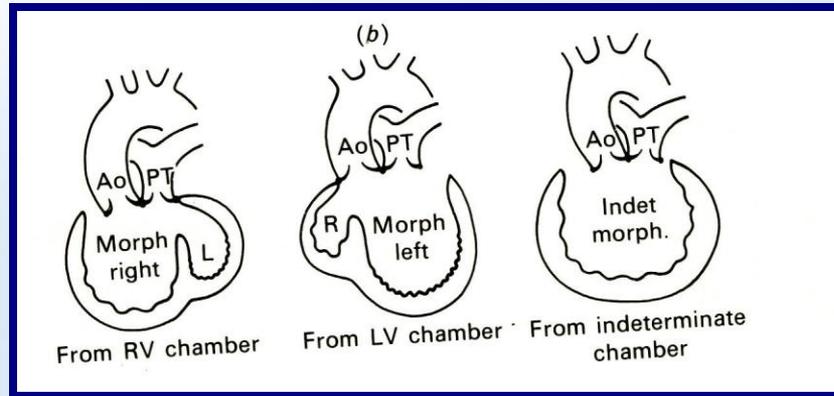




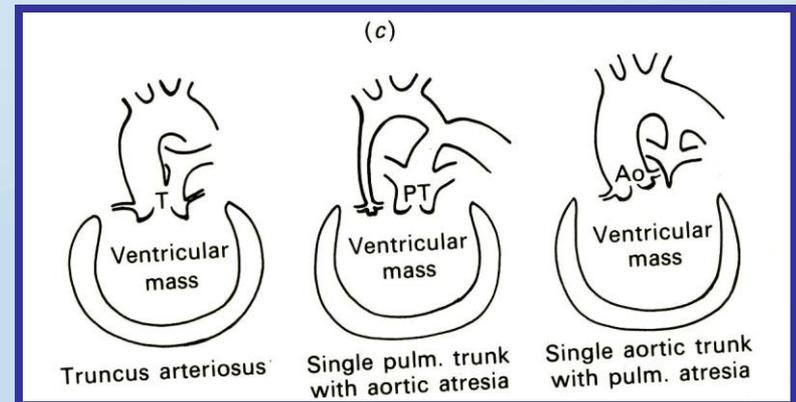
# Connessioni ventricolo-arteriose



tipo



modo

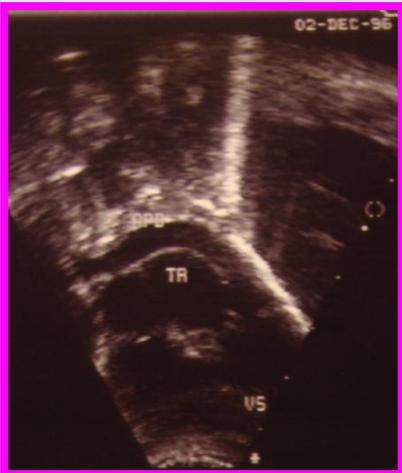




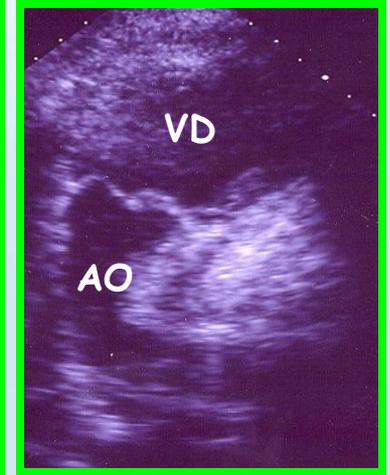
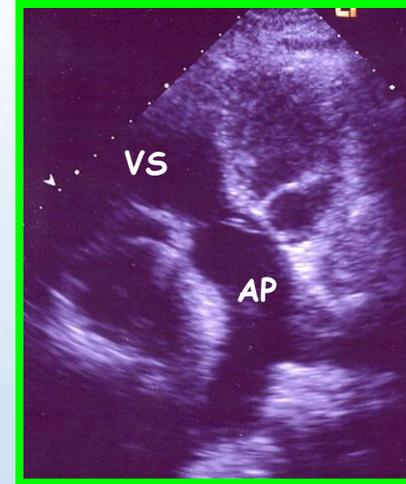
## Connessioni ventricolo-arteriose



Truncus



Atresia PO



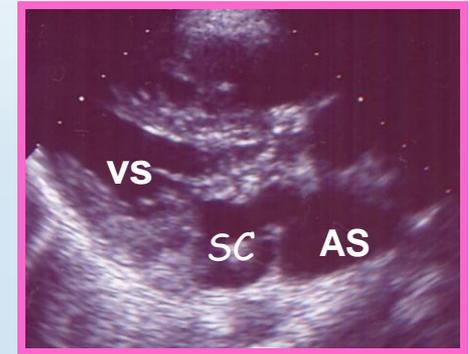
TGA



## Anomalie ritorni venosi sistemici

### Senza ripercussioni emodinamiche

- Cava sup. sin. in seno coronarico
- Continuazione azygos cava inf.
- Assente cava sup. dx



### Con ripercussioni emodinamiche

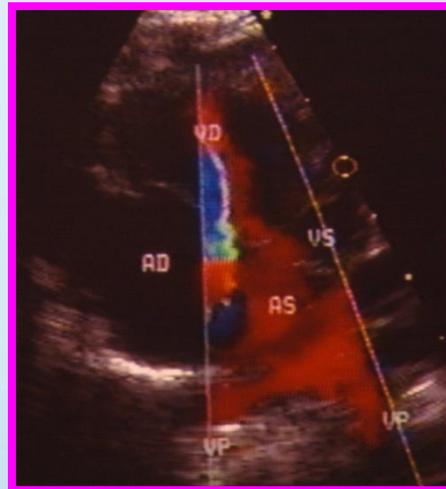
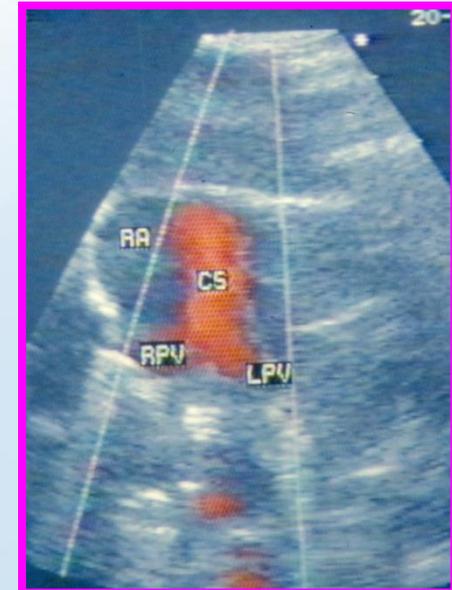
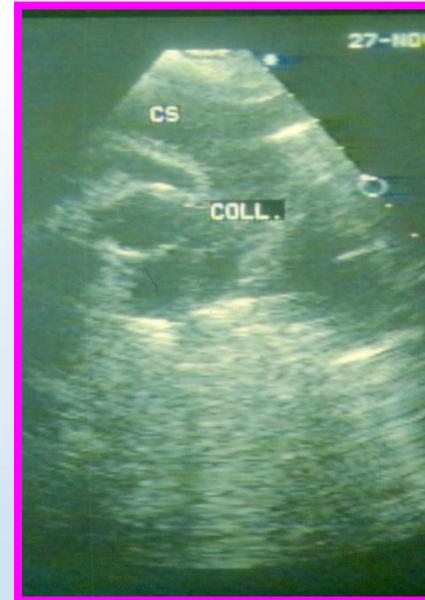
- Cava sup. sin. in atrio sin.



# Anomalie ritorni venosi polmonari

**-totali**

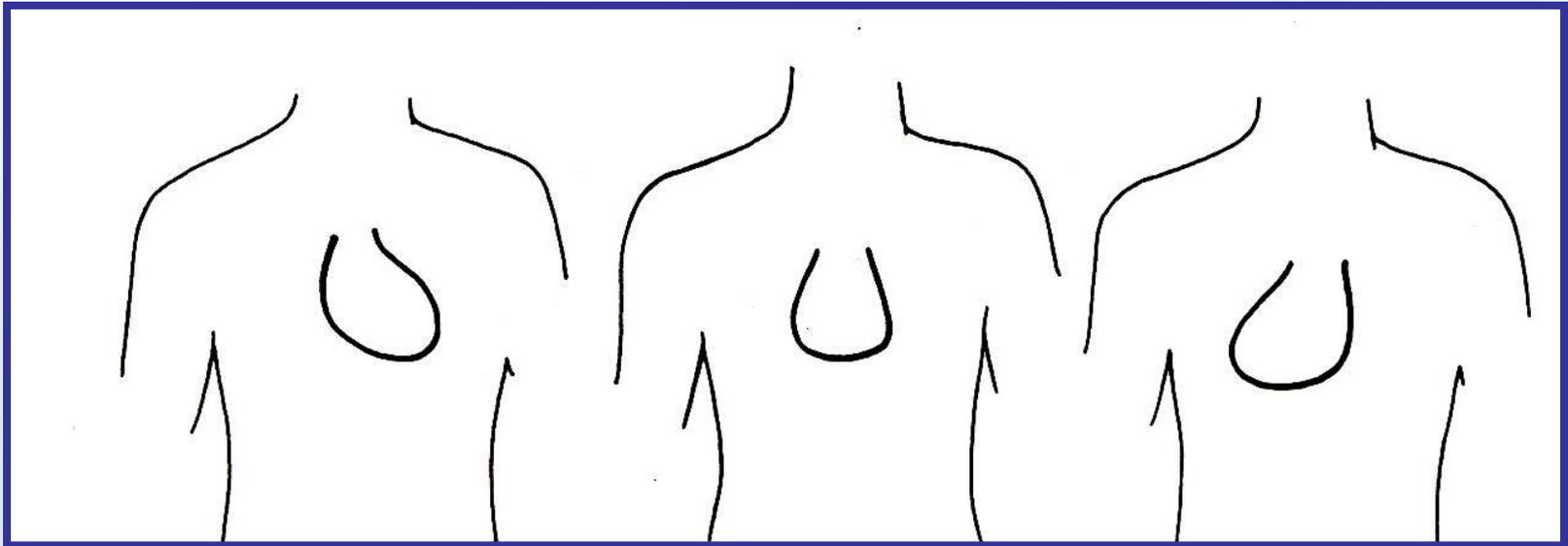
**-parziali**



**-sopracardiaci**  
**-infracardiaci**  
**-sottodiaframmatici**  
**-misti**

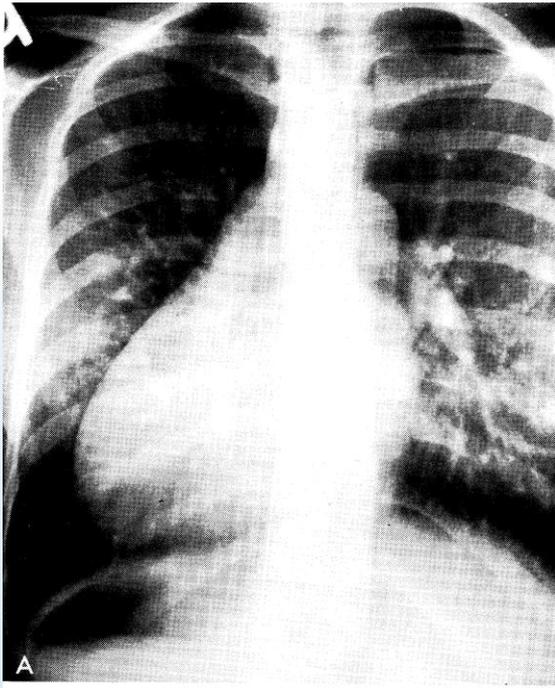


## Posizione del cuore nel torace

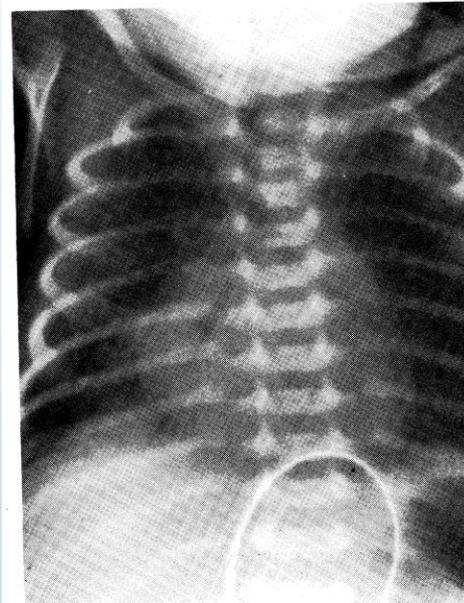




## Posizione del cuore nel torace

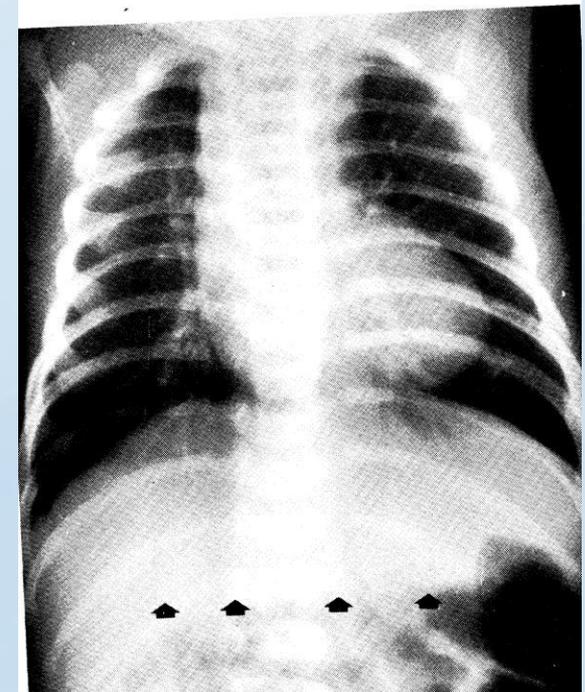


**destrocardia**



**mesocardia**

**levocardia**





## Sindromi isomeriche

### Isomerismo dx

- Anomalie ritorni venosi sist.  
duplicità cava sup.  
cava inf. a sin.  
vene sovraepatiche in atro
- RVPAT
- Atrio unico
- Valvola AV comune
- VDDU, VU
- TGA
- Atresia polmonare

### Isomerismo sin.

- Anomalie ritorni venosi sist.  
continuazione azygos CI
- RVP polarizzati
- CAV sbilanciato (dominaza dx)
- Connessioni VA normali
- Ostruzioni efflusso sinistro



## Conduzione esame ecocardiografico

### **SITO ATRIALE**

ricerca auricola sin.  
4 CA,  
PS asse breve

### **RAPPORTI AV**

tipo e modi  
4CA,  
sottocostale

### **RAPPORTI VA**

tipo e modi  
4CA,  
sottocost,  
PS asse breve  
Sovrasternale

### **RITORNI VENOSI**

-sistemici: sottocostale  
soprasternale  
-polmonari: 4CA  
sottocostale  
soprasternale

### **ANOMALIE ASSOCIATE**

difetti settali  
patologie valvolari  
ostruzione agli efflussi  
dotto arterioso pervio



# Conclusioni

Utilizzando l'approccio sequenziale anche le cardiopatie più rare e bizzarre possono essere indagate correttamente

