

RADIOLOGISKE UNDERSØGELSER VED MEDFØDTE HJERTEFEJL

A-Kursus 2013 Pædiatrisk radiologi

Aalborg den 11. November 2013

**Gratien Andersen
Overlæge
Billeddiagnostisk Afdeling
Århus Universitetshospital i Skejby**

Incidens og fordeling

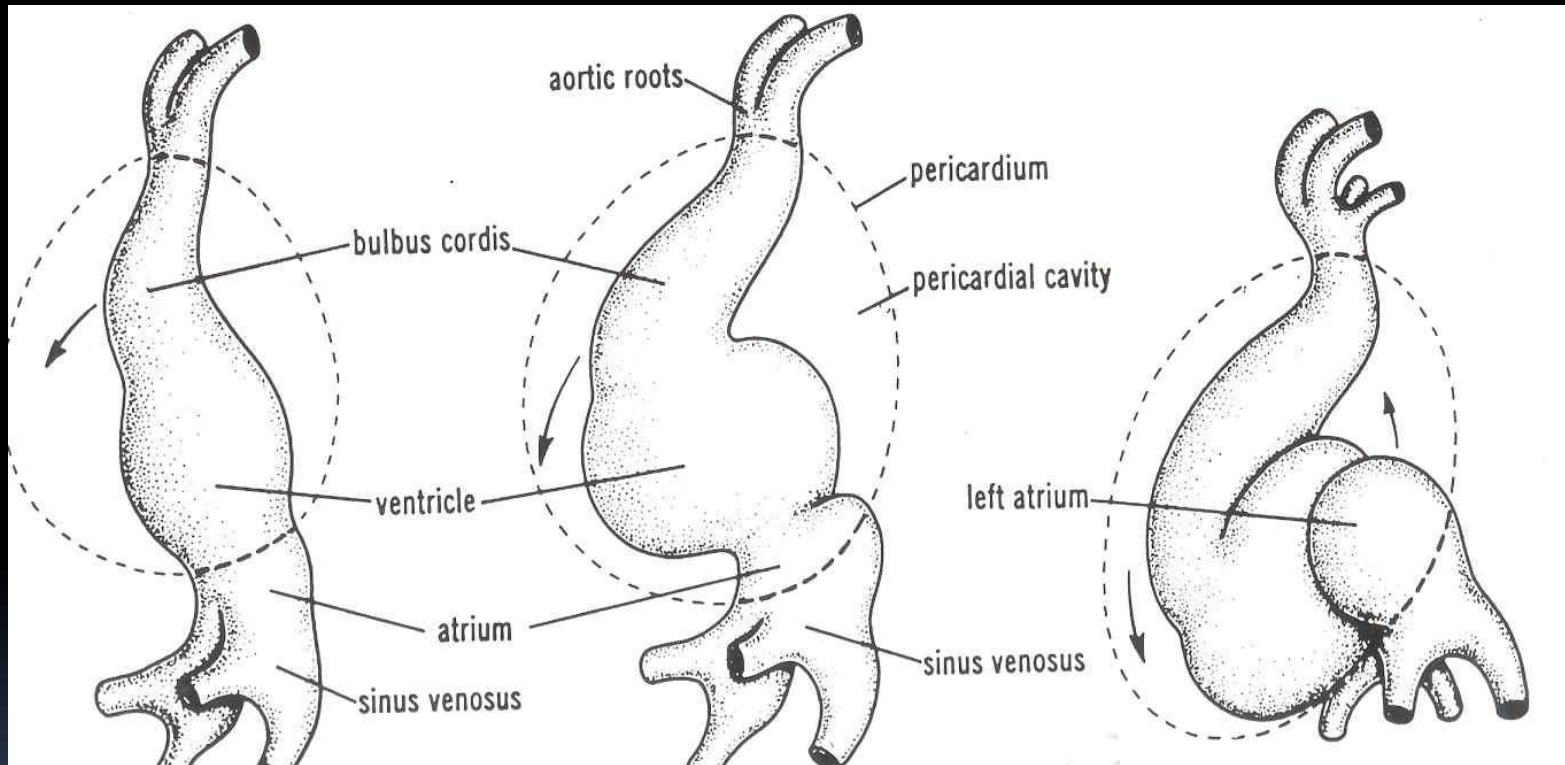
8 medfødte hjertesygdomme per 1000 levendefødte

Hvert år fødes omkring 600 børn med hjertefejl i Danmark.
En sygdom der vil følge dem resten af livet.

Kongenit hjertesygdom - Fordeling

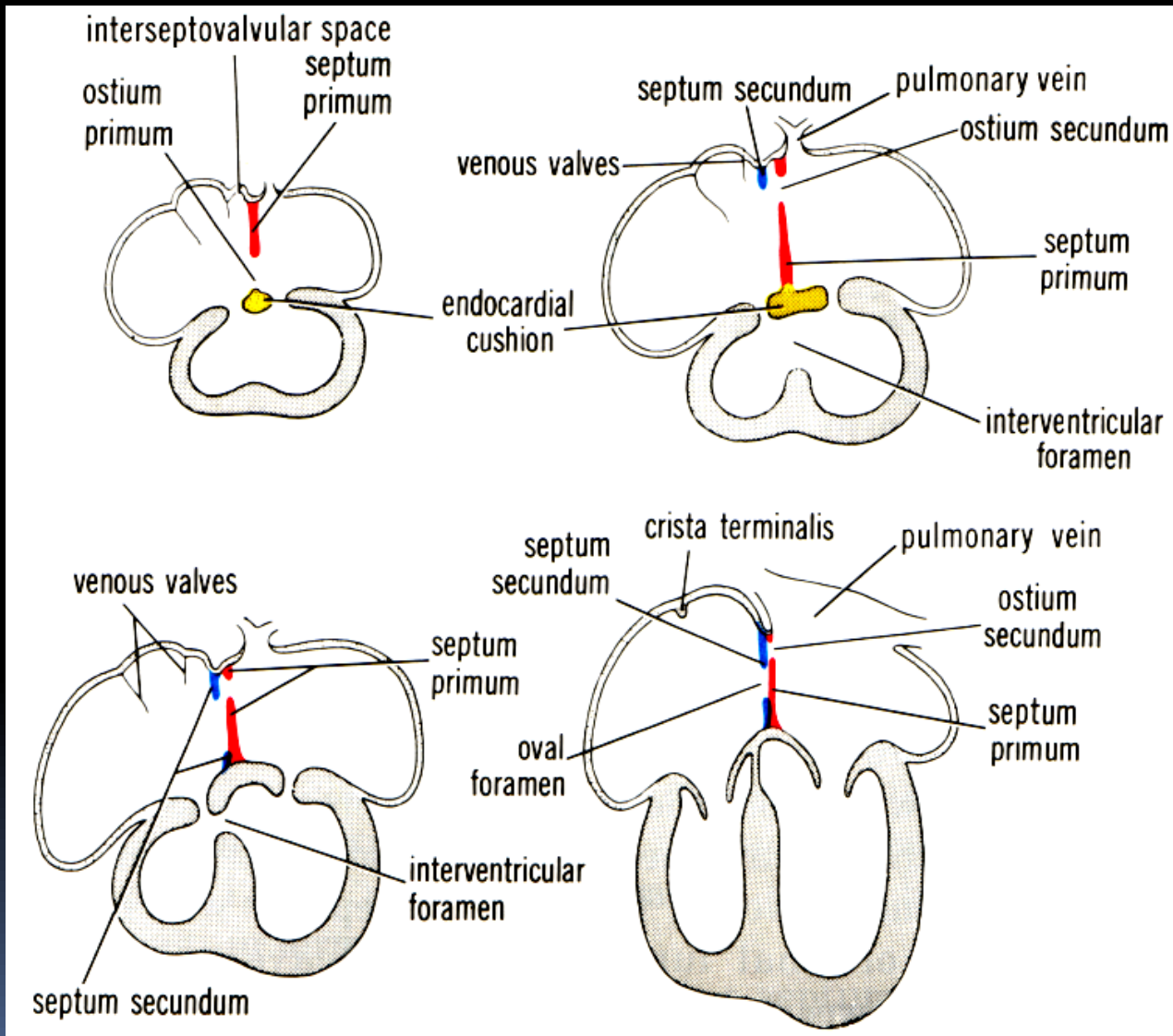
▪ Ventrikelseptumdefekt	31%
▪ Atrioseptumdefekt	8%
▪ Ductus arteriosus persistens	7%
▪ Pulmonalstenose	7%
▪ Coarctatio aortae	6%
▪ Tetralogia Steno-Fallot	6%
▪ Aortastenose	5%
▪ Transposition	5%
▪ Atrioventrikulærseptumdefekt	4%
▪ Hypoplastisk venstre hjerte	3%
▪ Hypoplastisk højre hjerte	2%
▪ Cor univentriculare	2%
▪ Tricuspidalatresi	1%
▪ Total abnormt mundende lungevener	1%
▪ Double outlet right ventricle	1%
▪ Øvrige	11%

Kongenit hjertesygdom

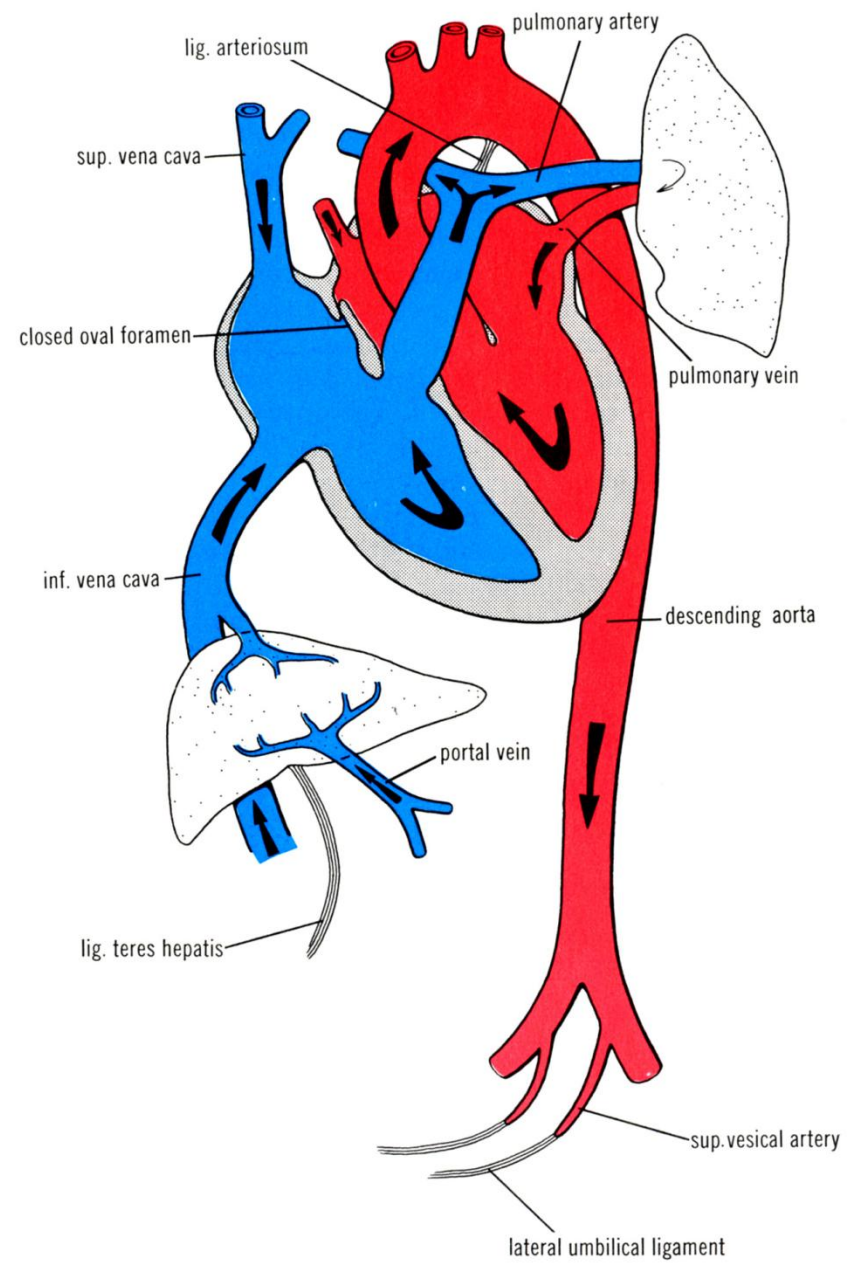
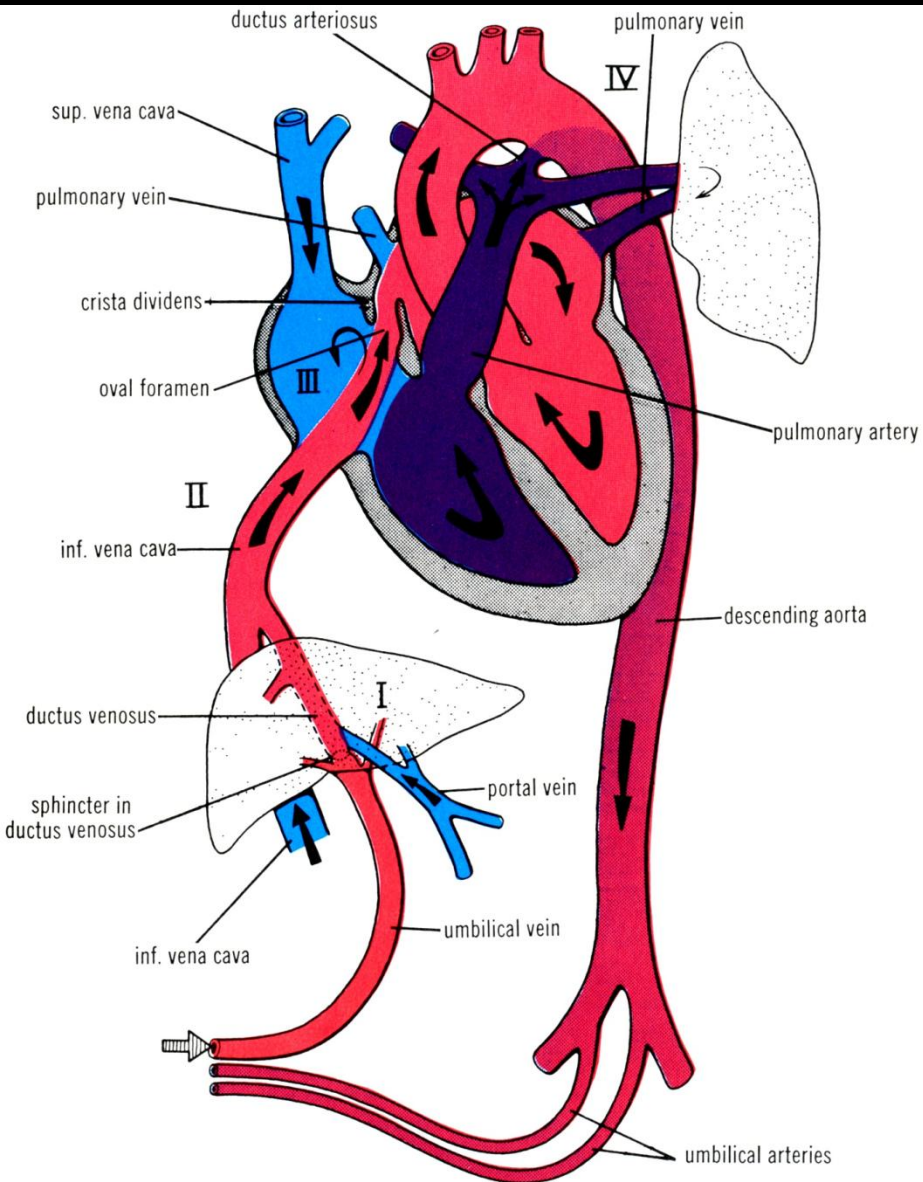


The tubular heart

Kongenit hjertesygdom



Septation and valve formation



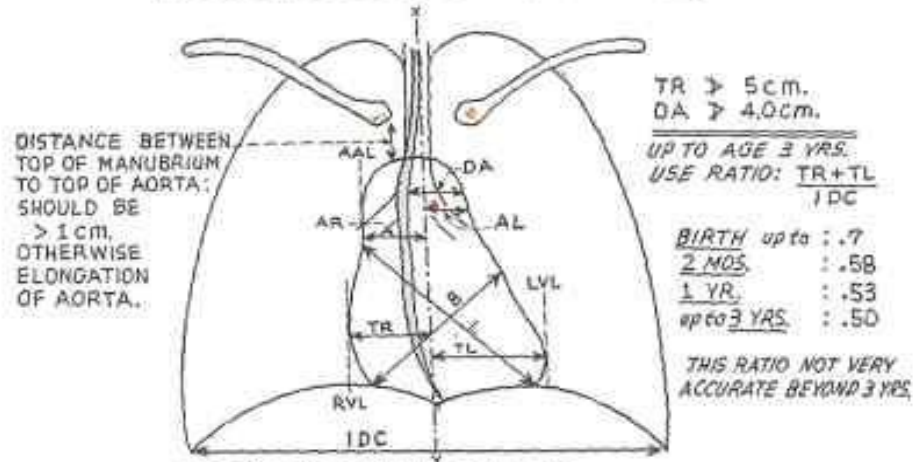
Kongenit hjertesygdom: Udredning - Undersøgelsesmetoder

- Klinisk undersøgelse
- EKG
- Røntgen af thorax
- Ekkokardiografi med farve-Doppler (TTE og TEE)
- Hjertekateterisation
- MR-skanning
- CT-skanning

Kongenit hjertesygdom

Cardiac measurement

1. UNGERLEIDER AND GUBNER NOMOGRAM METHOD (FOR INDIVIDUALS 56-80" HT; 95-300# WT.)



TR > 5cm.
DA > 4.0cm.

UP TO AGE 3 YRS.
USE RATIO: $\frac{TR+TL}{IDC}$

BIRTH up to : .7
2 MOS. : .58
1 YR. : .53
up to 3 YRS. : .50

THIS RATIO NOT VERY ACCURATE BEYOND 3 YRS.

AAL: DOES NOT EXTEND BEYOND RVL.
RVL: DOES NOT EXTEND BEYOND MEDIAL 1/3 OF DIAPHRAGM.
LVL: DOES NOT EXTEND BEYOND MEDIAL 1/2 OF DIAPHRAGM.

1. $A = \sqrt[4]{L \times B} = .7854 \times L \times B$
2. GREATEST TRANSVERSE DIAMETER (GTD) OF HEART: TR+TL
3. COMPARE MEASURED AND CALCULATED VALUES FOR A and GTD WITH VALUES ANTICIPATED FROM BODY HEIGHT AND WEIGHT. NORMAL RANGE IS VALUE ANTICIPATED $\pm 10\%$
4. MEASURED AORTIC VALUE: AR+AL

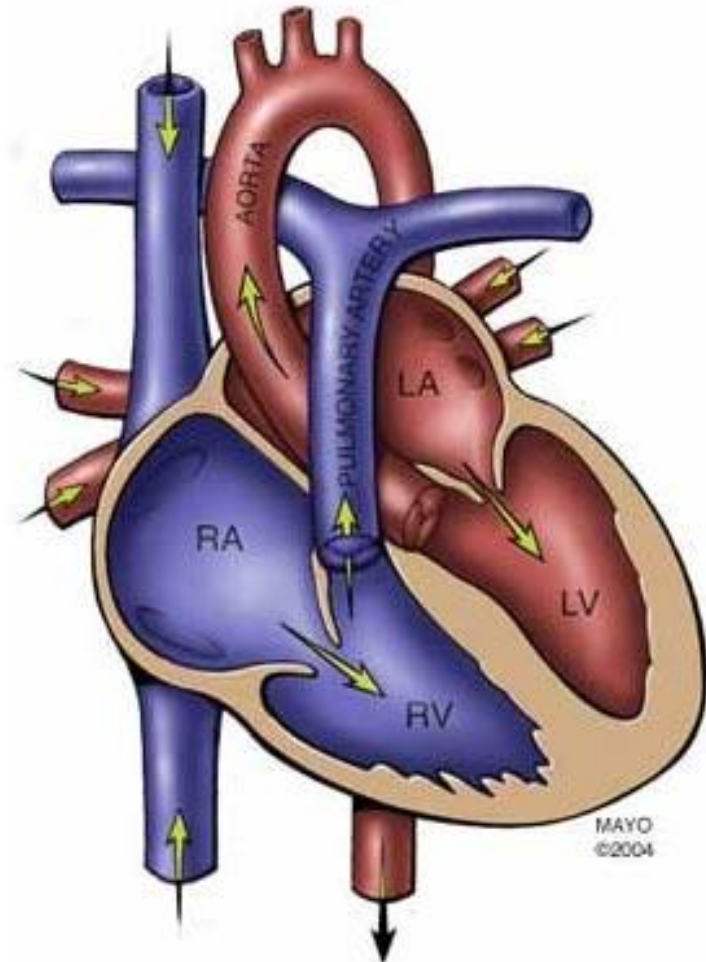
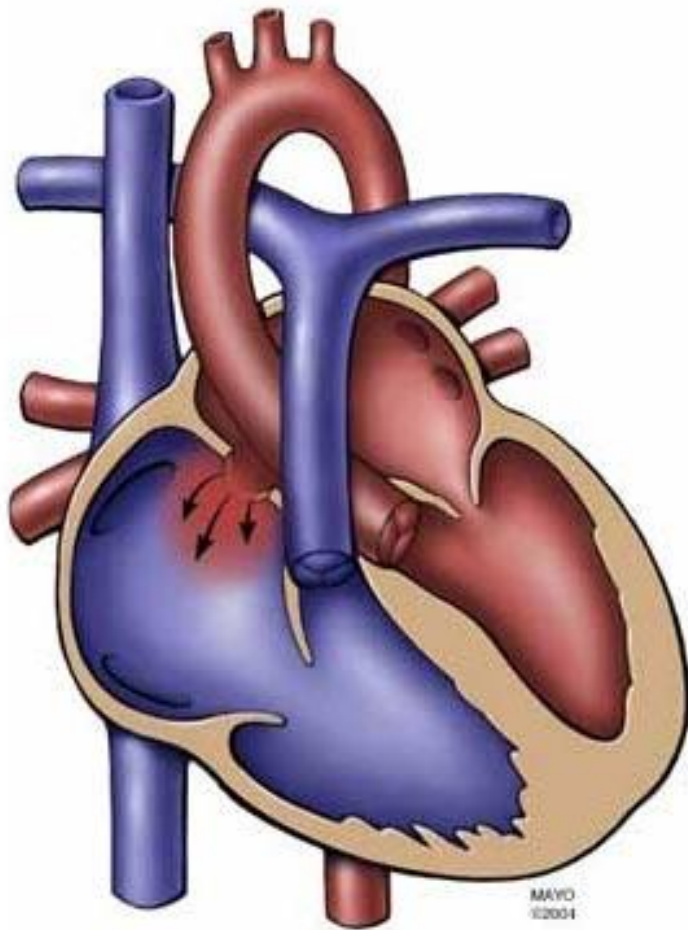
ANTICIPATED AORTIC VALUE: CHART VALUE

-1mm.	+1mm.
For each	For each
3 Yrs. < 43 Yrs.	3 Yrs. > 43 Yrs.

2. USE SIMILAR MEYER'S TABLES FOR CHILDREN 3-16 YRS OF AGE

$A = \sqrt[4]{L \times B}$

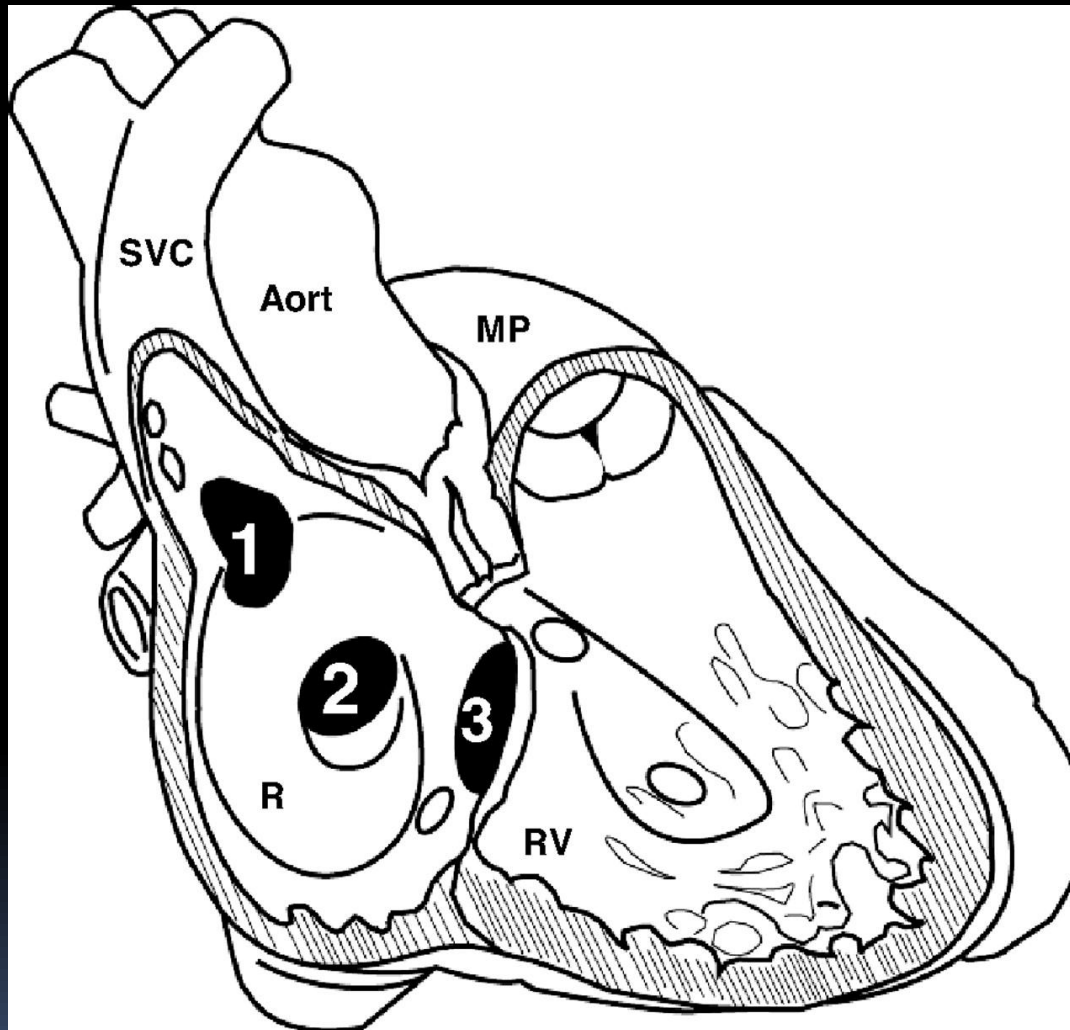
ASD



ASD



Figure 1. Types and typical locations of ASDs. In this view, the free walls of the RA and RV have been removed, looking leftward toward the septal surface.

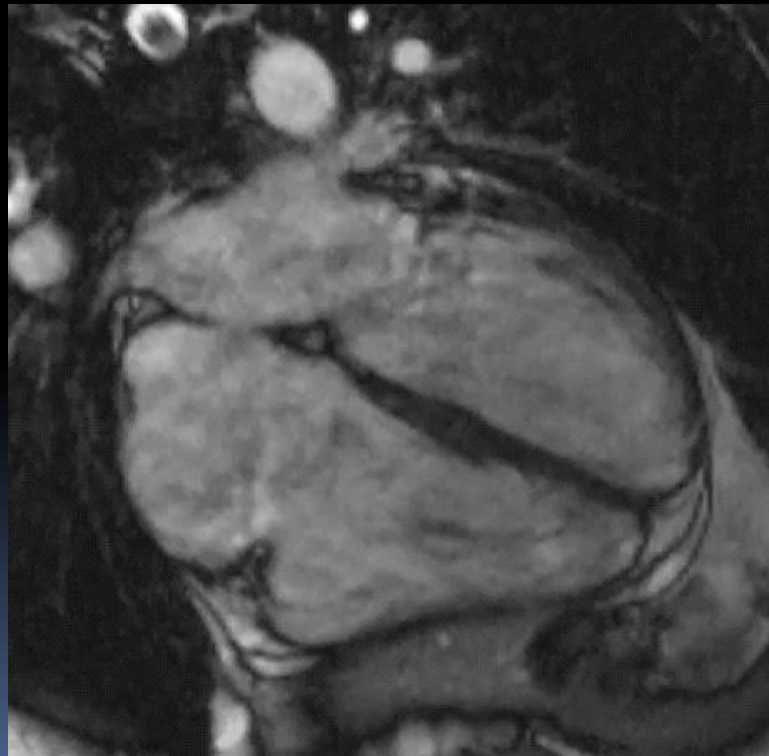


Sommer R J et al. *Circulation* 2008;117:1090-1099

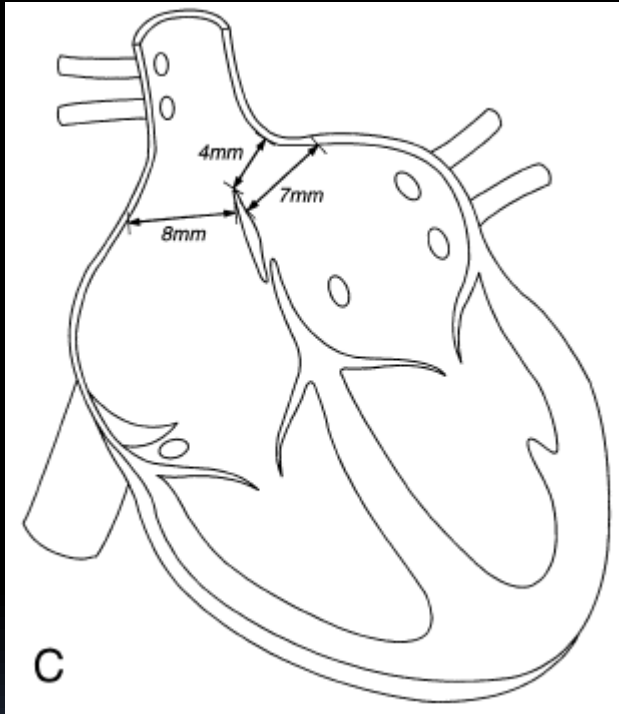
- 1- Sinus venosus
- 2- Ostium secundum
- 3- Ostium primum/AV canal type ASD

ASD

MR skanning



ASD (sinus venosus) 16 mdr. F



4 Omnipaque 350mg 136 bpm, 7

15 Nov, 2010 11:52:16.77

C

80 kV

FOV 91.0 mm

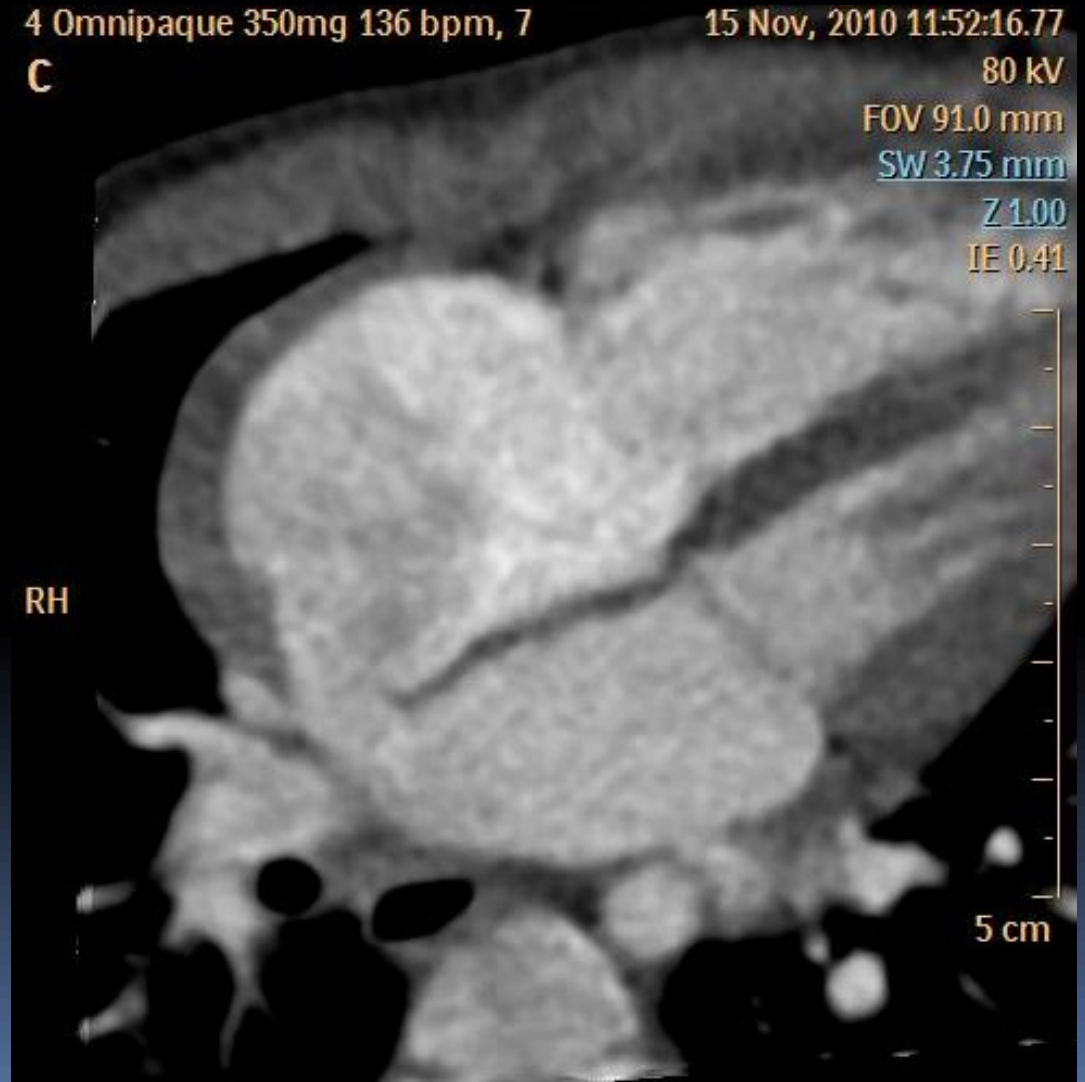
SW 3.75 mm

Z 1.00

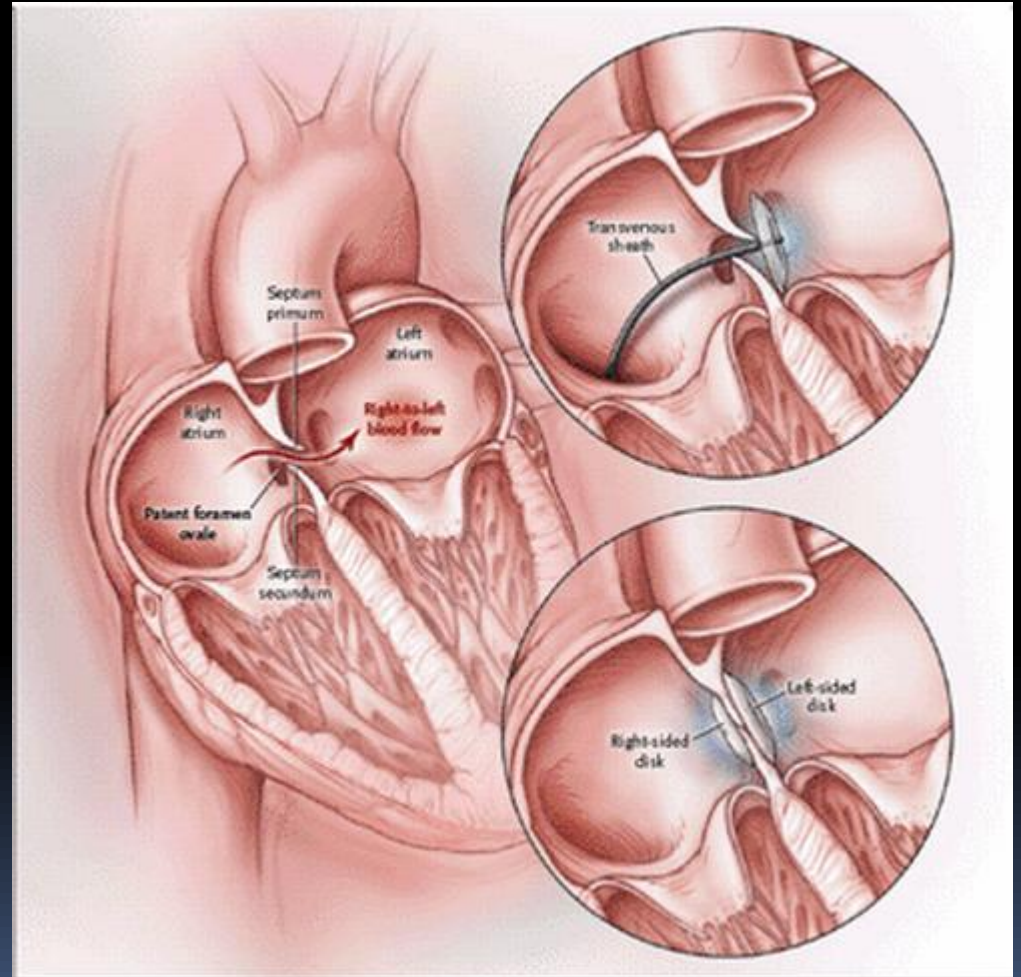
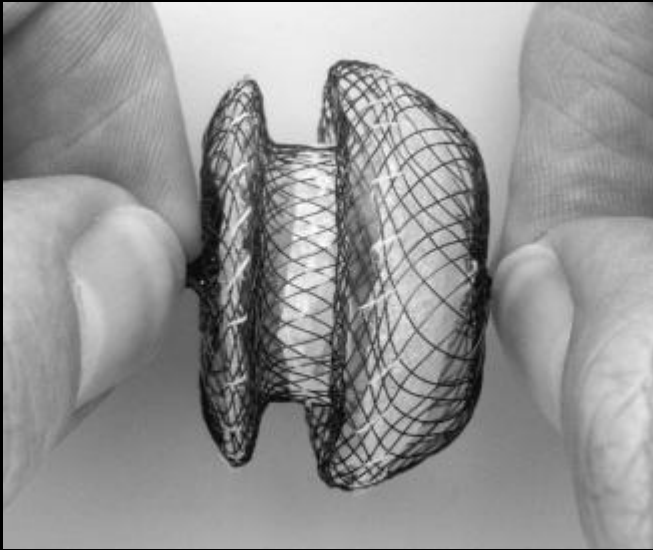
IE 0.41

RH

5 cm



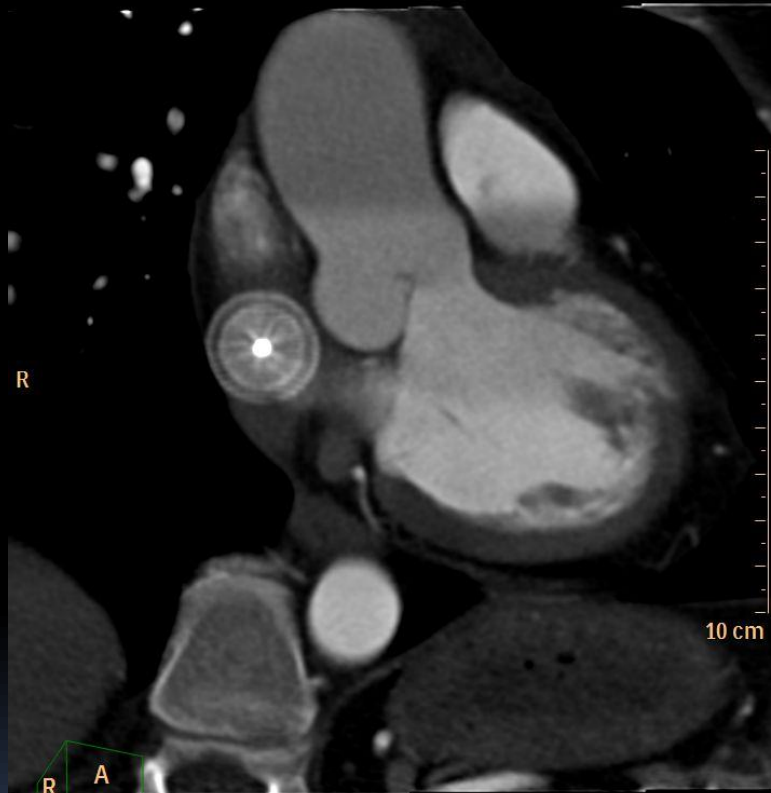
ASD



Kateterbaseret behandling

ASD





FP

F

Thorax

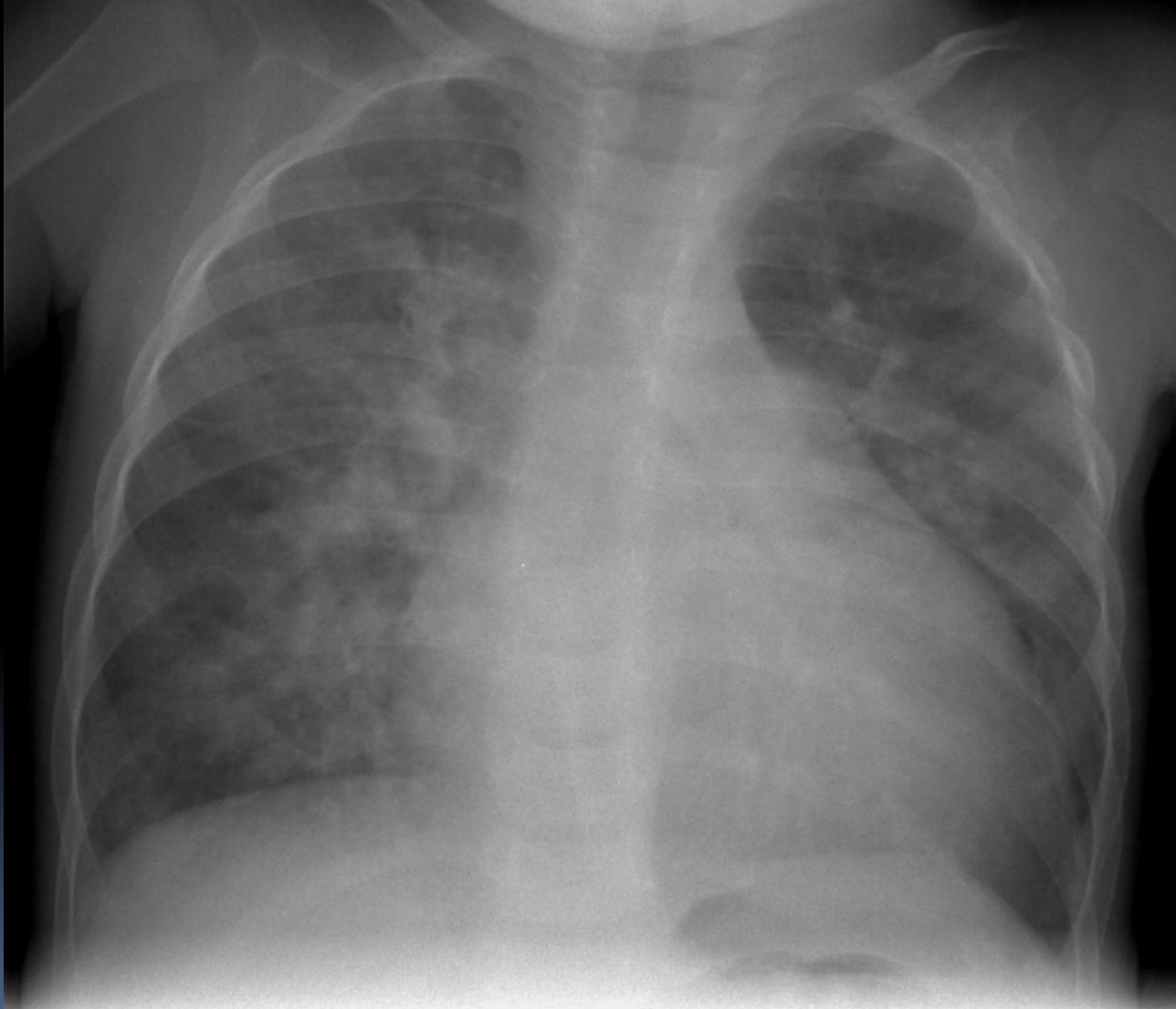
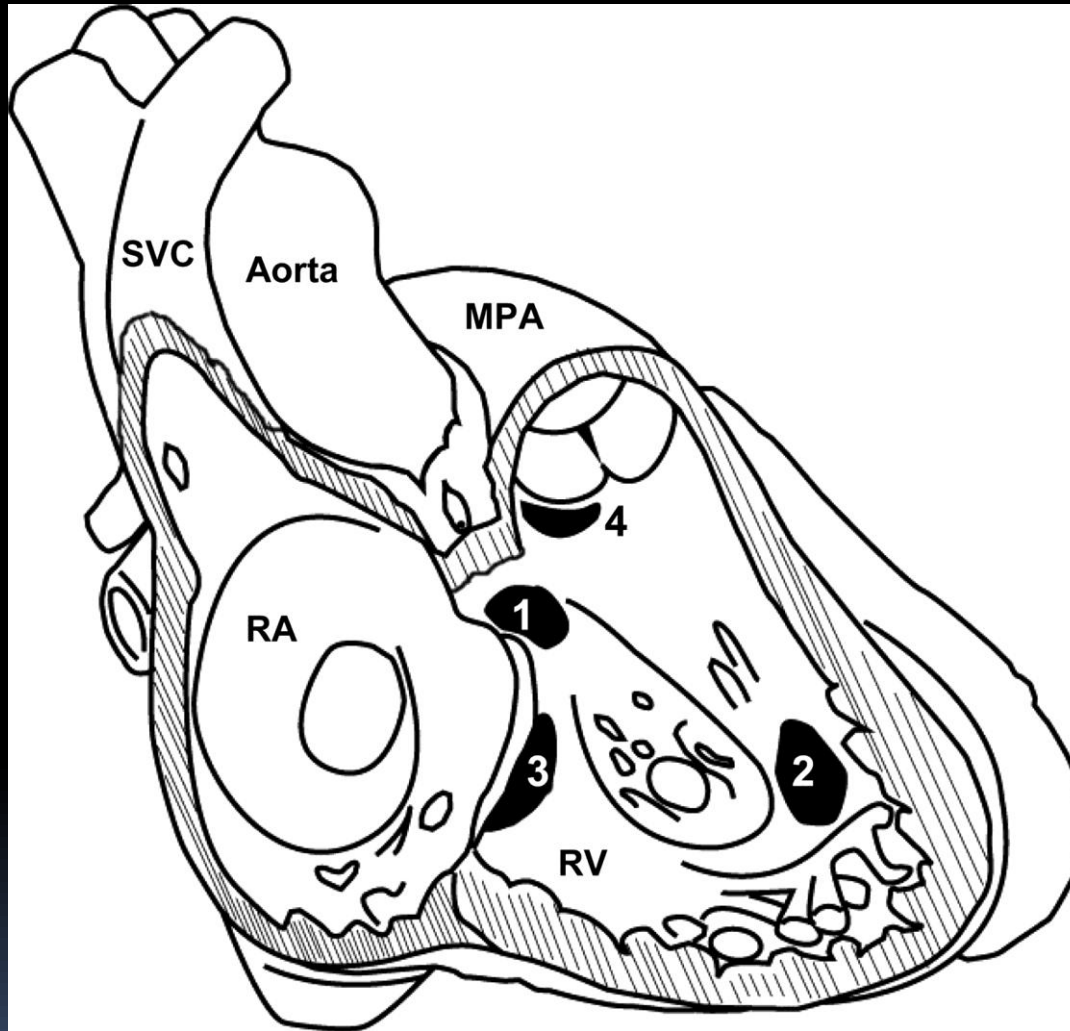


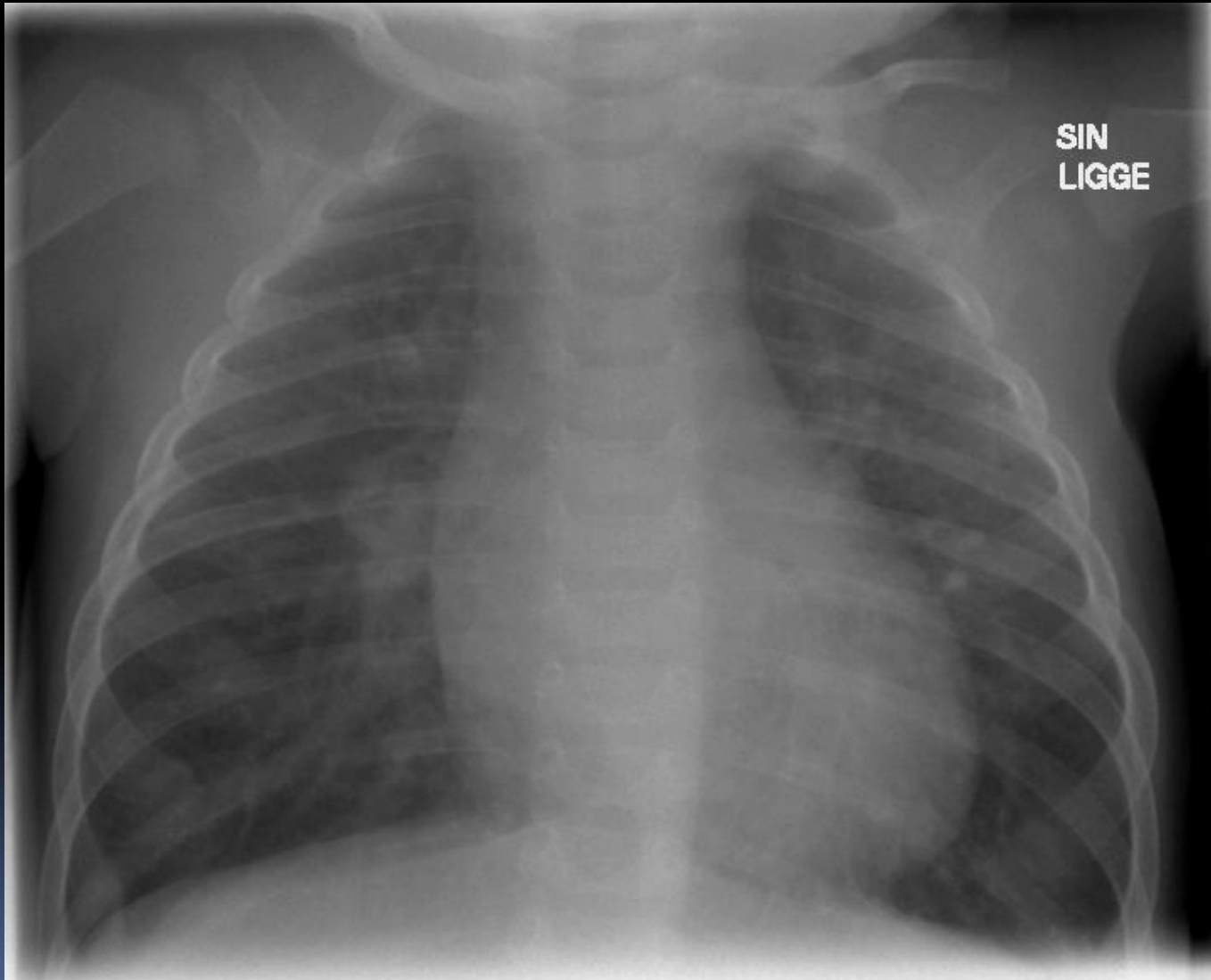
Figure 2. Types and typical locations of VSDs. In this view, the free walls of the RA and RV have been removed, looking leftward toward the septal surface.



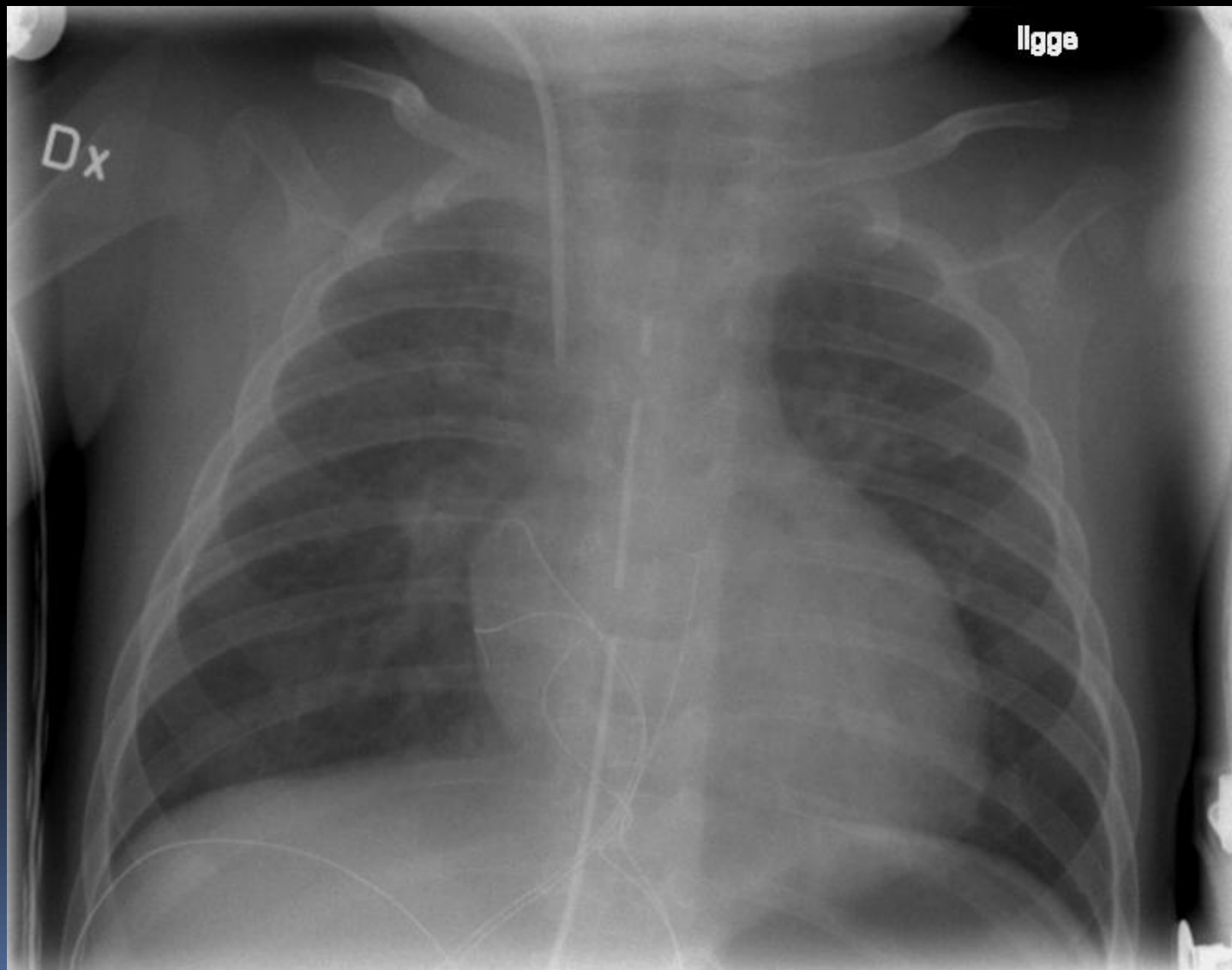
Sommer R J et al. *Circulation* 2008;117:1090-1099

- 1- Perimembranous VSD
- 2- Muscular VSD
- 3- Inlet/AV canal type VSD
- 4- Subpulmonary VSD.

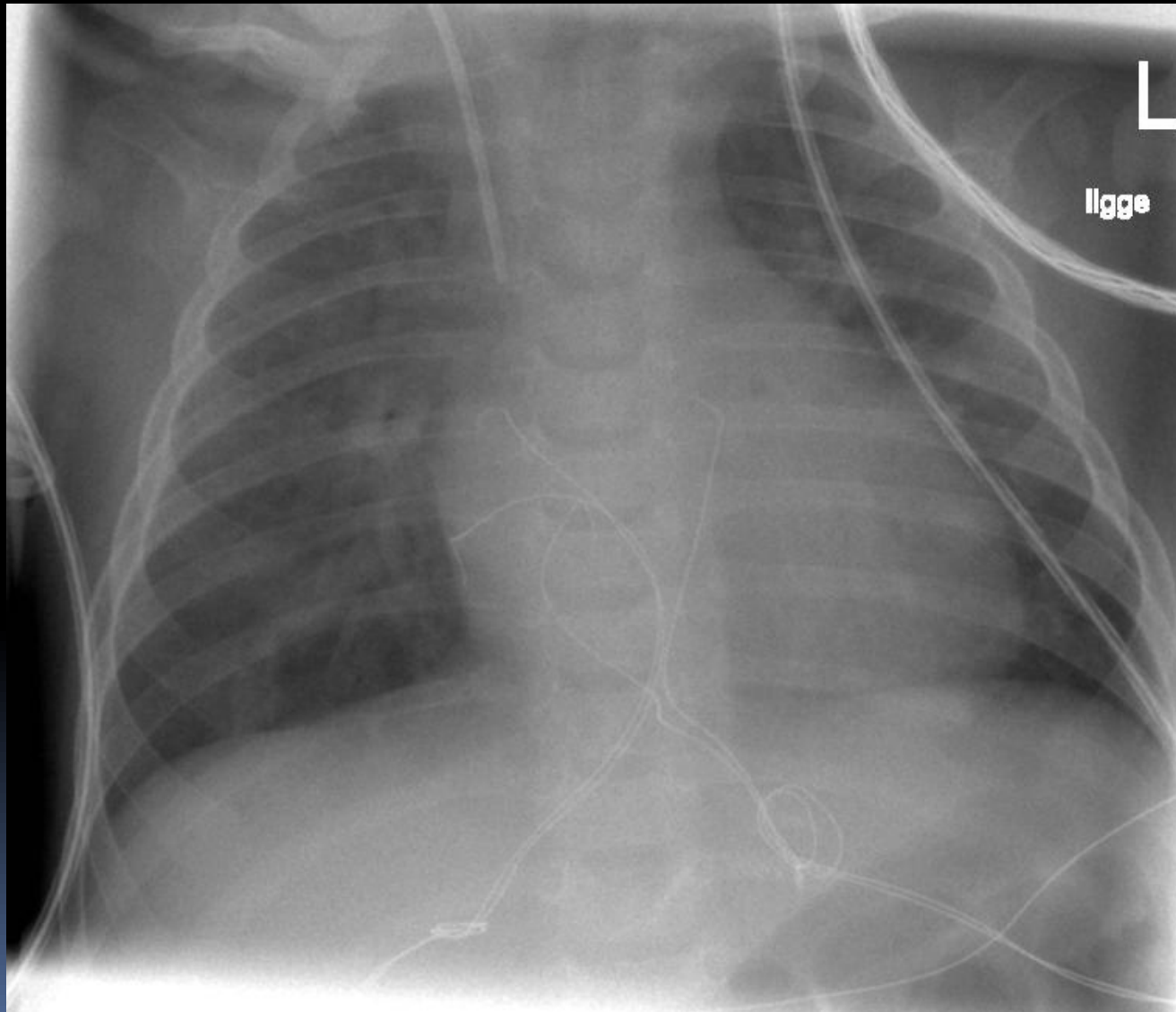
VSD



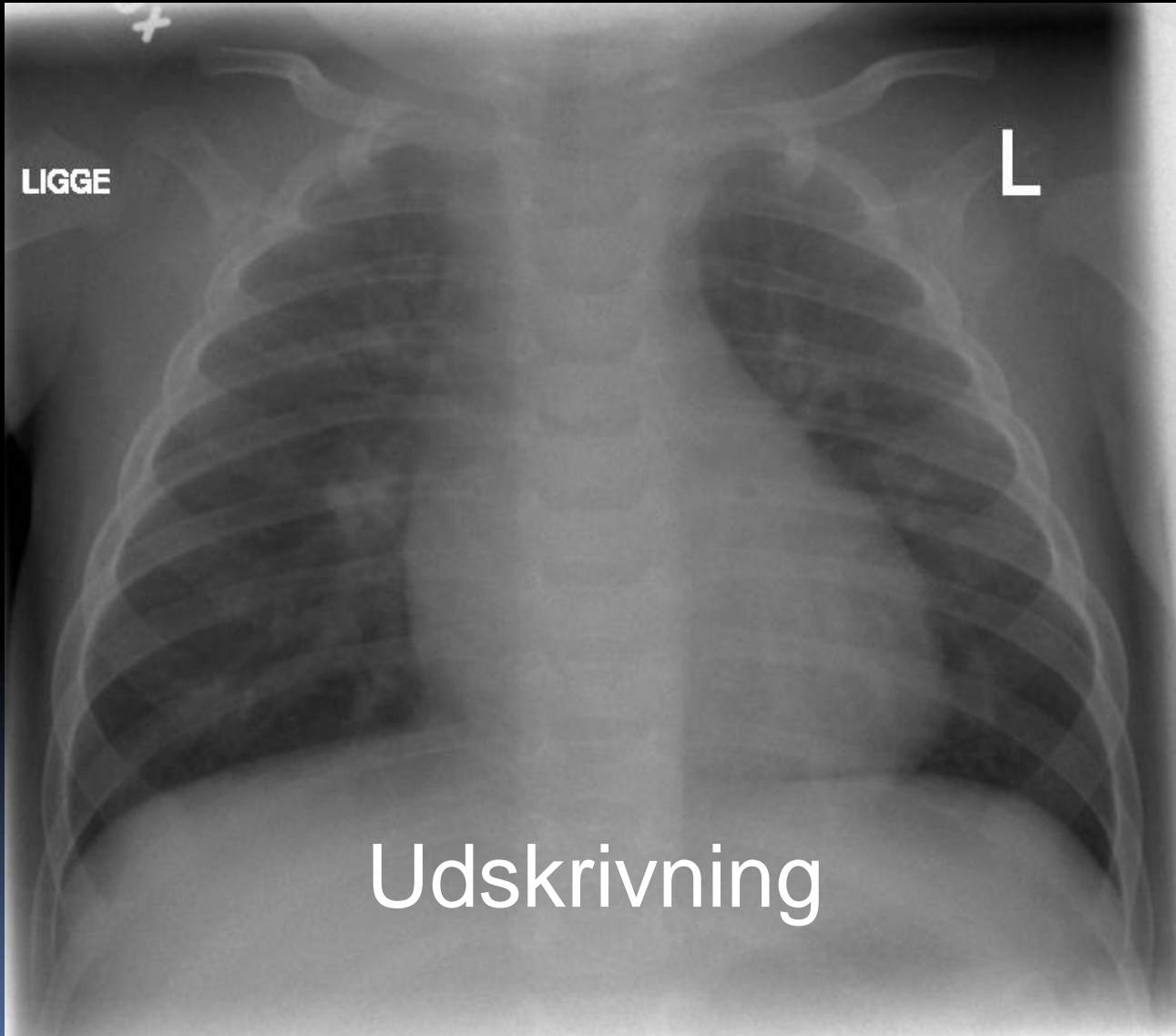
VSD



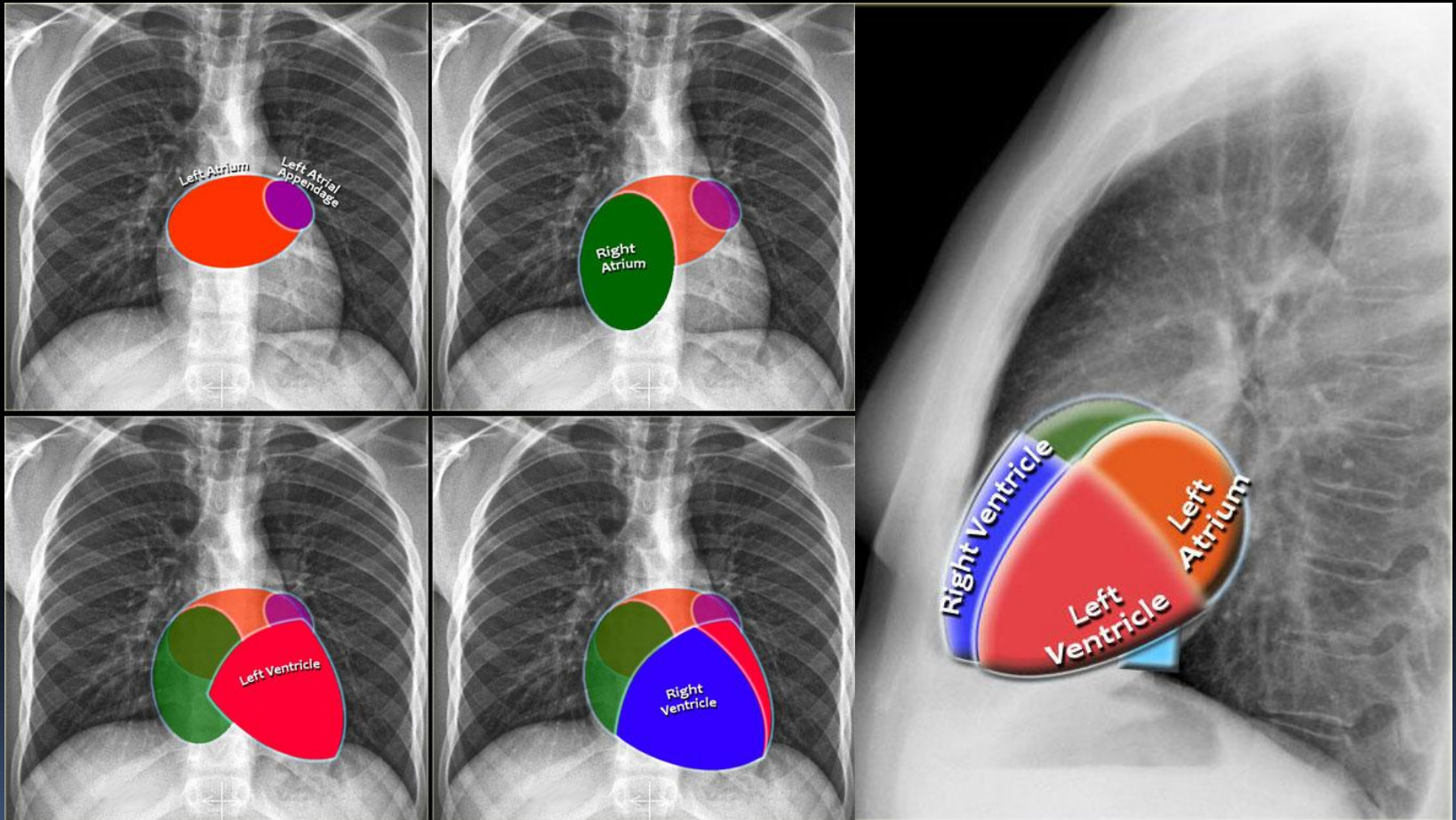
VSD



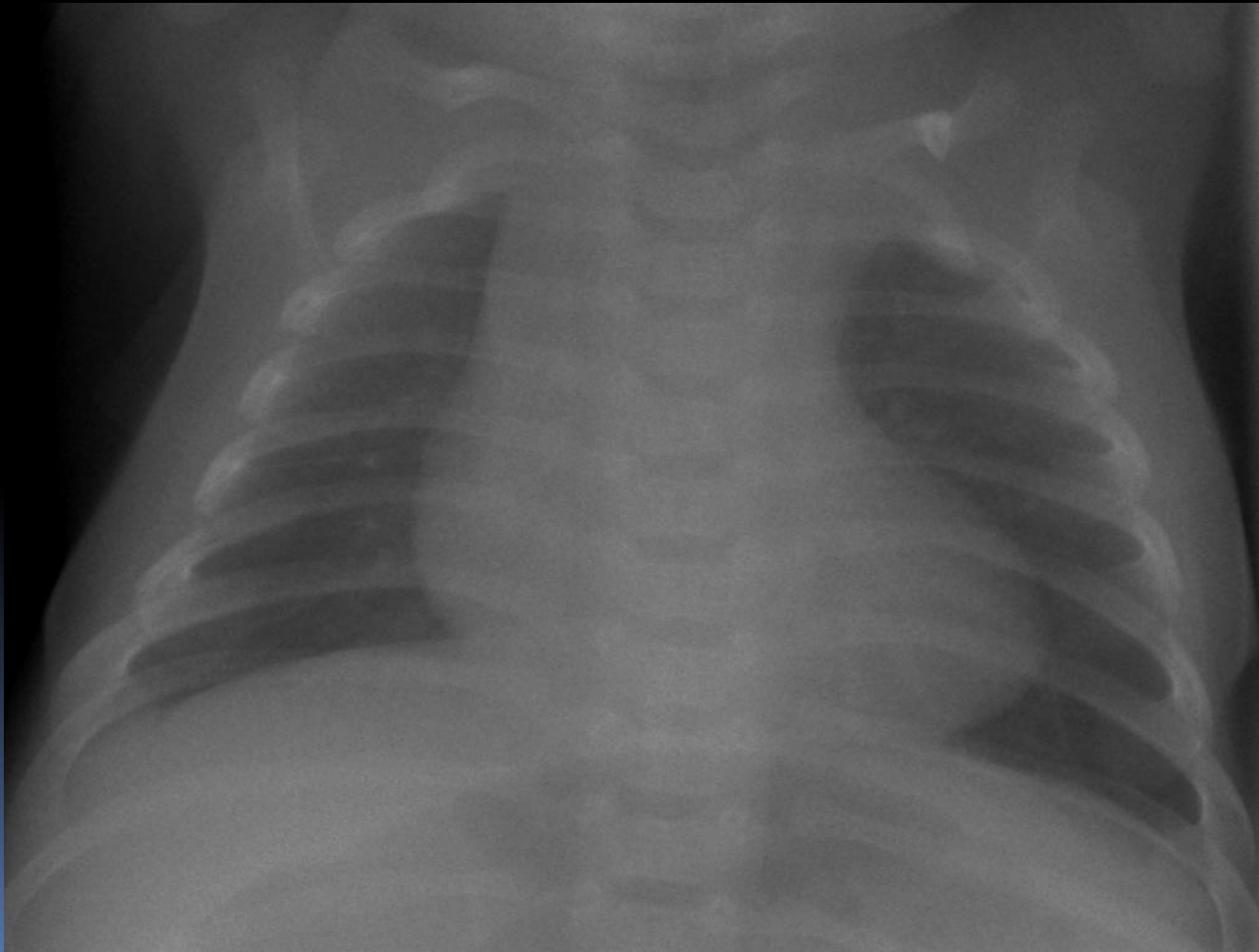
VSD



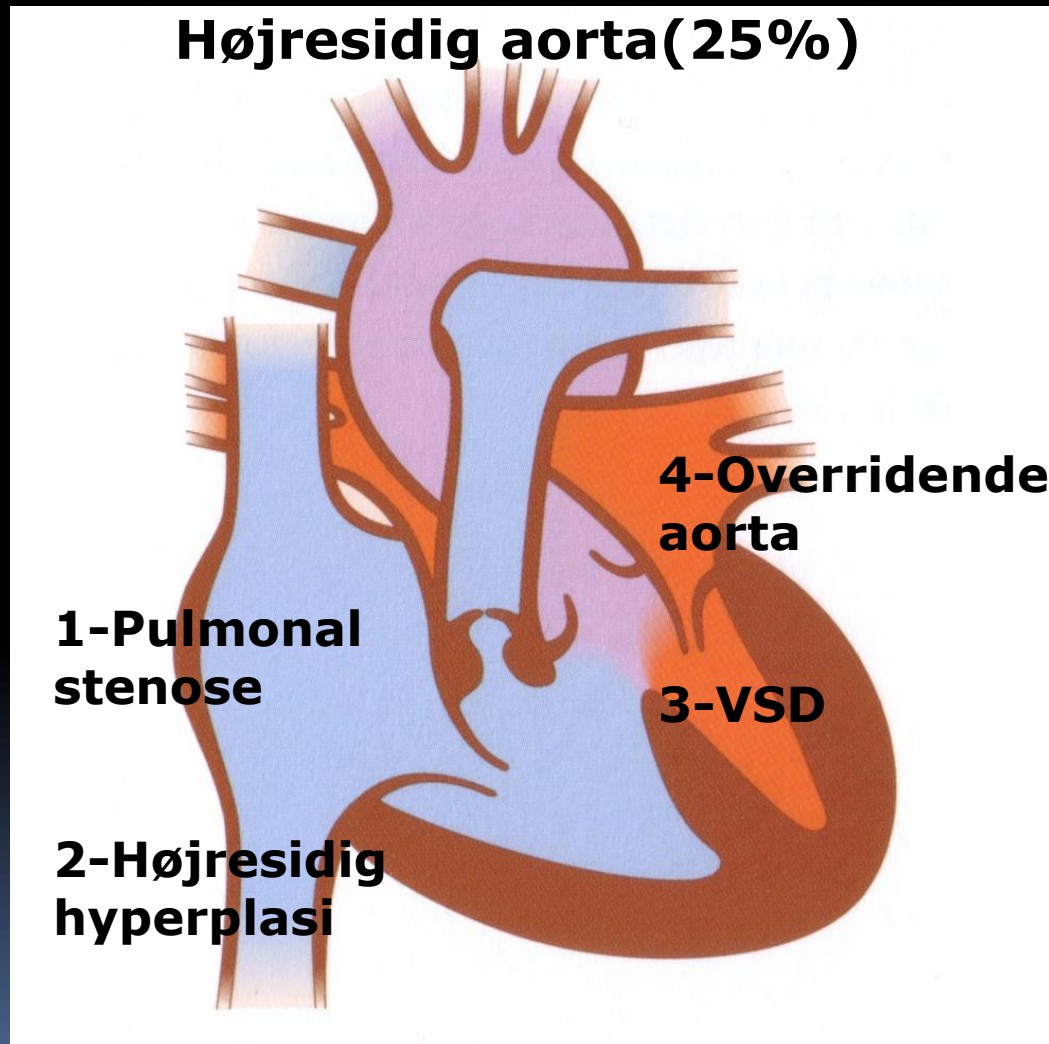
Radiology Assistant



- 1 uge gl. pige
- "blevet blå" og det er værre når hun græder
- Har det ellers fint



Falot's tetralogi (TOF)

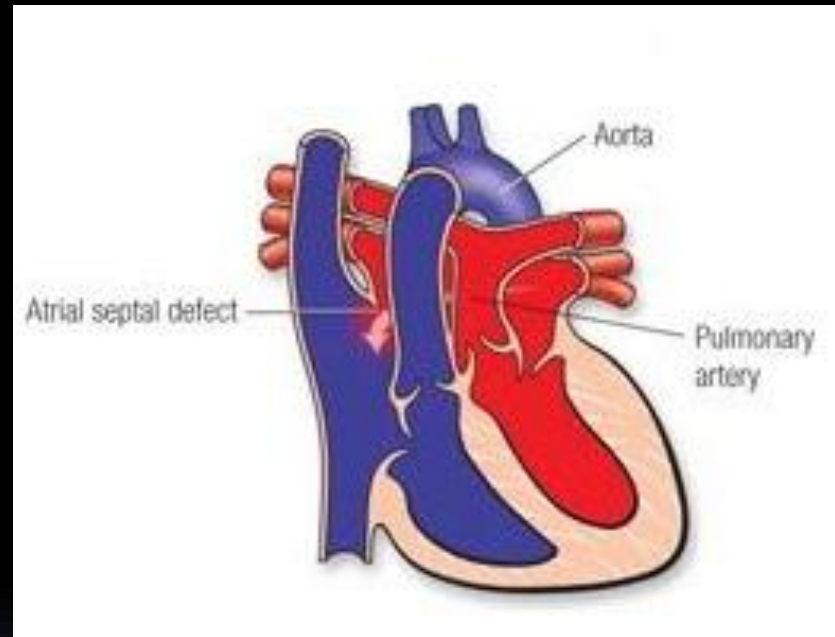
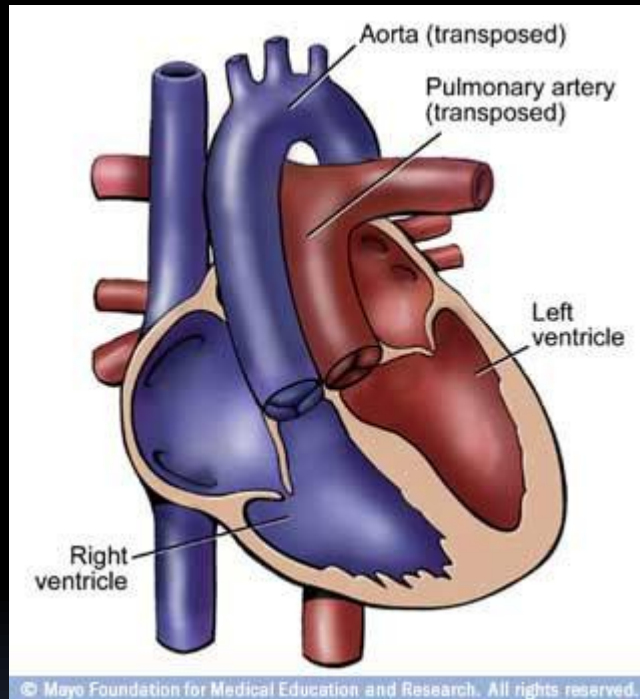


Ligge



Transposition (TGA)

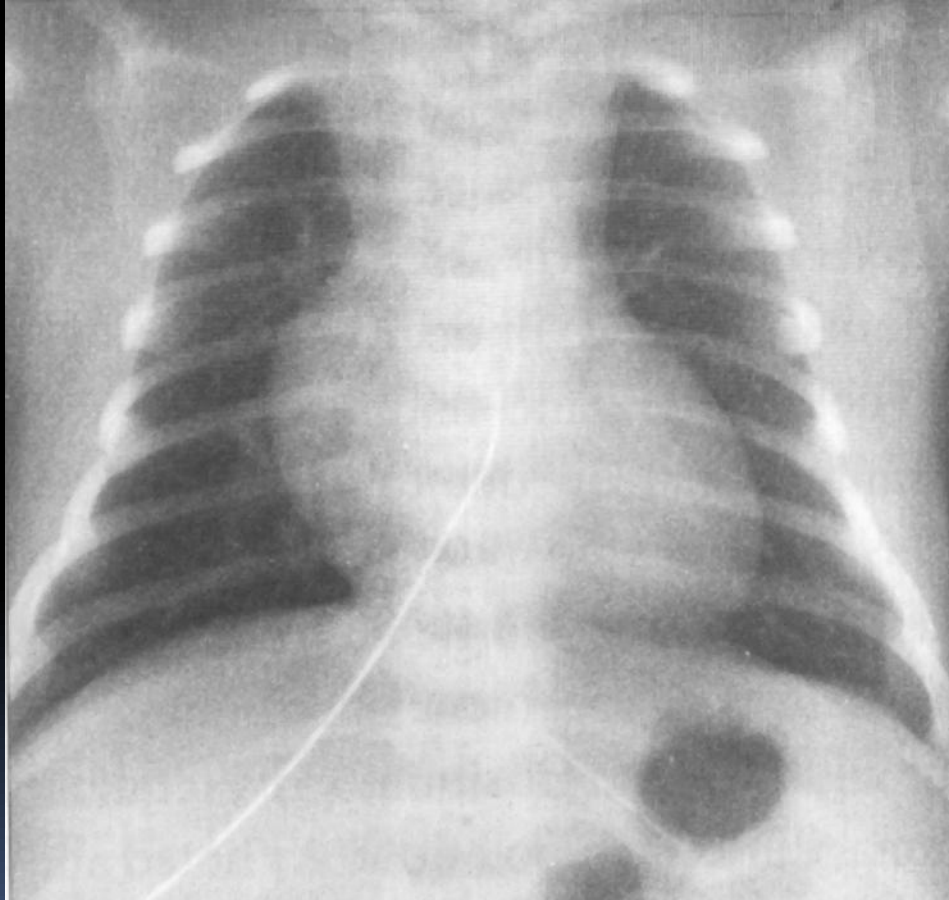
Transposition of the Great Arteries



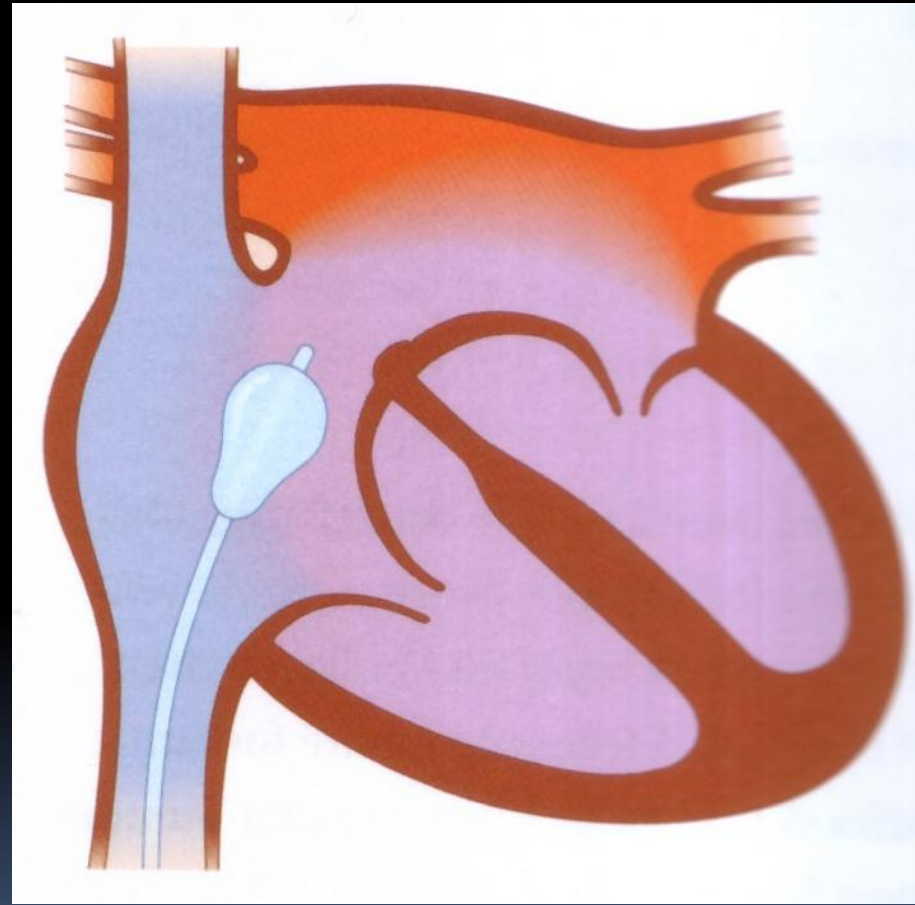
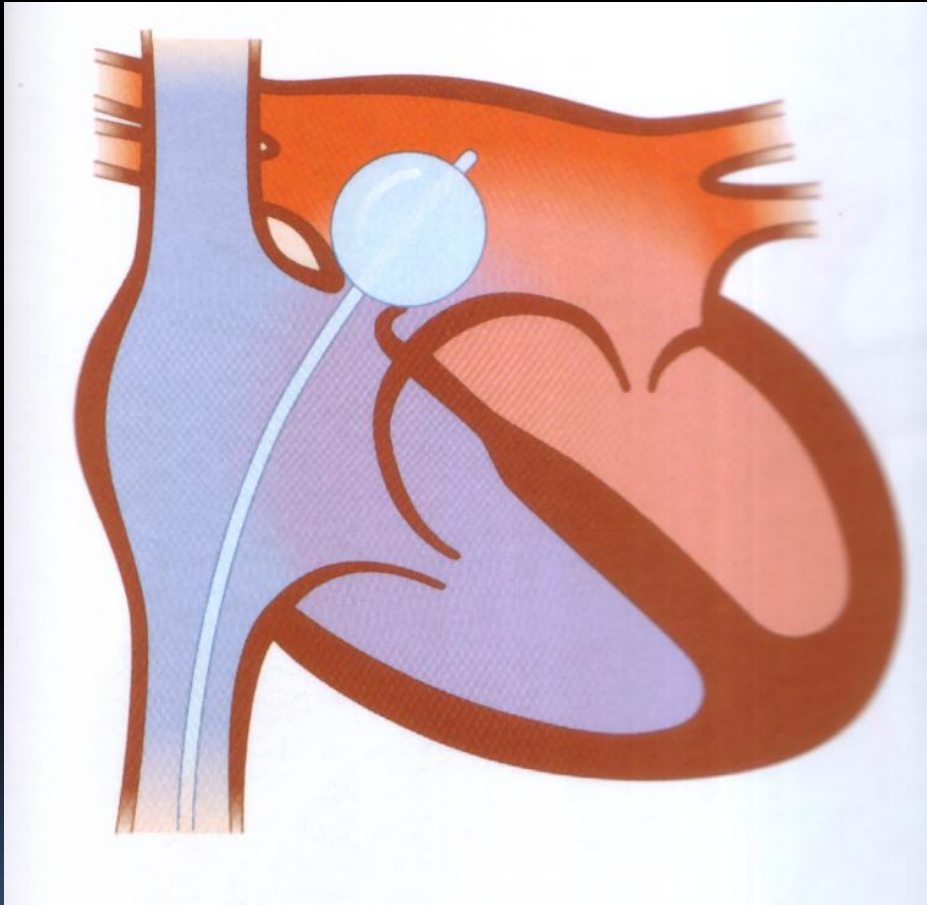
Ofte med åben foramen ovale og PDA

25% af patienterne med VSD og 5% med både VSD og PS

Transposition (TGA)



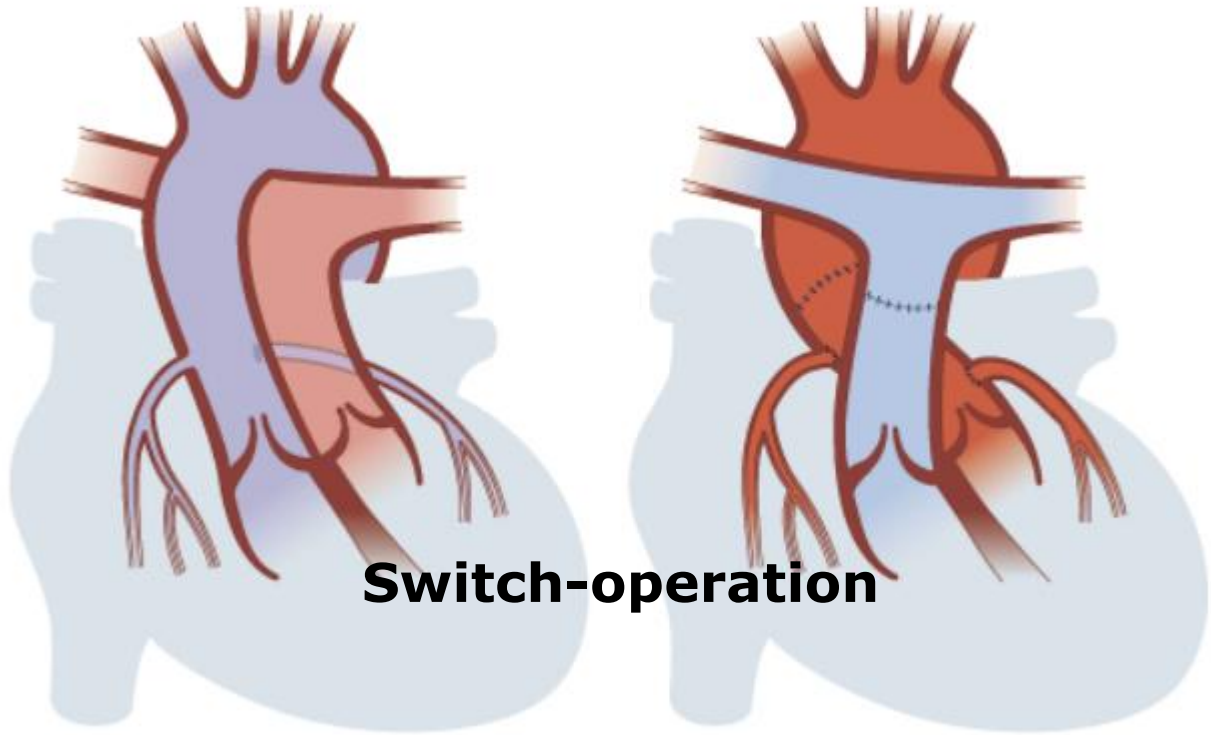
Transposition (TGA)



Ballonatrieseptostomi

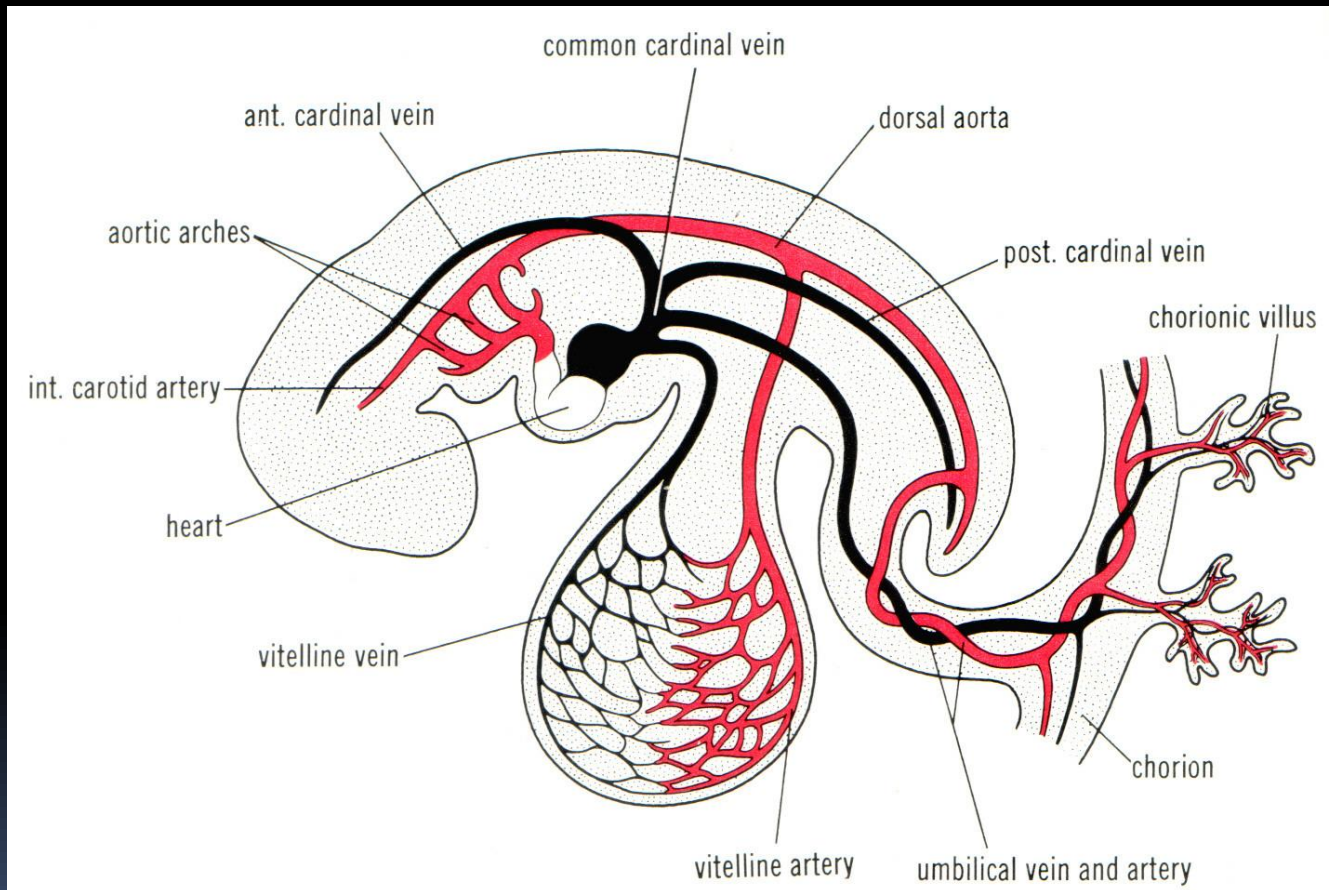
Transposition (TGA)

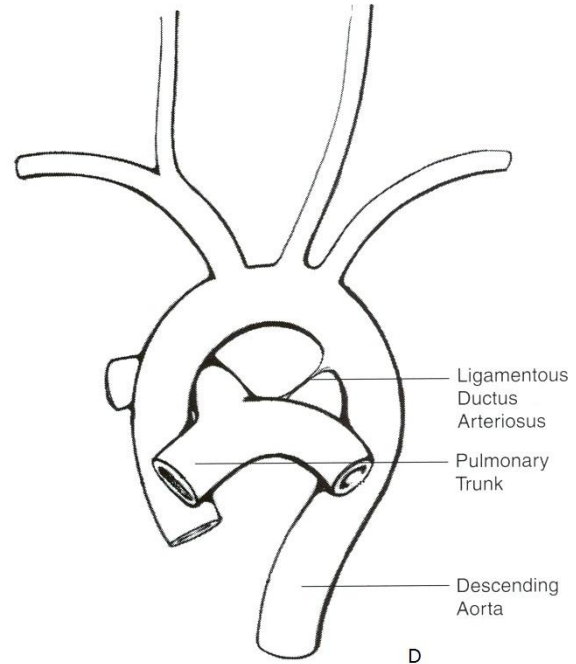
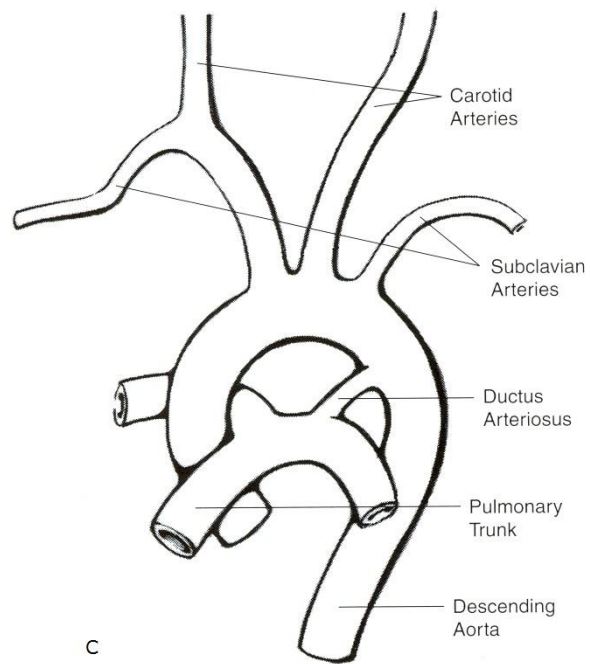
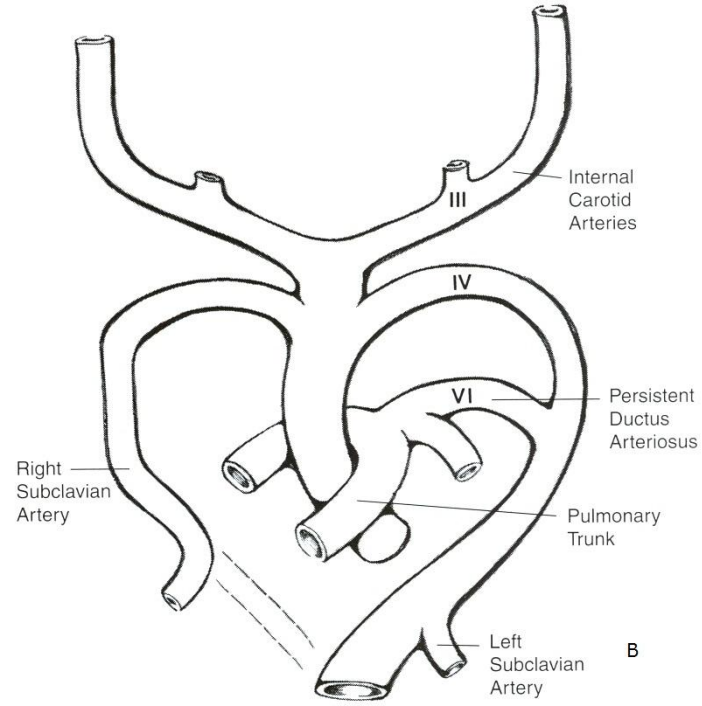
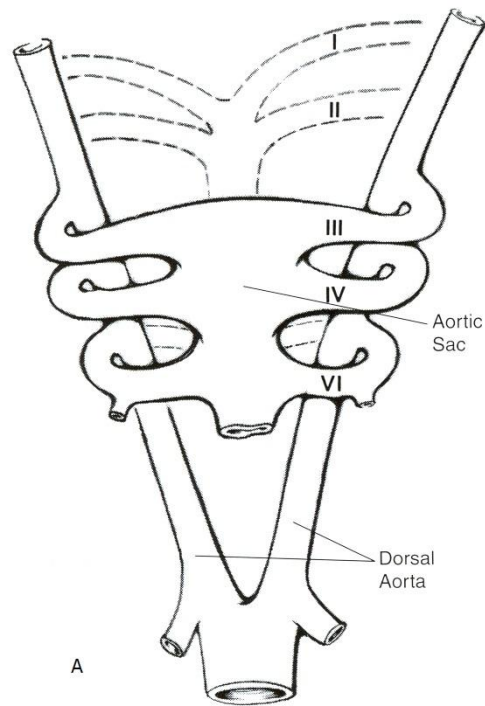




Switch-operation

Aortabuer



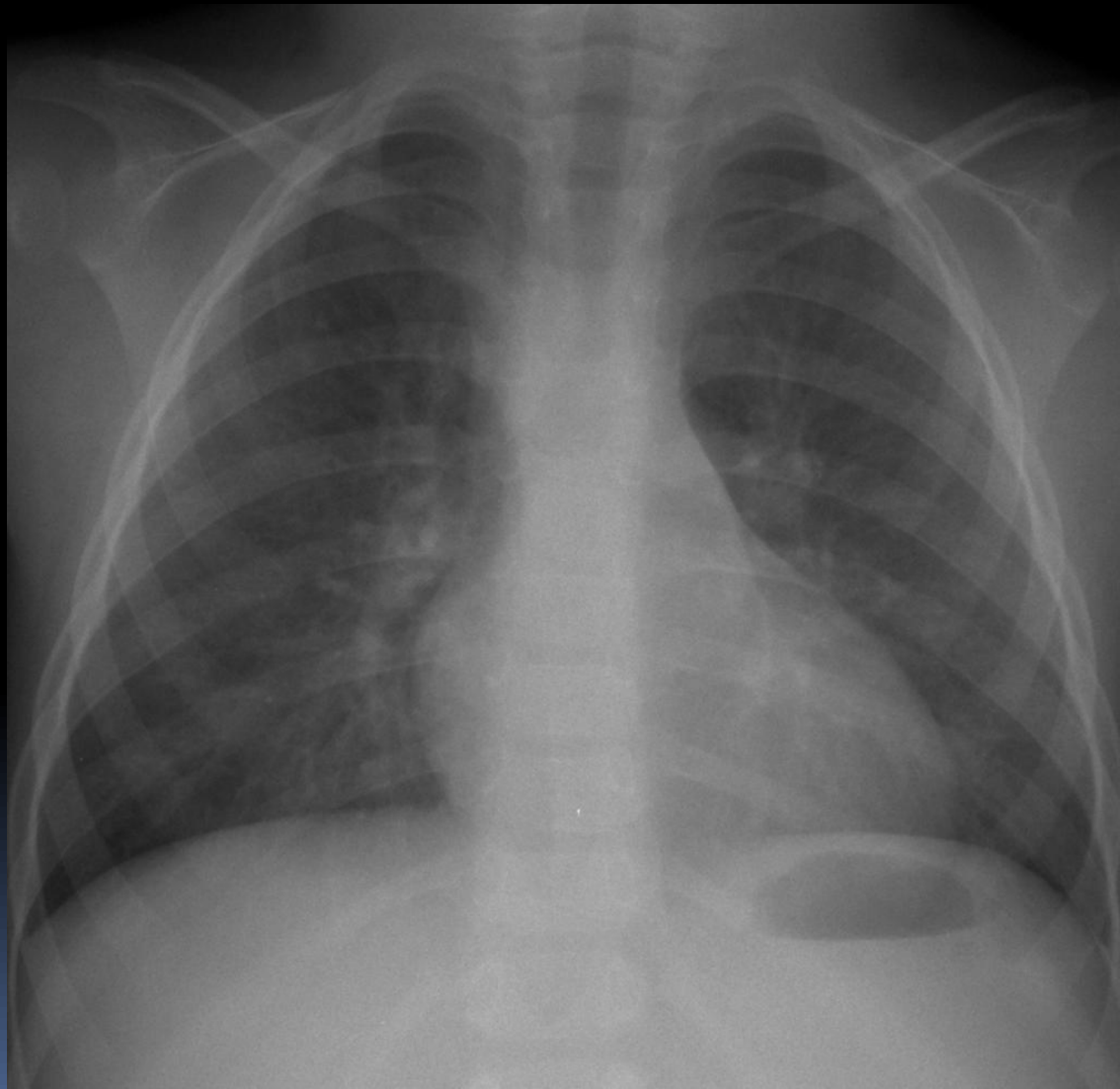


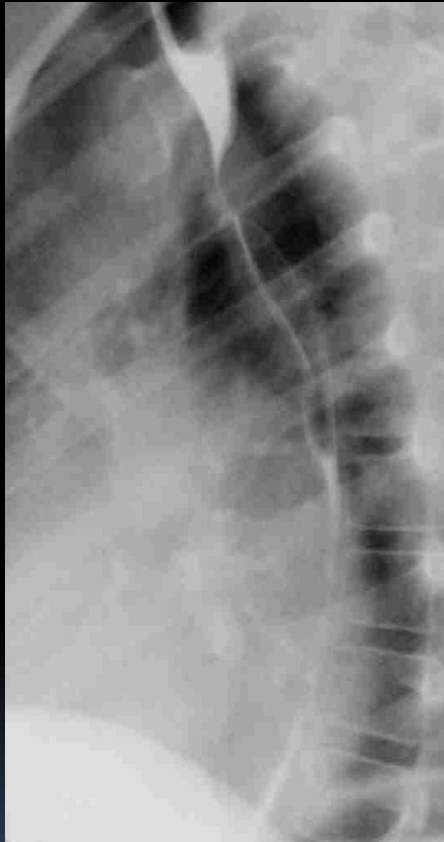
Synkebesvær og hvæsende vejrtrækning

Barnet er begyndt med fast føde

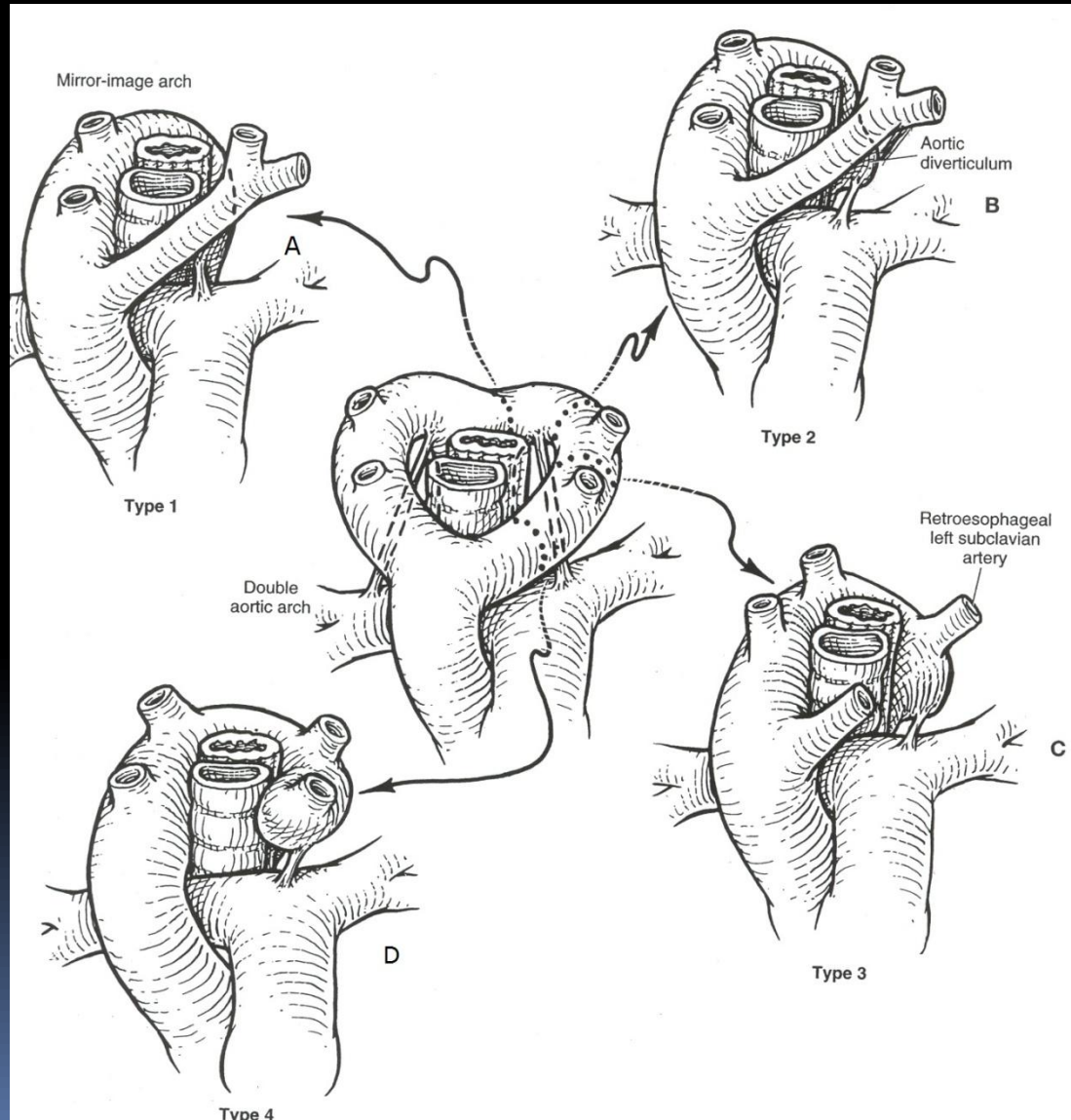
Symptomerne var også tilstede i spædbarnsalderen

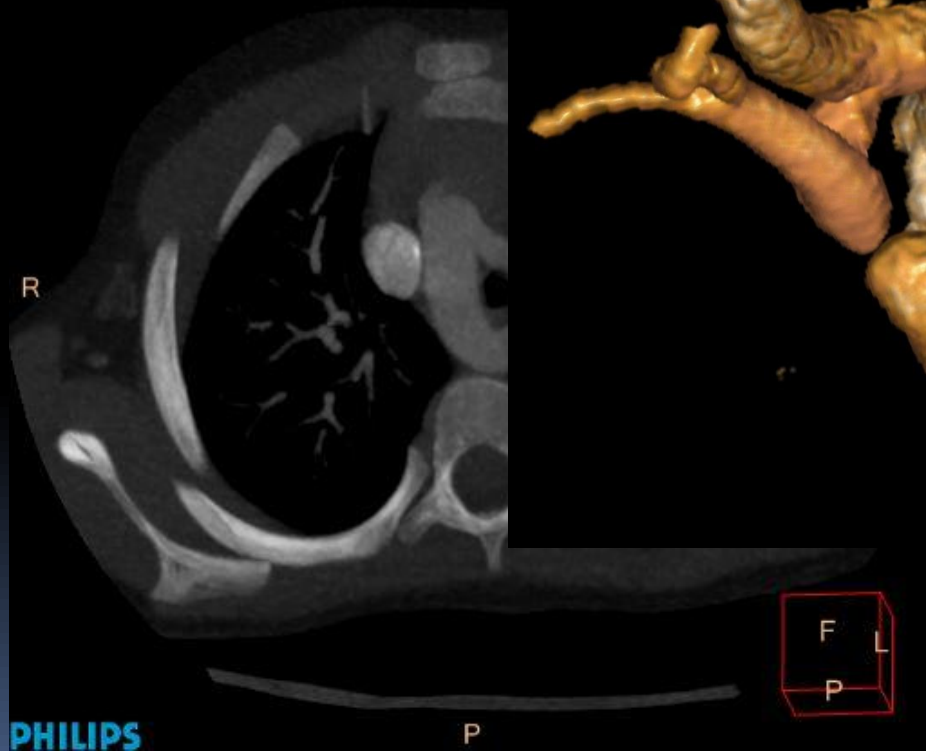
Tendens til konstant hoste.



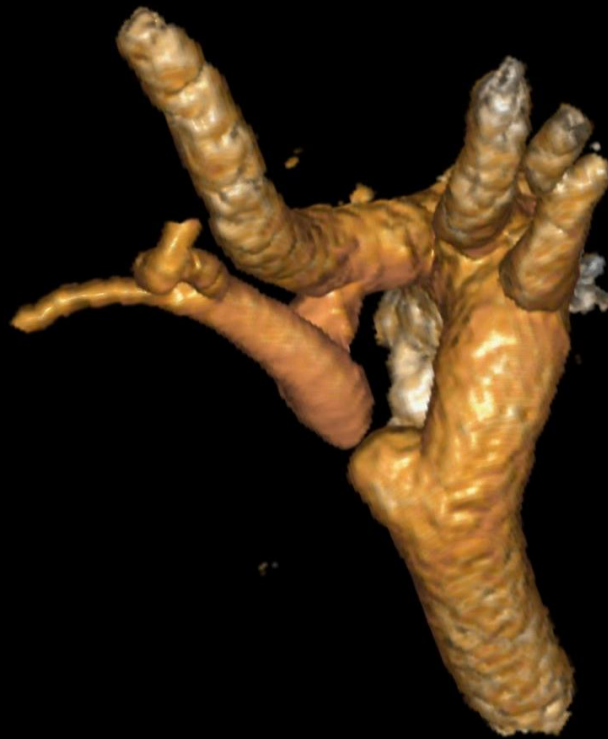


Vaskulær ring





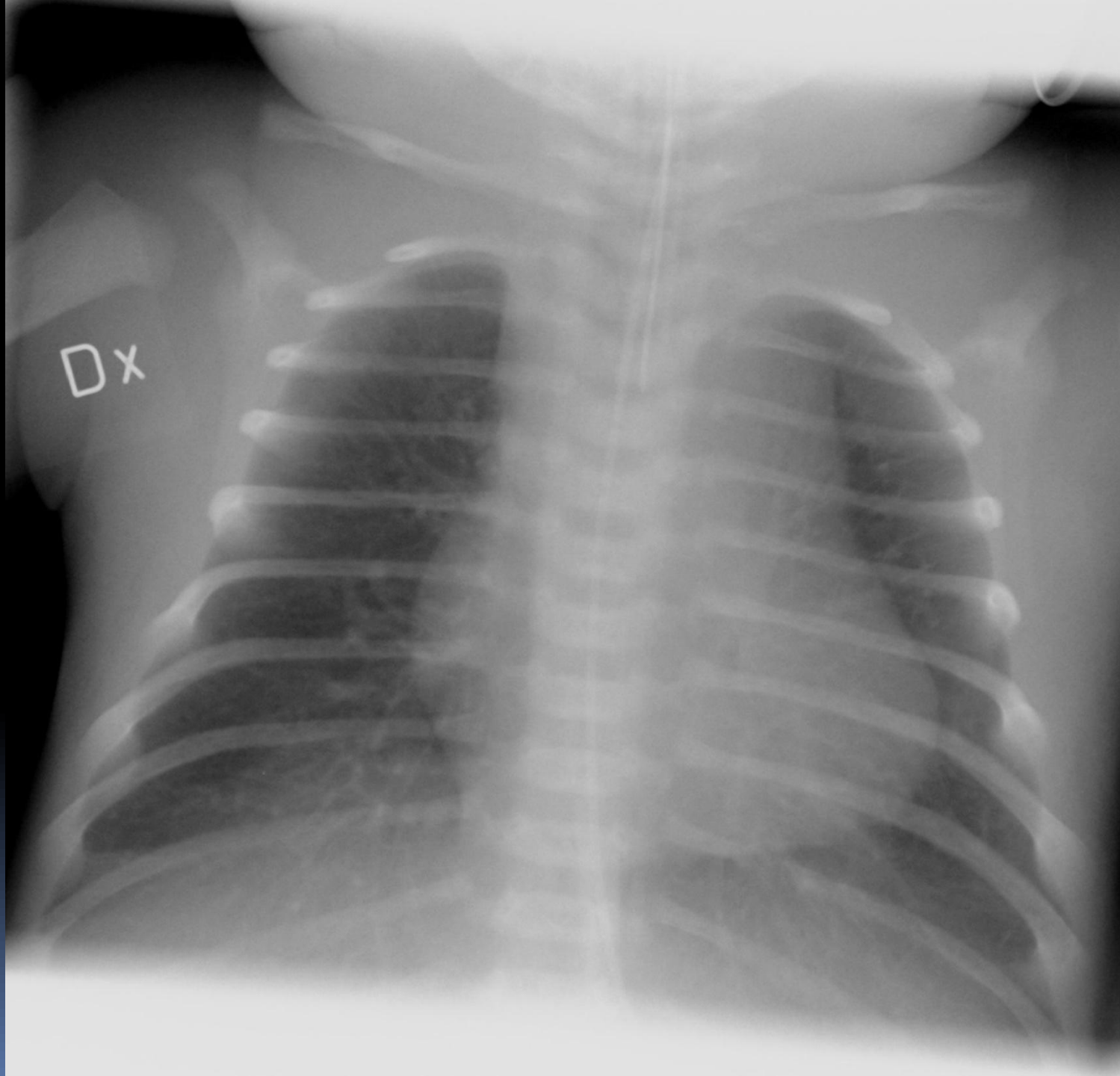
PHILIPS



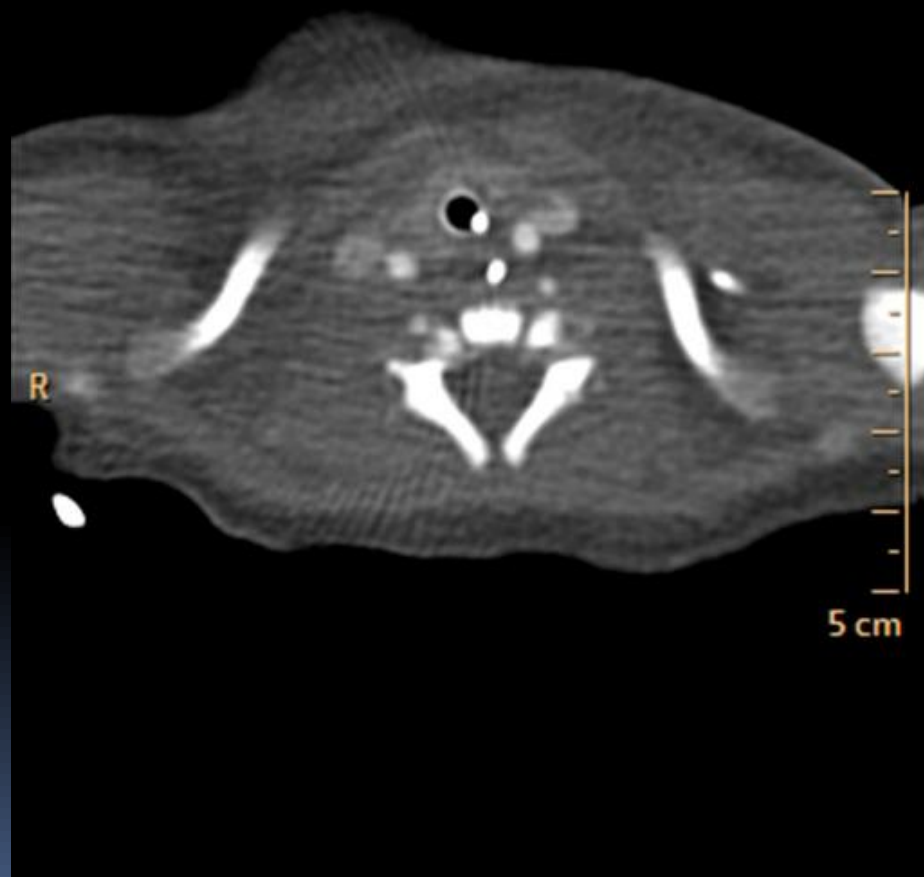
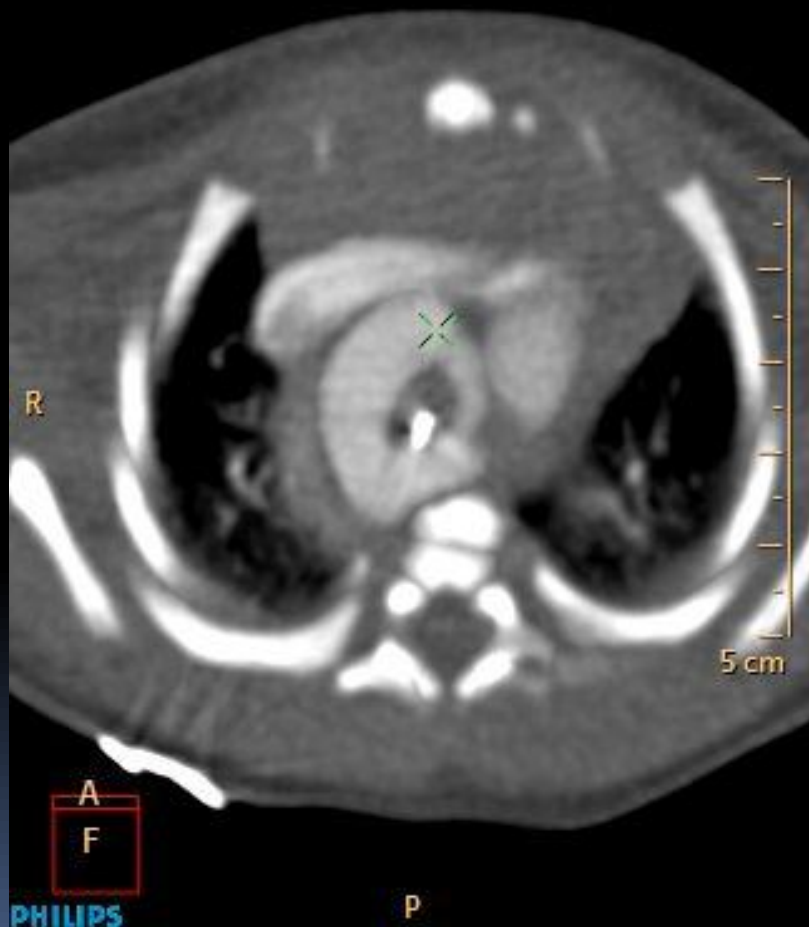
PHILIPS

FP

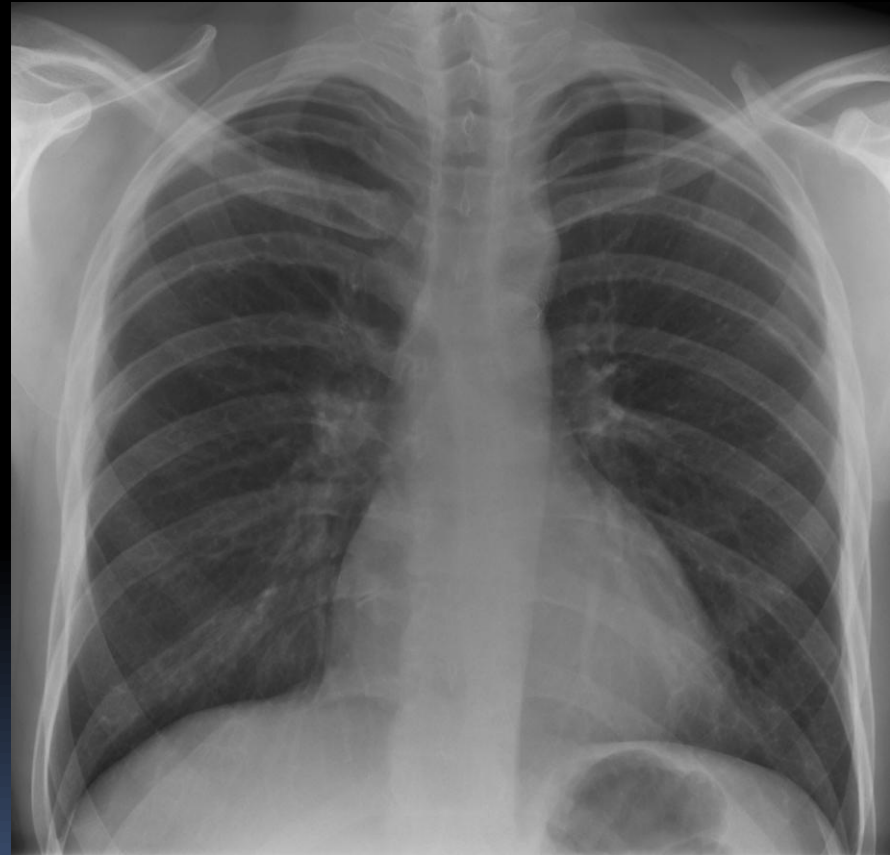
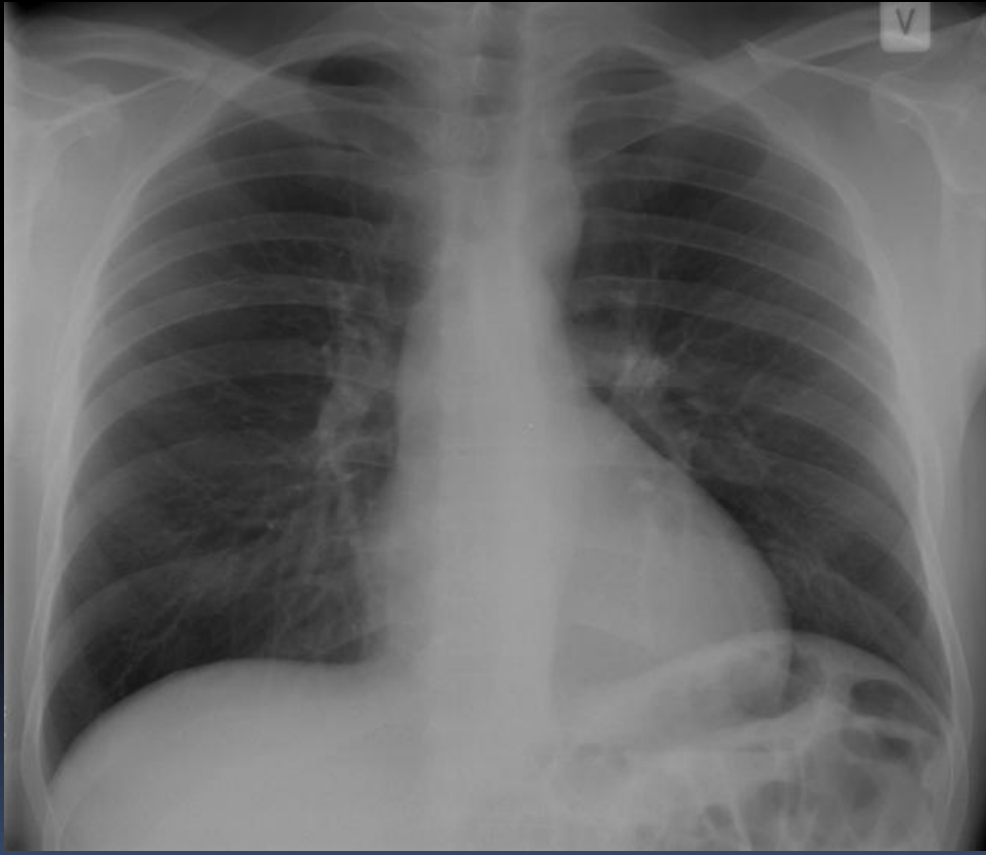
- Matur dreng, knirken og takypnoe umiddelbart efter forløsning
- Respiratorisk ustabil pga. inspiratorisk stridor
- Overflytted intuberet fra Regionalhospitalet **X** til AUH i Skejby



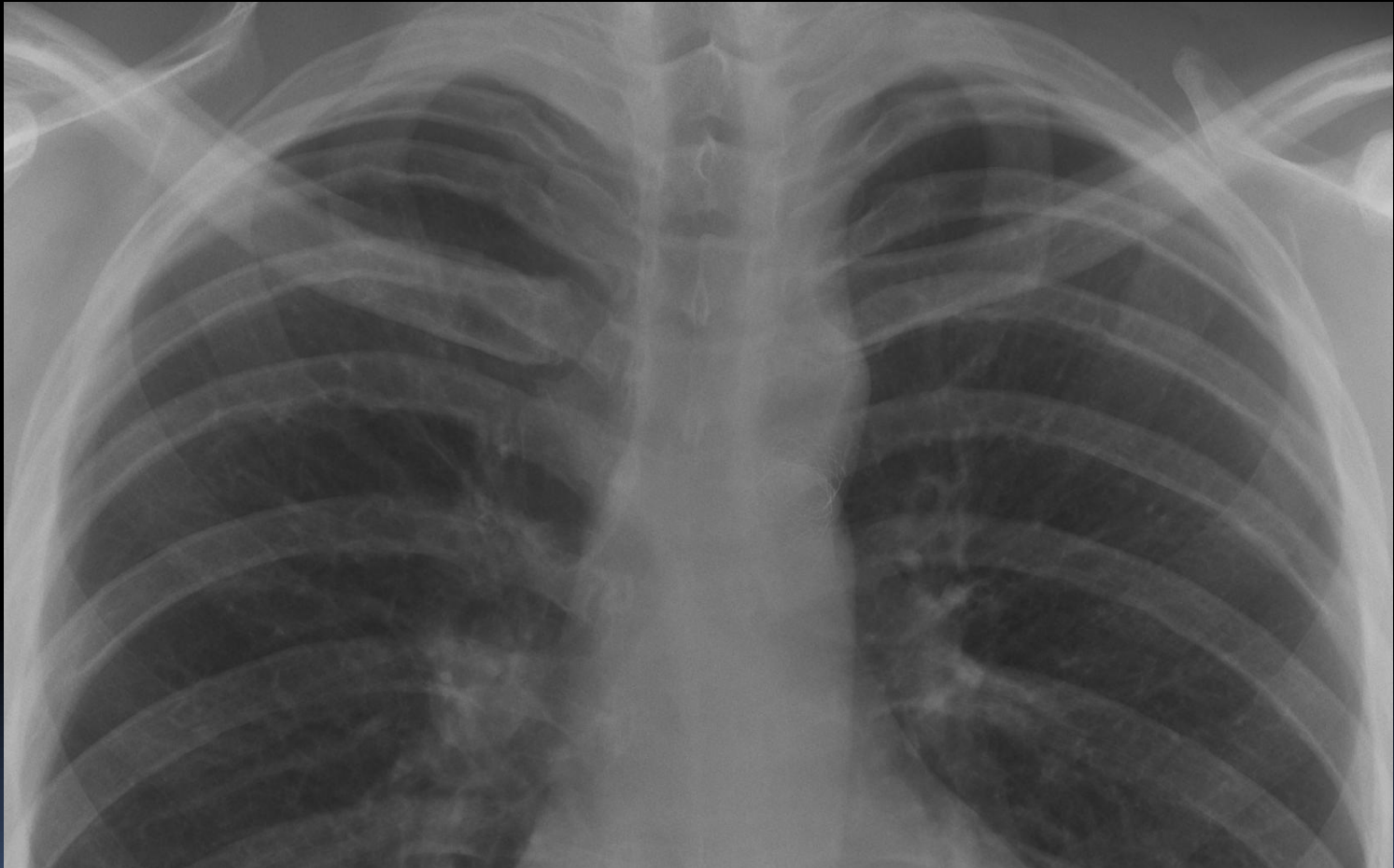
Vaskulær ring



Coarctatio Aortae



Coarctatio Aortae



- Usurer i costae, sjældent før 5 års alder
- 3/B konfiguration i venster side af aorta

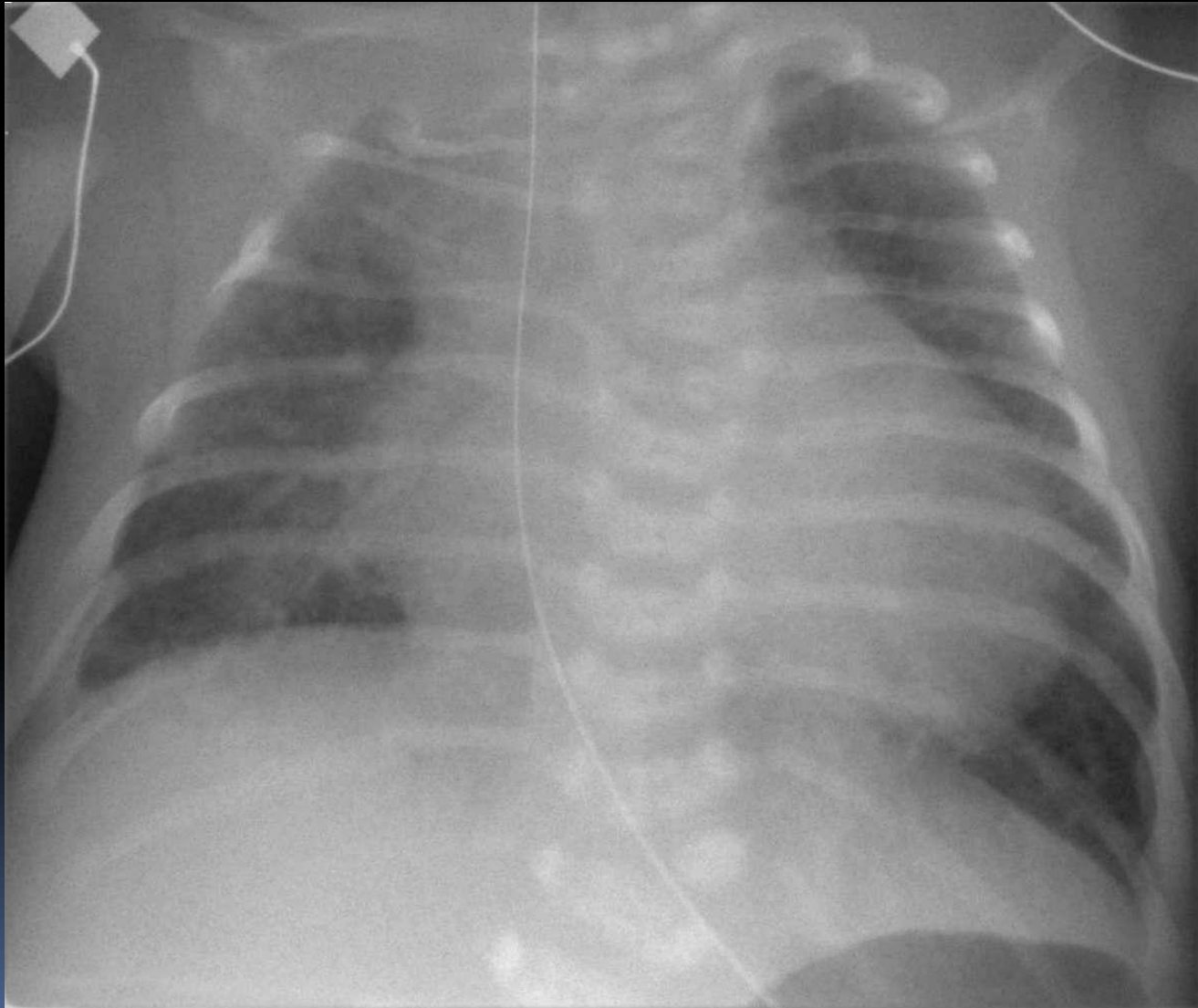
Coarctatio Aortae



Coarctatio Aortae



Diagnose ?



Thoraxrtg. Ved Kongenit hjertesygdom

Thoraxrtg. avgiver diagnostisk fingerpeg
som må suppleres med anden modalitet
for en definitiv diagnose

www.pted.org
www.cmh.skejby.dk

Firefox
Center for Medfødte Hjertesygdomme
www.skejby.dk/afdelinger/center+for+medfødte+hjertesygdomme

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Skejby.cmh@rm.dk

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- + Om Centret
- + Børn med medfødt hjertesygdom
- + Voksne med medfødt hjertesygdom

Links om hjertesygdom



Center for Medfødte Hjertesygdomme
Århus Universitetshospital, Skejby

Center for Medfødte Hjertesygdomme
Århus Universitetshospital, Skejby er center for undersøgelse og behandling af fostre, børn og voksne med medfødt hjertesygdom. Centeret er et murstensløst, multidisciplinært samarbejde mellem specialister på Hjertemedicinsk Afdeling B, Hjerter-Lunge-Kar-Kirurgisk Afdeling T, Børneafdeling A, Anæstesiologisk-Intensiv Afdeling I og Gynækologisk-Obstetrisk Afdeling Y.

Dette team af specialister står altid klar til at rådgive og hjælpe.

Sidst redigeret 13-10-2011 af [John Vium Nielsen](#)

17:25 06-11-2011

Bog

Vibeke E. Hjortdal og Peter K. Paulsen

Thorax kirurgi



Thoraxkirurgi
for læger og andet
fagpersonale
- gennemrevideret
og med helt nye
illustrationer

Fadl's Forlag

