



UNIUNEA EUROPEANĂ



GUVERNUL ROMÂNIEI



Fondul Social European
POSDRU 2007-2013



Instrumente Structurale
2007-2013



GUVERNUL ROMÂNIEI
MINISTERUL MUNCII, FAMILIEI,
PROTECȚIEI SOCIALE
ȘI PERSOANELOR VÂRSTNICE
OIRPOSDRU REGIUNEA CENTRU



UNIVERSITATEA DE MEDICINĂ ȘI
FARMACIE "CAROL DAVILA"
BUCUREȘTI

«AD-COR Program inovativ de formare in domeniul cardiologiei pediatrice POSDRU/179/3.2/S/152012»

Iunie 2015

MODUL TEORETIC

MALFORMATII DE CORD NECIANOGENE

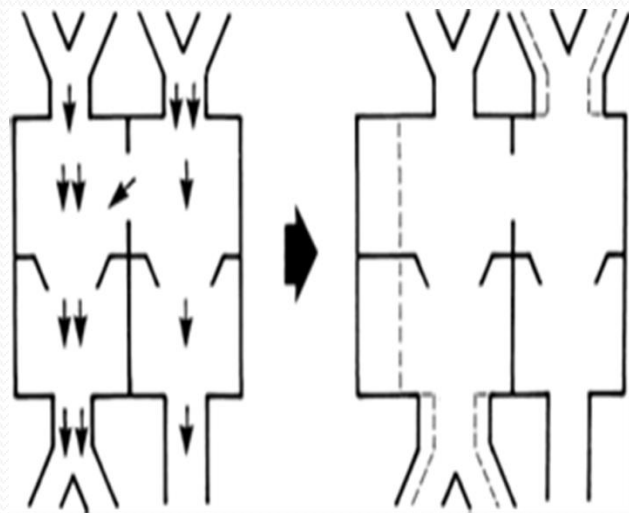
Continut documentat/ validat/ prezentat de:

- ⇒ Expert formare medici: NICOLESCU Alin
- ⇒ Expert formare medici: VEDUTA Alina

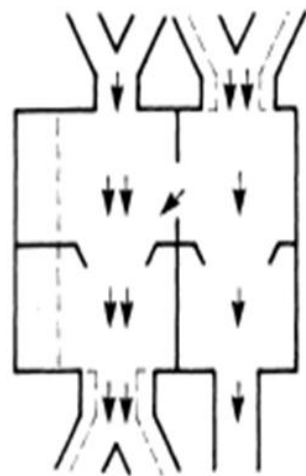
*A4 – Planificarea, organizarea si desfasurarea activitatilor de formare a **medicilor** in domeniul cardiologiei pediatrice*

- 
- DEFECT SEPTAL INTERATRIAL (DSA)
 - DEFECT SEPTAL INTERVENTRICULAR(DSV)
 - CANAL ARTERIAL PERMEABIL (CAP)
 - CANAL ATRIOVENTRICULAR COMUN (CAVC)

DSA

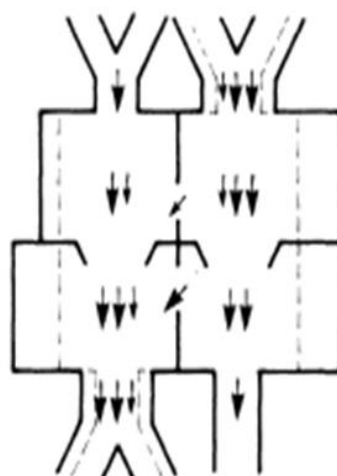


Ostium Primum

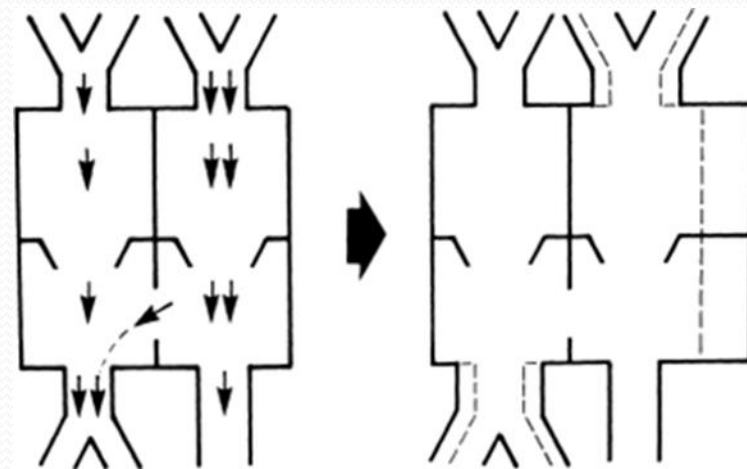


CAVC

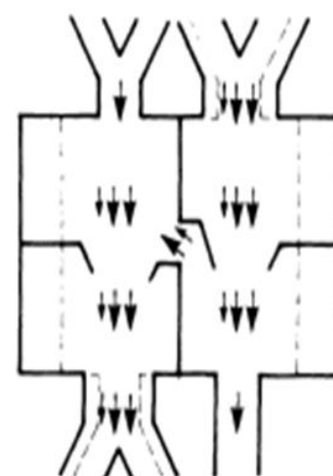
Complete ECD
with Large VSD
(dependent shunt)



DSV/CAP



LV-RA Shunt, Large
(obligatory shunt)



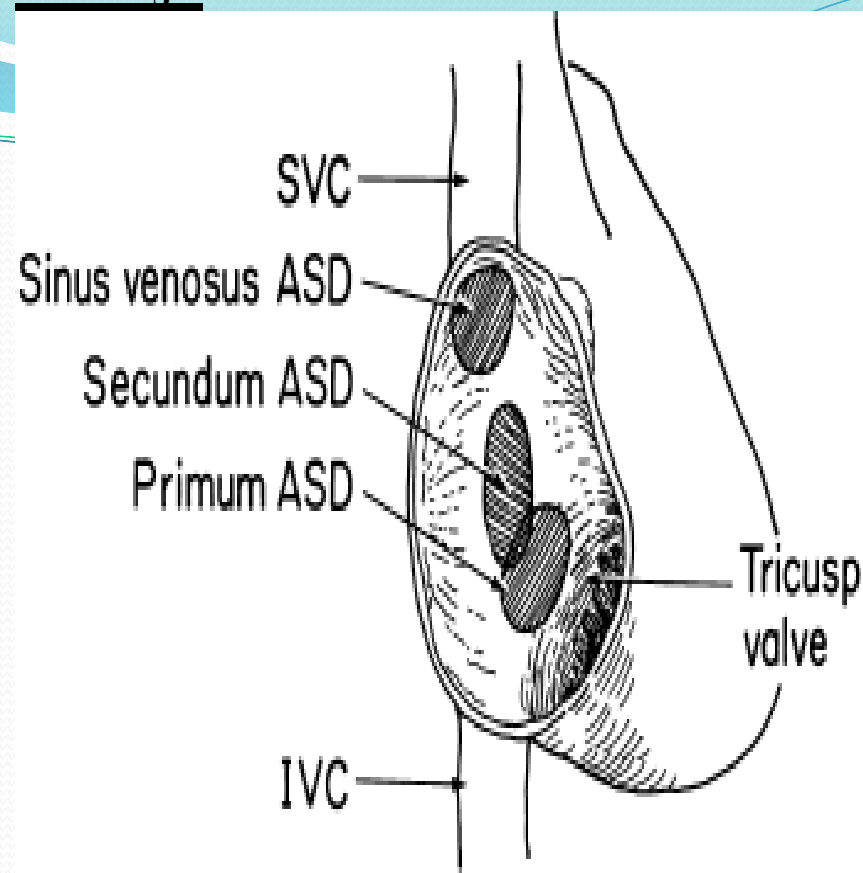
DEFECT SEPTAL INTERATRIAL

- **A. Prevalenta:**

-
- 5%-10% din MCC ca defect izolat
- M/F = 1/2
- 30%-50% ca parte a unui defect complex

3 tipuri principale de DSA:

- -**OS**, cel mai frecvent, 50 %-70% din DSA-uri. Se gaseste la nivelul fossei ovalis.
- -**OP**, aproximativ in 30 % din DSA-uri, ca parte a canalului atrioventricular comun si 15 % ca defect izolat
- - **sinus venos**, 10 % din DSA-uri, localizat la nivelul de varsare al VCS in AD, mai rar la varsarea VCI. Frecvent asociate cu anomalie de intoarcere pulmonara venoasa (VPD in AD)
- -foarte rar tip **sinus coronar**



C. Fiziopatologie :

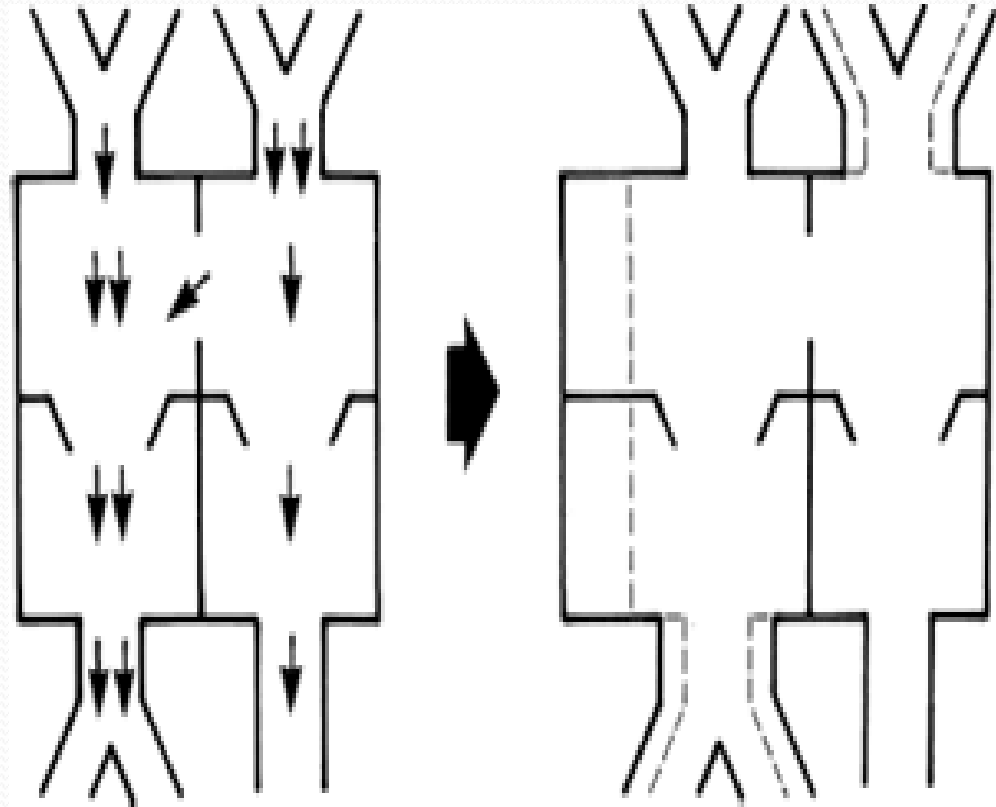
- -magnitudinea surtului
depinde

- marimea
defectului

- Mic < 3 mm,
- moderat 3-8 mm,
- mare > 8 mm

-complianta
ventriculara (VD este mai
compliant decat VS)

Apare dilatarea cavit drepte
si nu stangi



- -Dilatarea AD ,
 - ❑ -prelungeste timpul de depolarizare al AD,determinand pe ECG, BAV grd I,
 - ❑ -creste amplitudinea undei P

- Dilatarea VD

- ❑ -BRD

- RX ,ECG

- -suflul sistolic **nu** este produs de suntul interatrial ci de:

- ❖ stenoza relativa a orificiului pulmonar care primeste o cantitate mai mare de sange

- ❖ stenoza relativa a VT ,producand un suflu diastolic.

- -ICC este rara

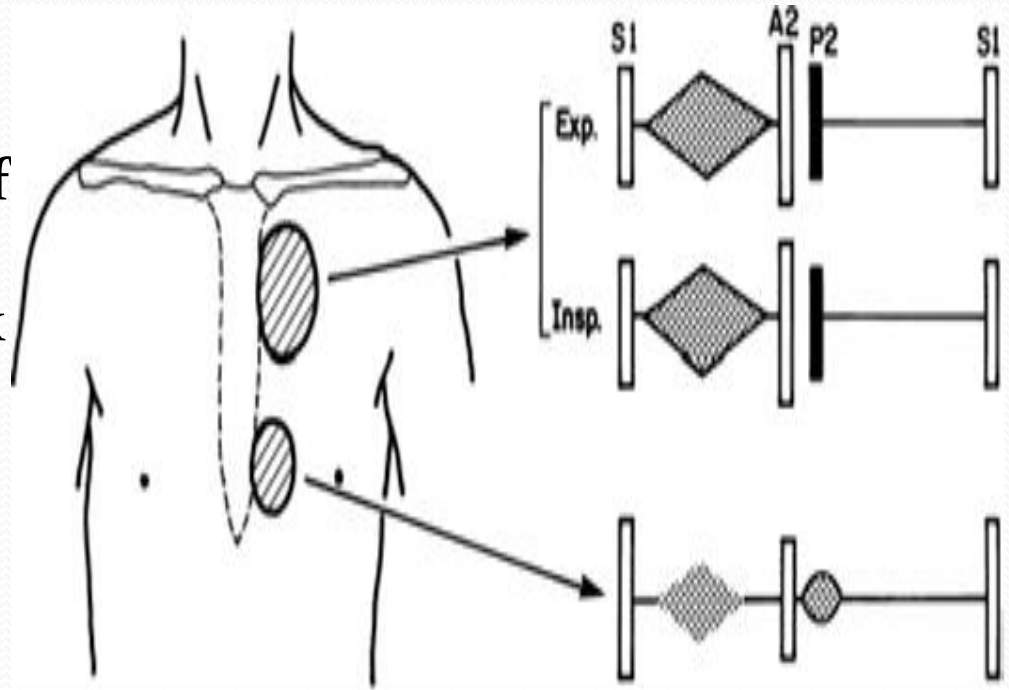
- teritoriul pulmonar poate primi debitul suplimentar de sange*

- nu exista transmisie directa de presiune sistemica* (ca de ex. In DSV),

ICC fiind caracteristica decadei 3-4 de viata.

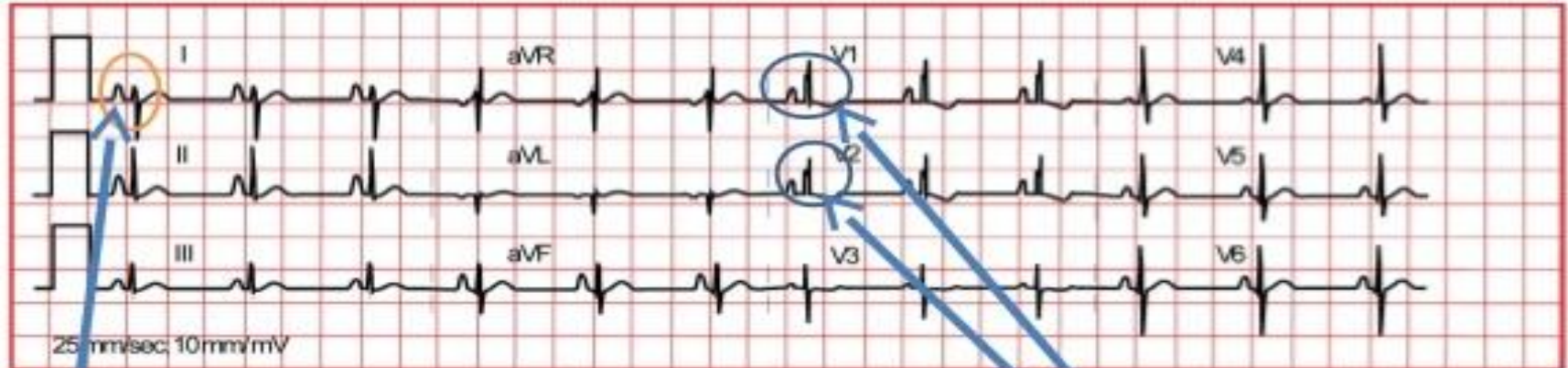
C. Manifestari clinice

- Sugarii si copiii cu DSA sunt de obicei asimptomatici.
- a. Examinare fizica :
- 1. o usoara hipotrofie staturo-ponderala poate fi intalnita.
- 2. ZII dedublat larg sau fix
- Suflu sistolic gr 2-3/6
- In defectele largi suflu diastolic rezultat din stenoza tricuspida relative.



ECG

Atrial septal defect



Enlarged 'p' wave indicating Right atrial hypertrophy

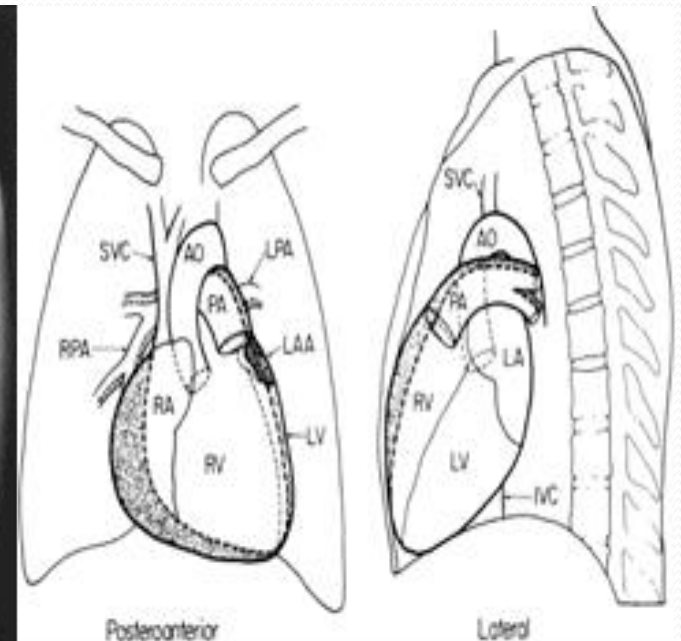
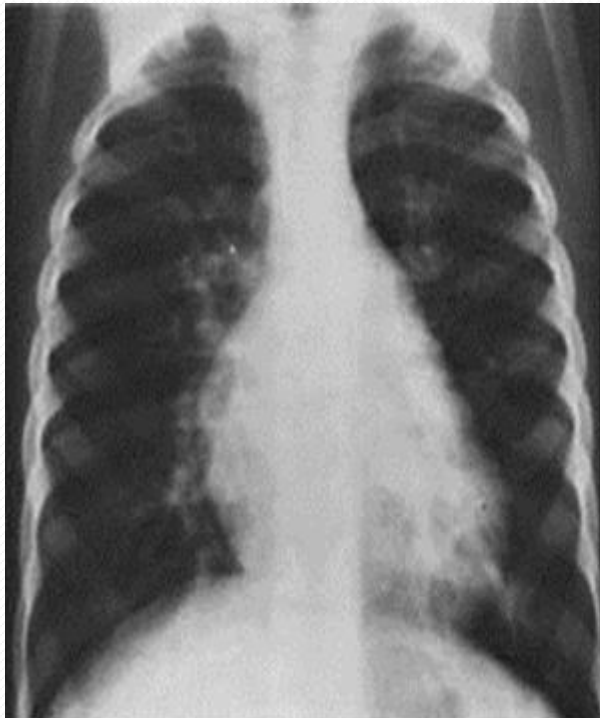
Also note that the aVF is predominantly upwards as compared to Lead I indicating Right Axis Deviation

rSR' seen and tall R wave Indicating RBBB and RVH

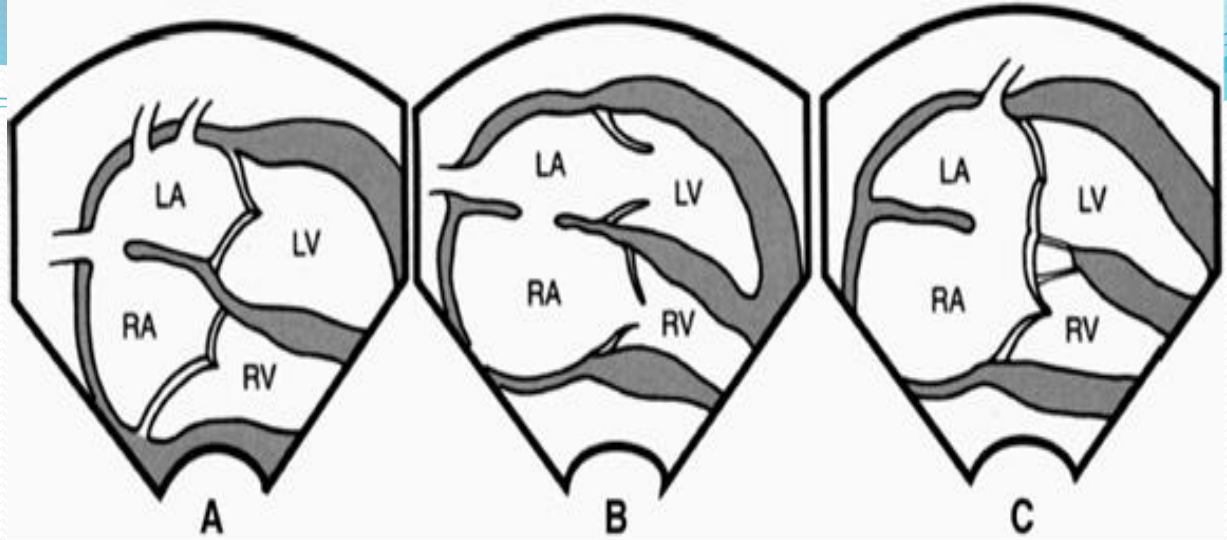
LAD with rSR' in V1 is suggestive of Ostium primum defect

RX.

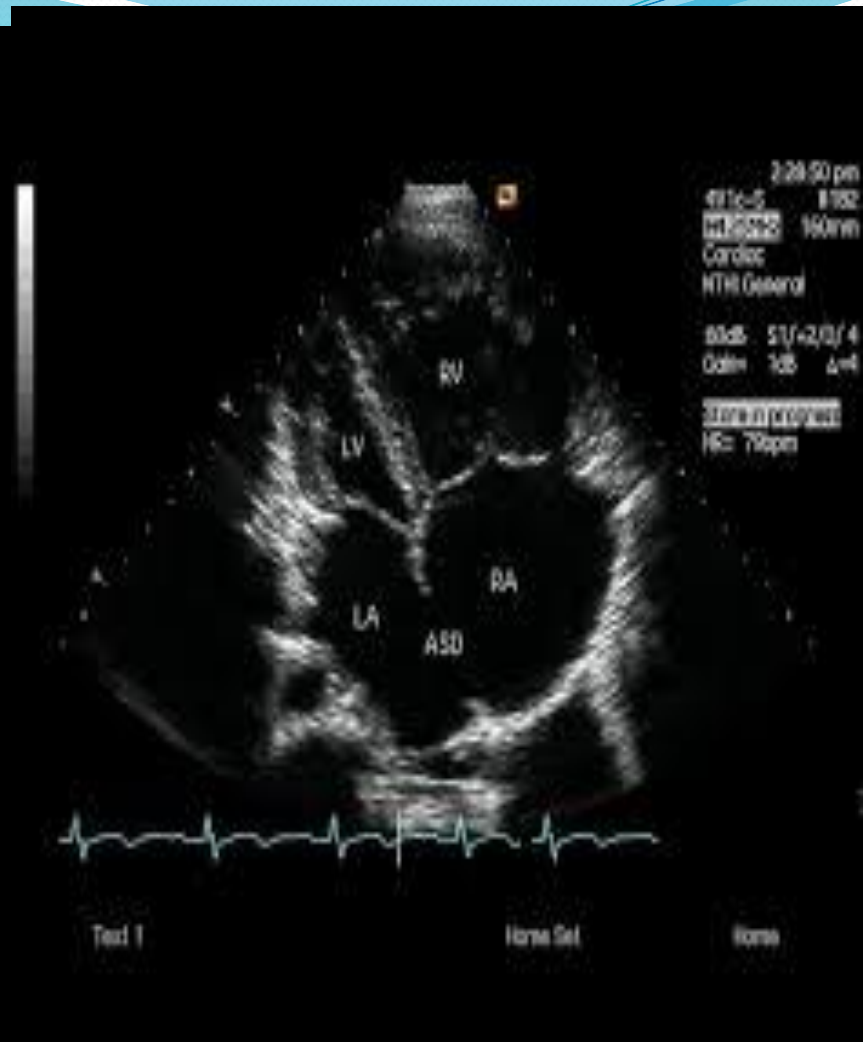
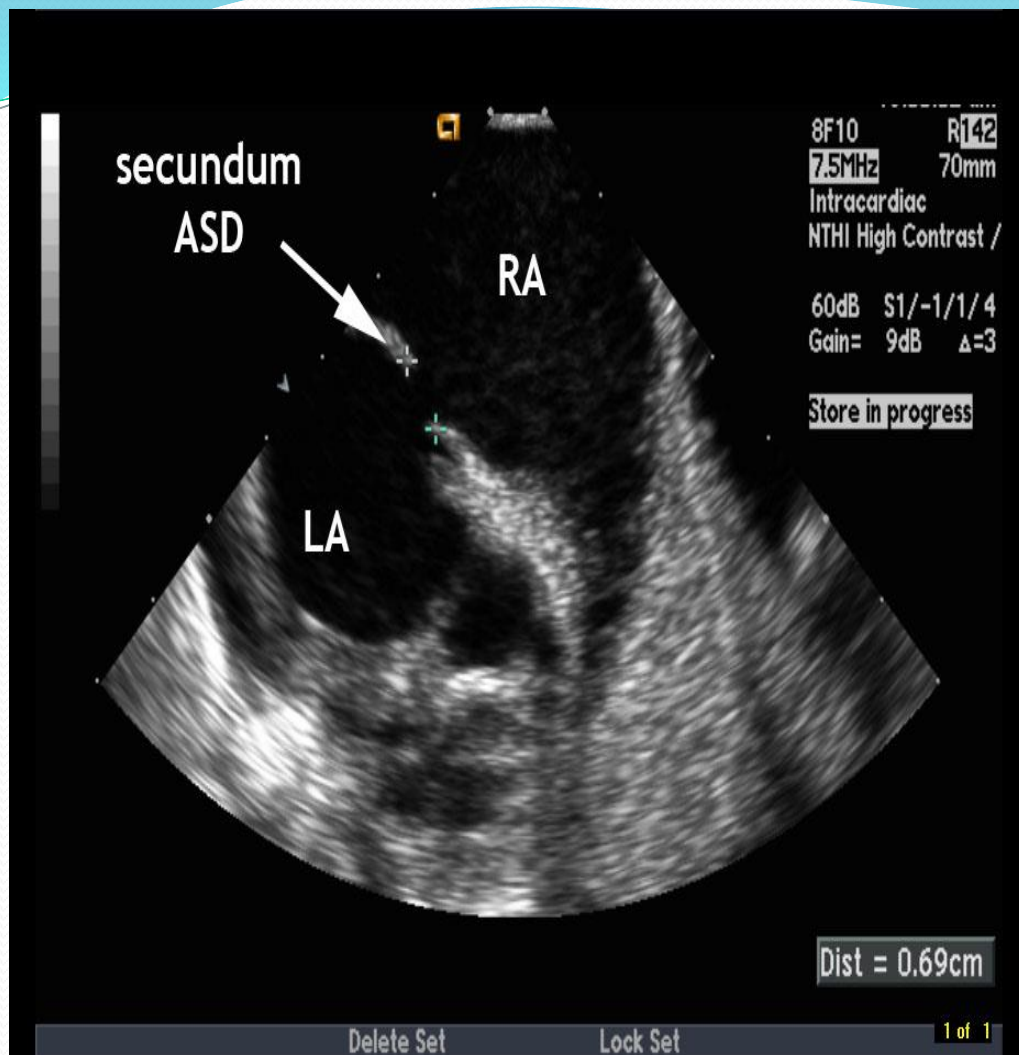
- -cardiomegalie cu largirea AD si VD
- -Bombarea arcului AP
- -semne de circ pulmonara crescuta



Eco cord.



- M,2D,Doppler
- Se evidentiaza
- **pozitia,**
- **marimea,**
- **dimensiunea cavitatilor drepte,**
- **semne de HTP**
- La copiii mai mari sau adolescenti poate fi utilizat **eco transesofagian**.De asemenea **eco de contrast**
- Cateterismul cardiac nu este uzual.



MI 0.7

S8-3/PEDCHD3

FR 61Hz
8.1cm

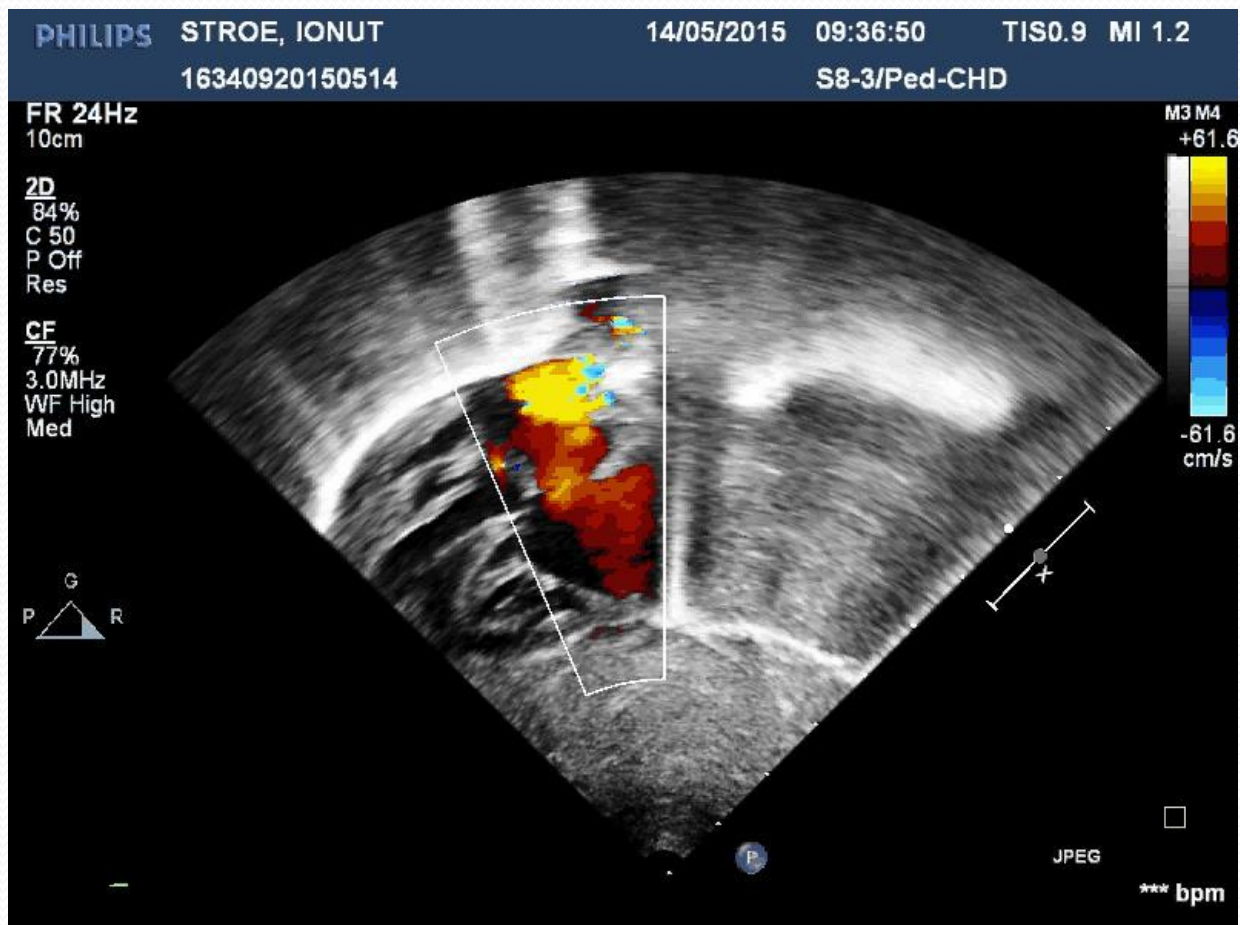
M3

2D
66%
C 50
P Off
Res



JPEG

*** bpm



PHILIPS

ALIBAYLI, NN REG MARIA

11/06/2015

11:24:19

TIS1.3

MI 1.2

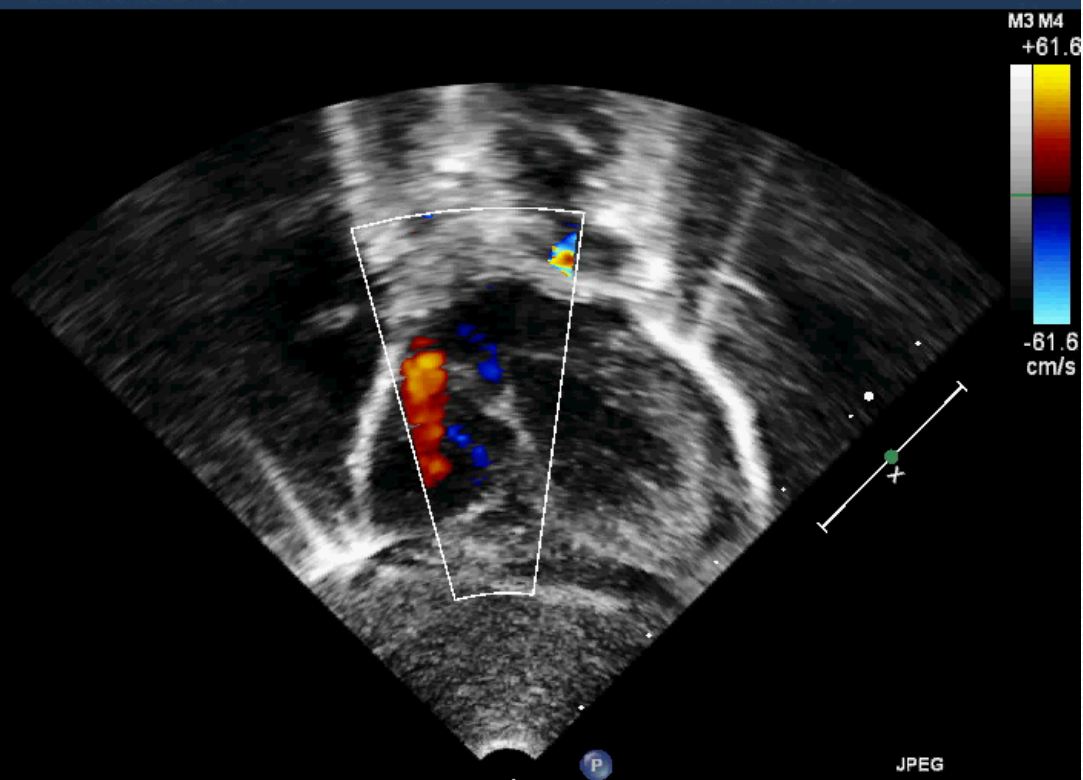
58221120150611

S8-3/PEDCHD3

FR 46Hz
7.0cm

2D
69%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



JPEG

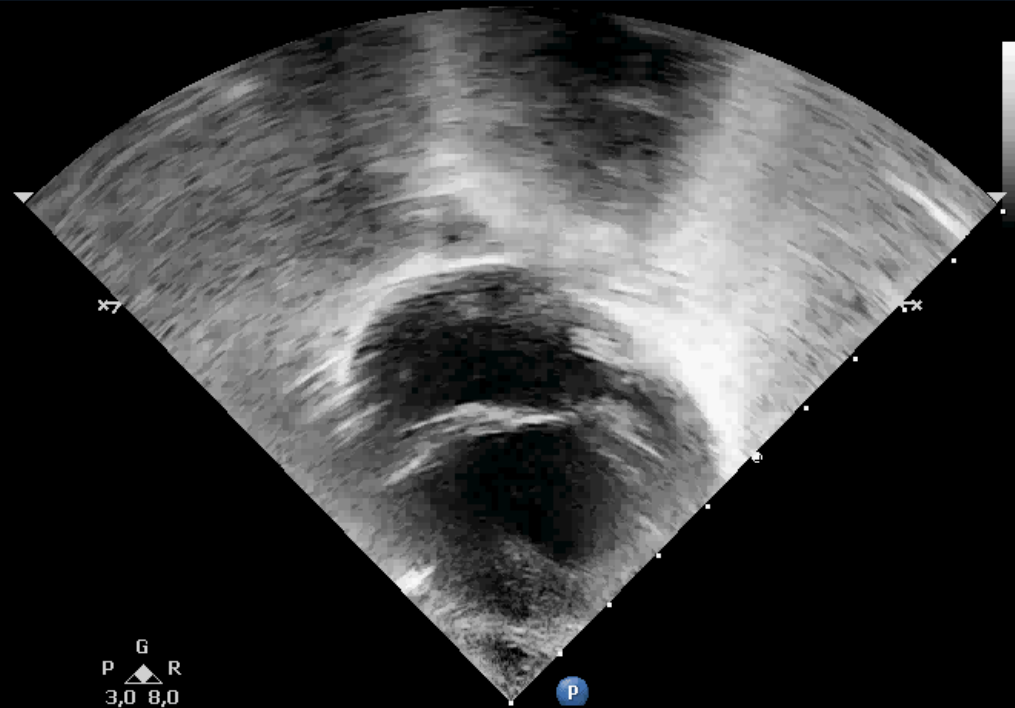
*** bpm

PHILIPS DURSAN, IONEL
15-05-28-202751

MI 0,6 28.05.2015
TIS 1,1 20:29:40

Ped Echo
S8-3
63 Hz
10,0cm

2D
Gen
Gn 45
C 50
6 / 3 / 0
100 mm/s



G
P ▲ R
3,0 8,0

PHILIPS

CAZACU, VIRGINIA

11/06/2015 09:50:41

TIS0.8 MI 1.4

58490920150611

S5-1/PEDICHD 3

FR 50Hz
15cm

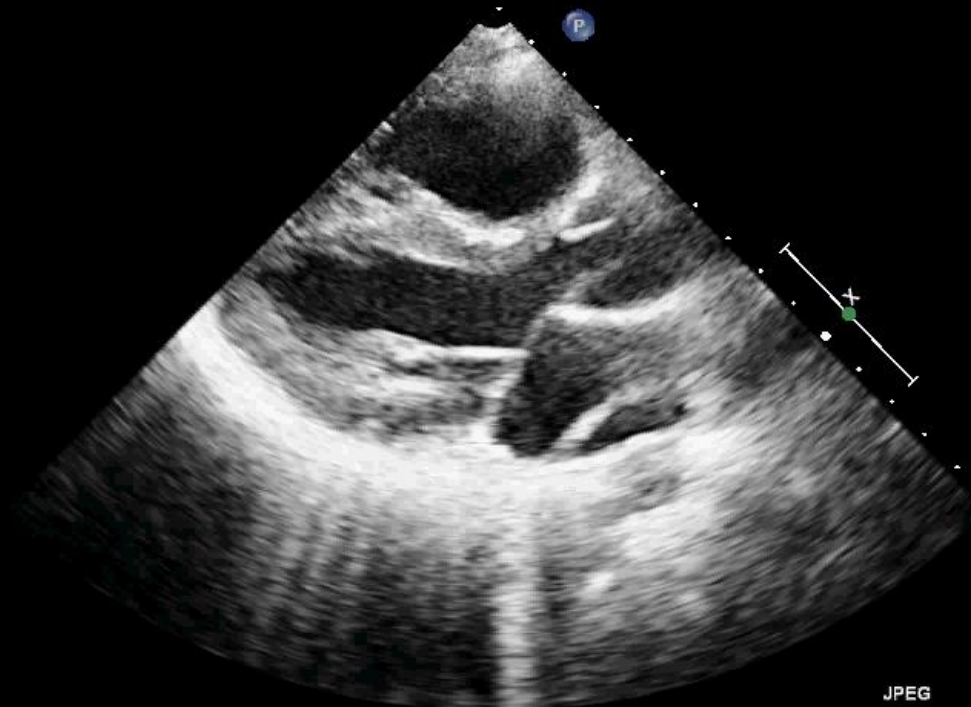
M3

2D
72%
C 50
P Low
HGen

P 1.7 R 3.4

JPEG

*** bpm



PHILIPS

CAZACU, VIRGINIA

11/06/2015

09:53:39

TIS0.8

MI 1.4

58490920150611

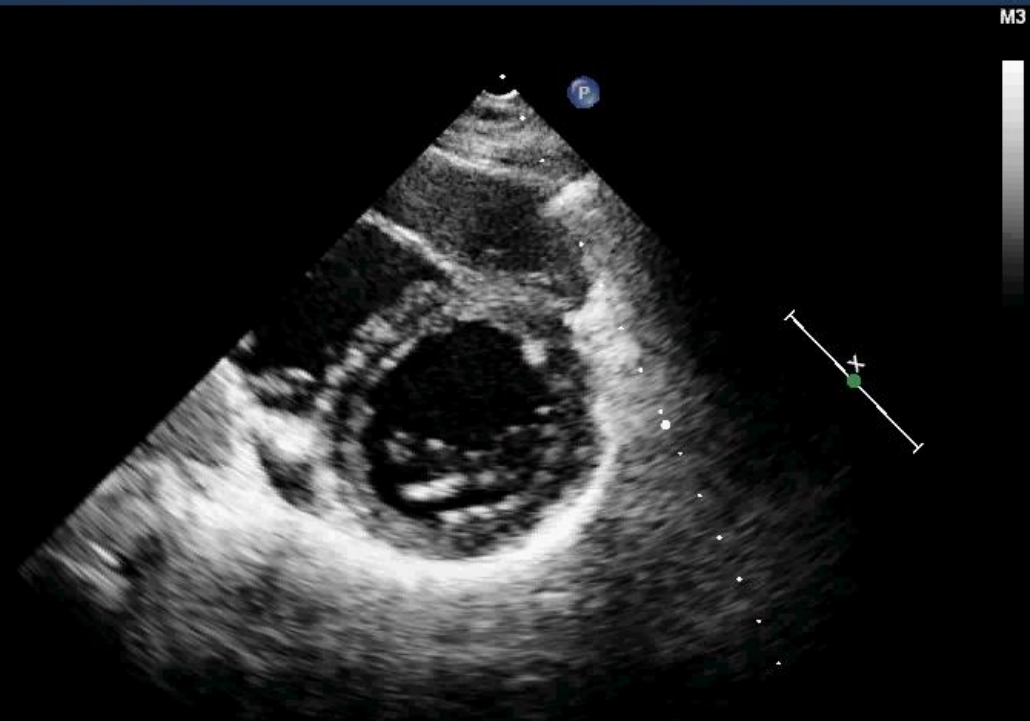
S5-1/PEDICHD 3

FR 50Hz
15cm

M3

2D
61%
C 50
P Low
HGen

P R
1.7 3.4



JPEG

*** bpm

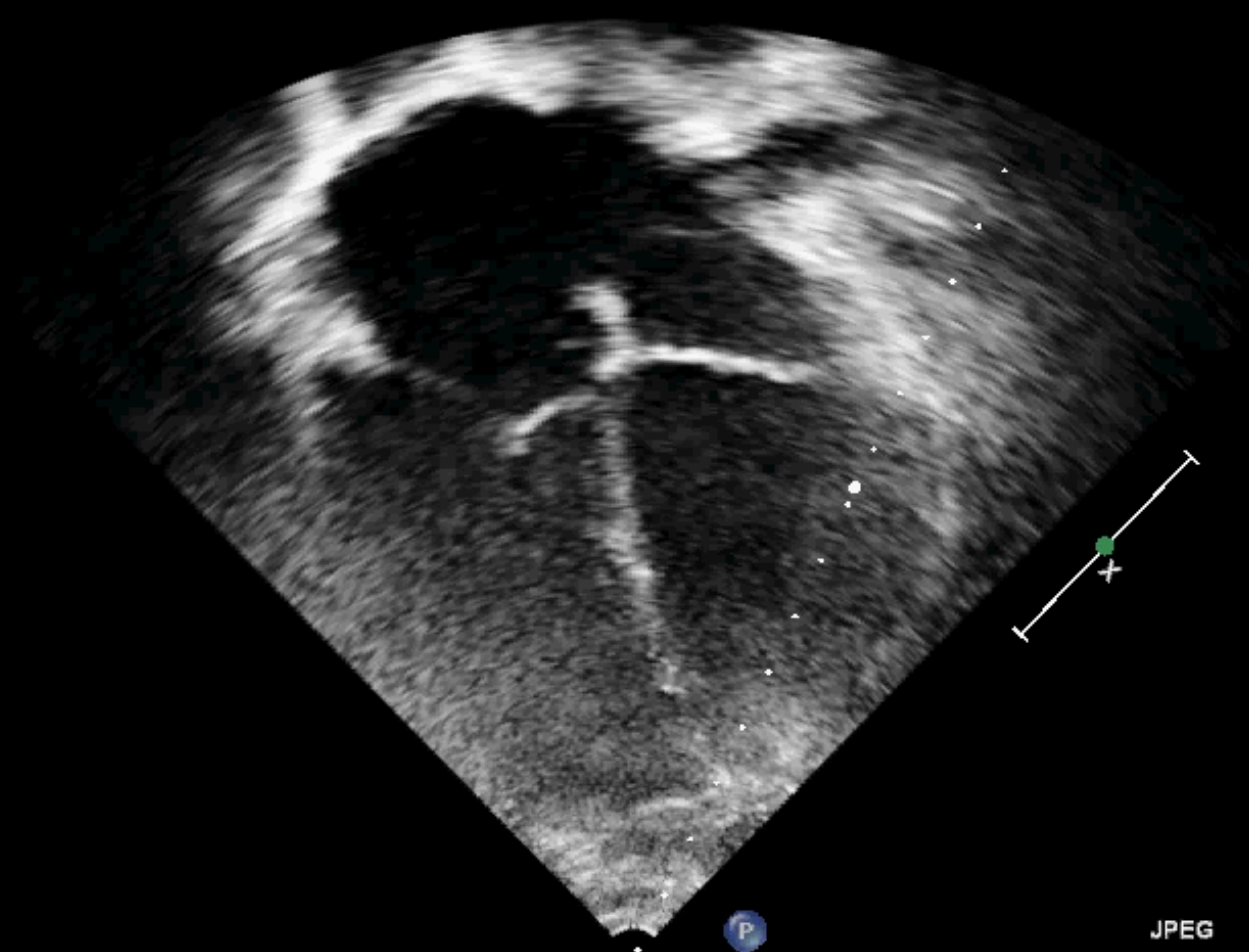
FR 50Hz
15cm

2D
72%
C 50
P Low
HGen

M3



P 1.7 R 3.4



P

JPEG

*** bpm

PHILIPS

CAZACU, VIRGINIA

11/06/2015

09:54:29

TIS0.8

MI 1.4

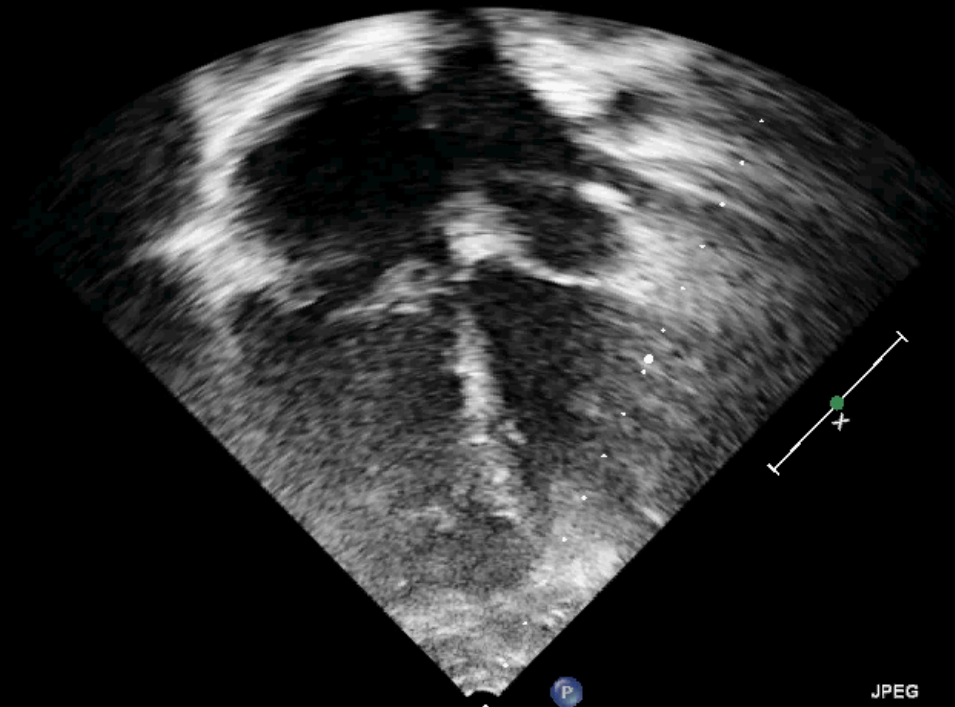
58490920150611

S5-1/PEDICHD 3

FR 50Hz
15cm

M3

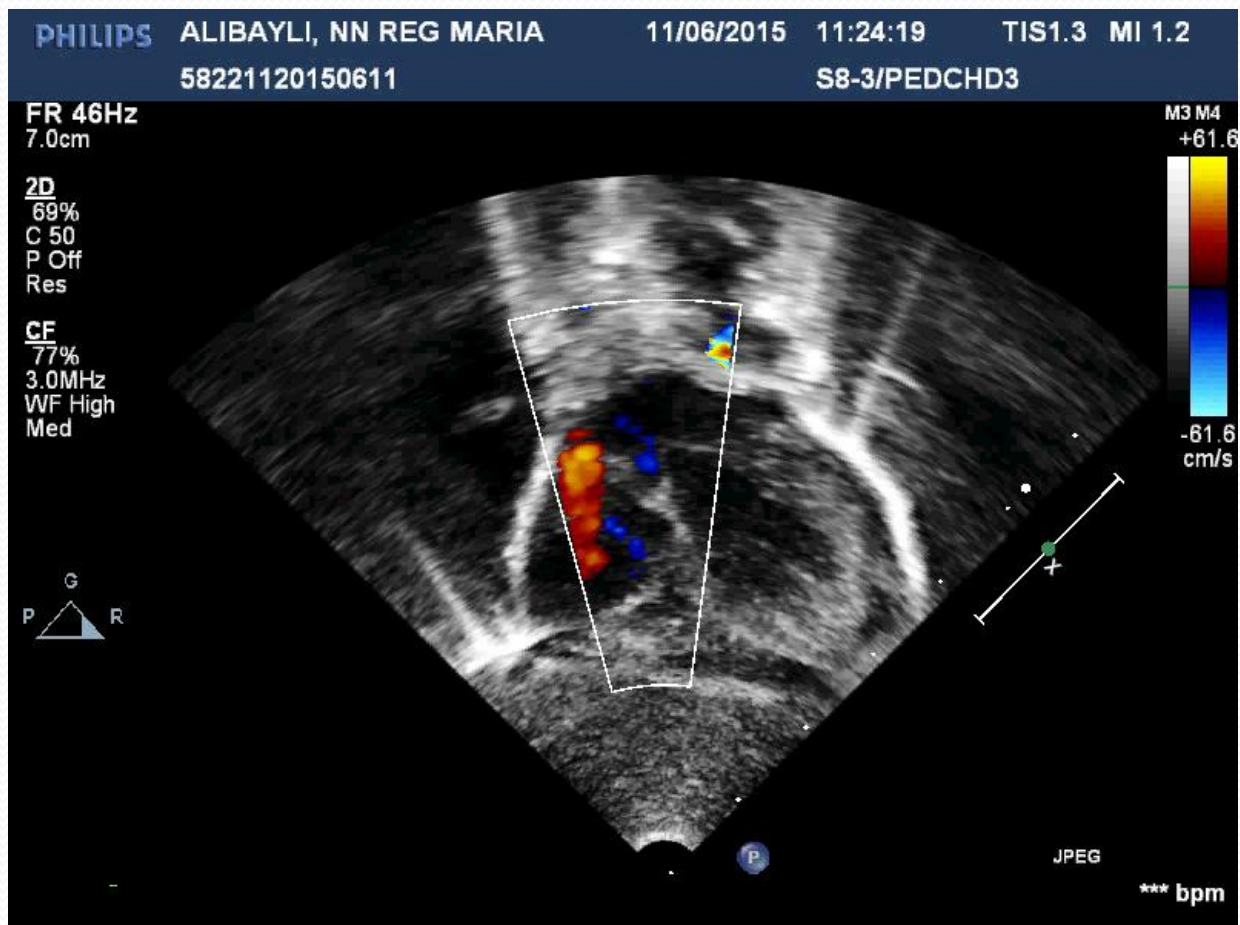
2D
72%
C 50
P Low
HGen



P

JPEG

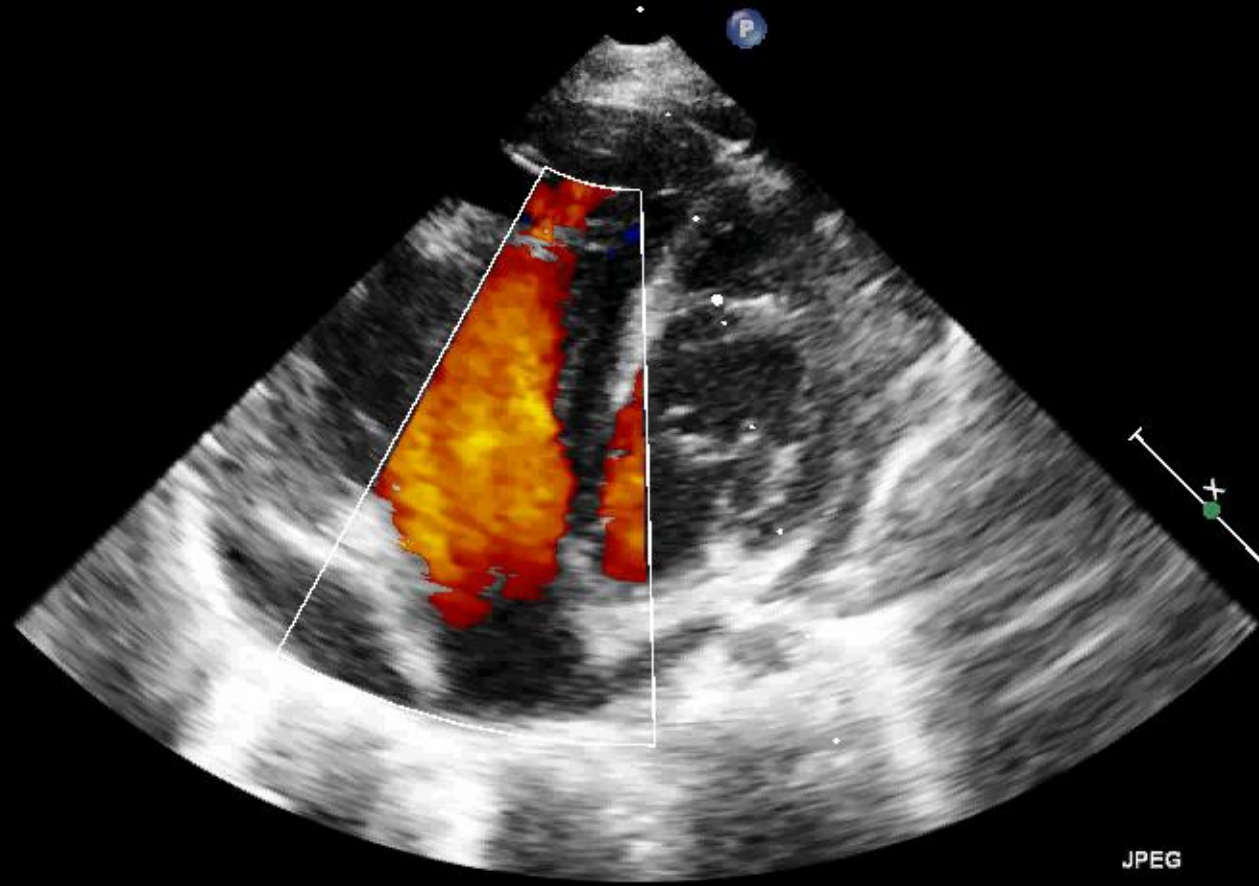
*** bpm



PR 21Hz
8.1cm

2D
68%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



JPEG

*** bpm

Istorie naturala

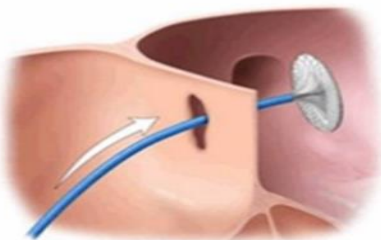
- 1.DSA <3mm rata de inchidere spontana de 100 % pana la 1a1/2 ani.
3-8 mm rata de inchidere spontana 80%
>8 mm rareori se inchide spontan
- 2.sunt asimptomatici,rareori dezvolta ICC in perioada de sugari.
- 3.un DSA larg netratat dezvolta HTP si ICC in decada 2-3.
- 4.cu sau fara chirurgie pot apare aritmii ca adult (flutter,fibrilatie)
- 5.EB nu apare la bolnavii cu DSA,de aceea la pacientii cu DSA izolat
nu este necesara profilaxia EB.
- 6.Pot apare embolizari paradoxale si accident cerebrovascular ,complicatie f.rara.

Management-DSA

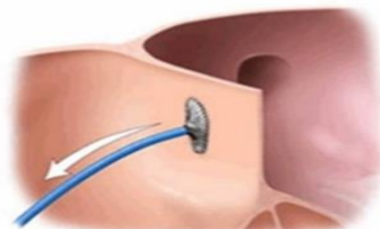
- 1.Medical
- -nu este necesara restrictie fizica
- --daca in perioada de sugar dezvolta ICC,trat. ICC
-
- 2.Inchidere nonchirurgicala:
- -sunt folosite diverse device-uri (Amplatzer,,Angel Wings
- -necesita margini > 3 mm
- -nu se pot aplica in defecte multiple



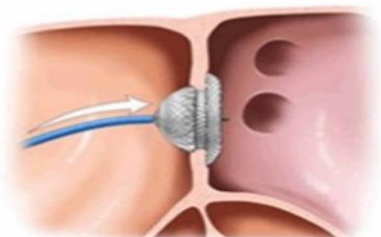
ASD device closure : Is it as simple as it looks ?



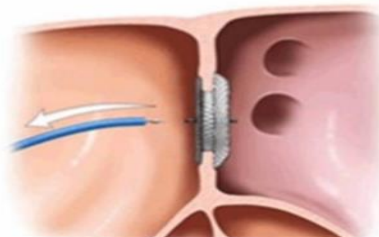
Step 1



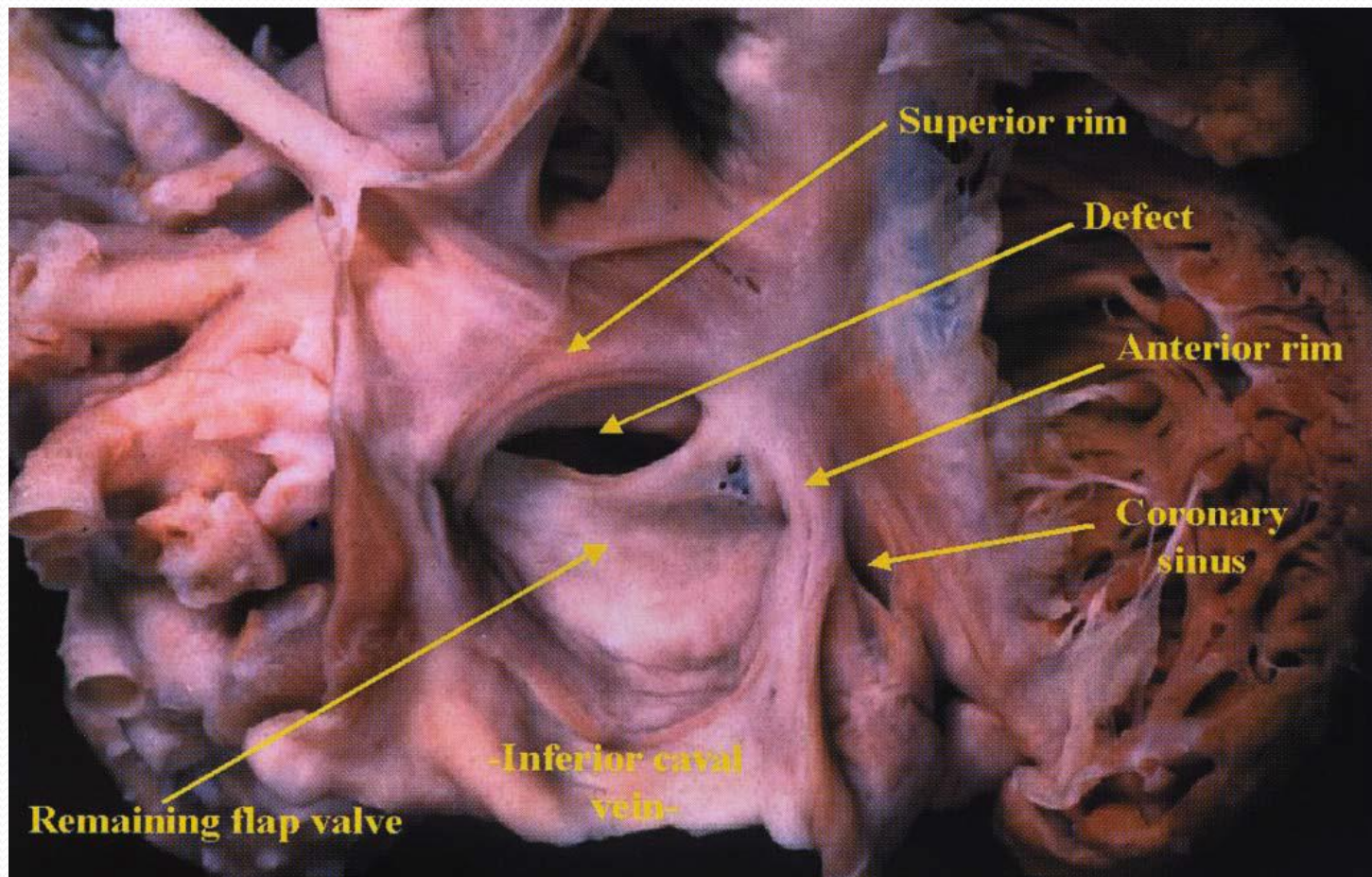
Step 2

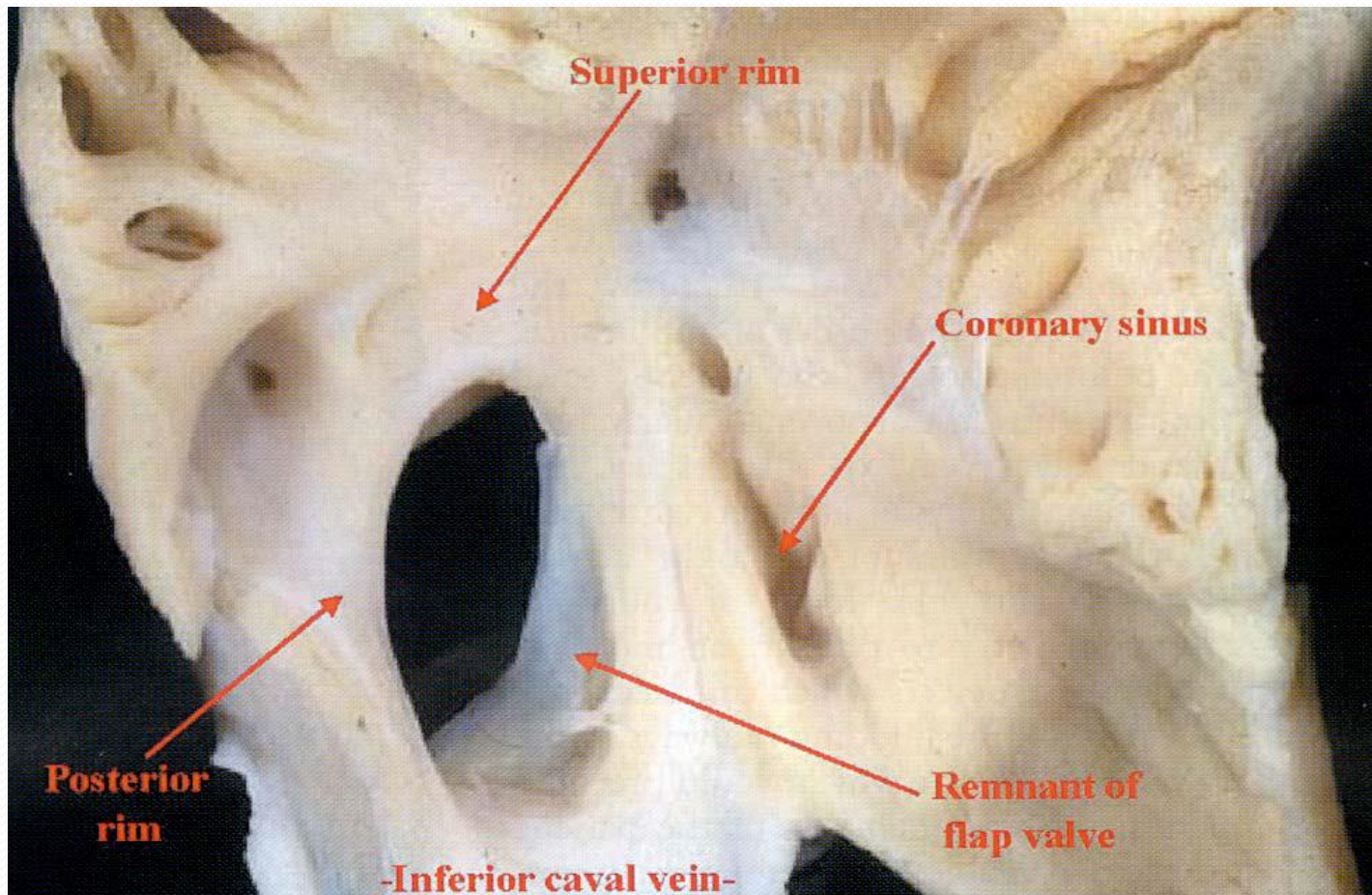


Step 3



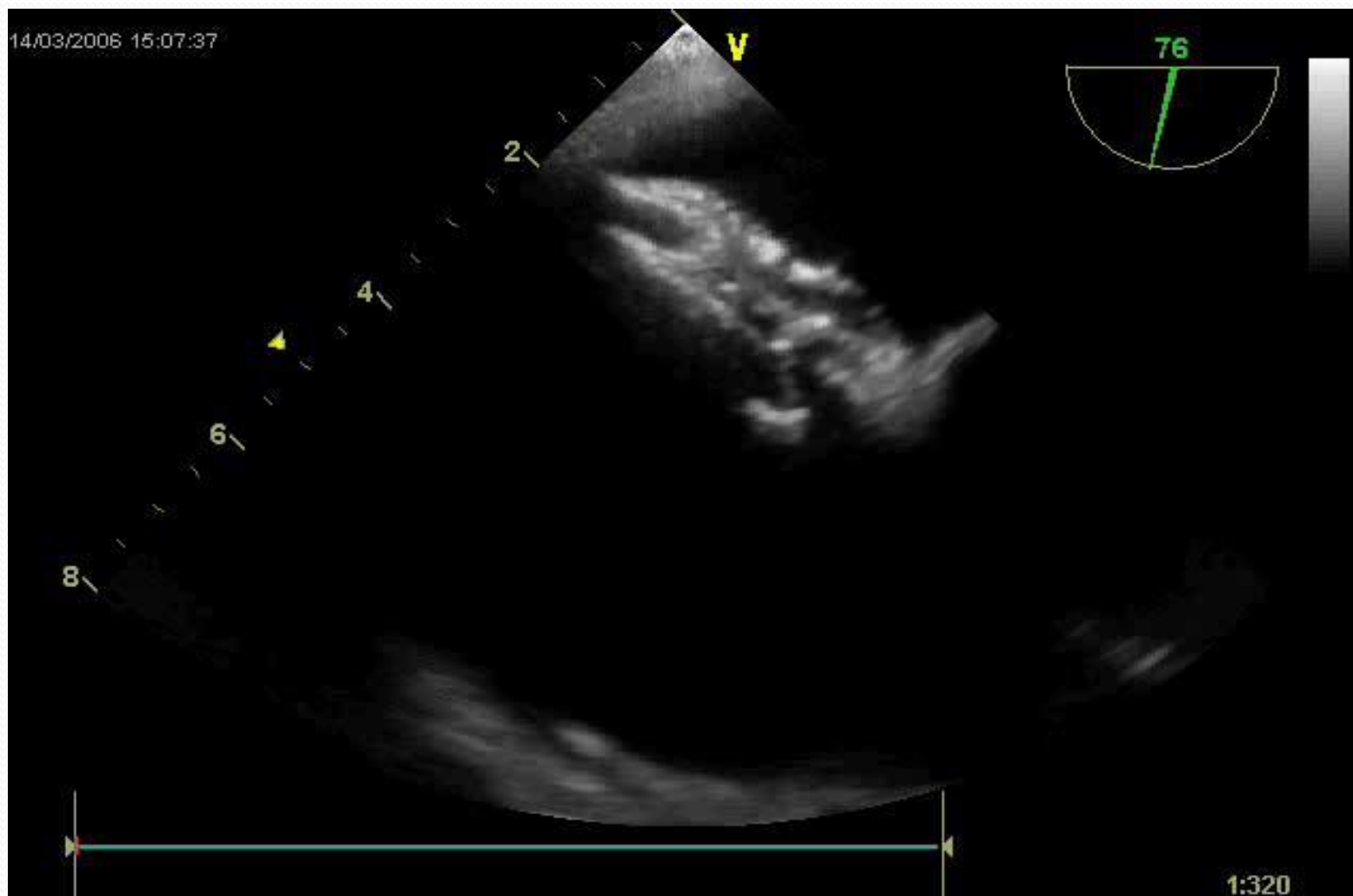
Step 4



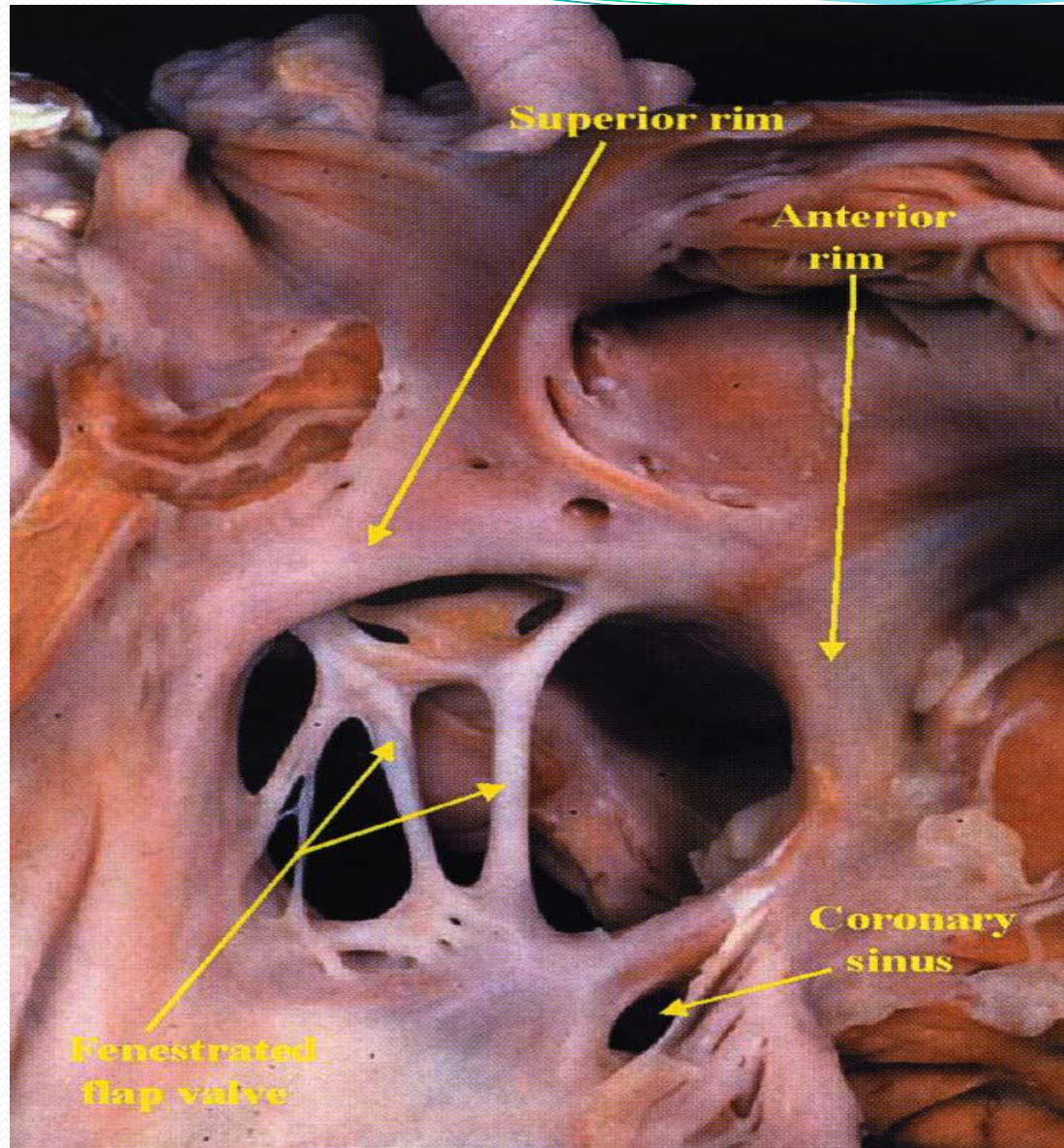


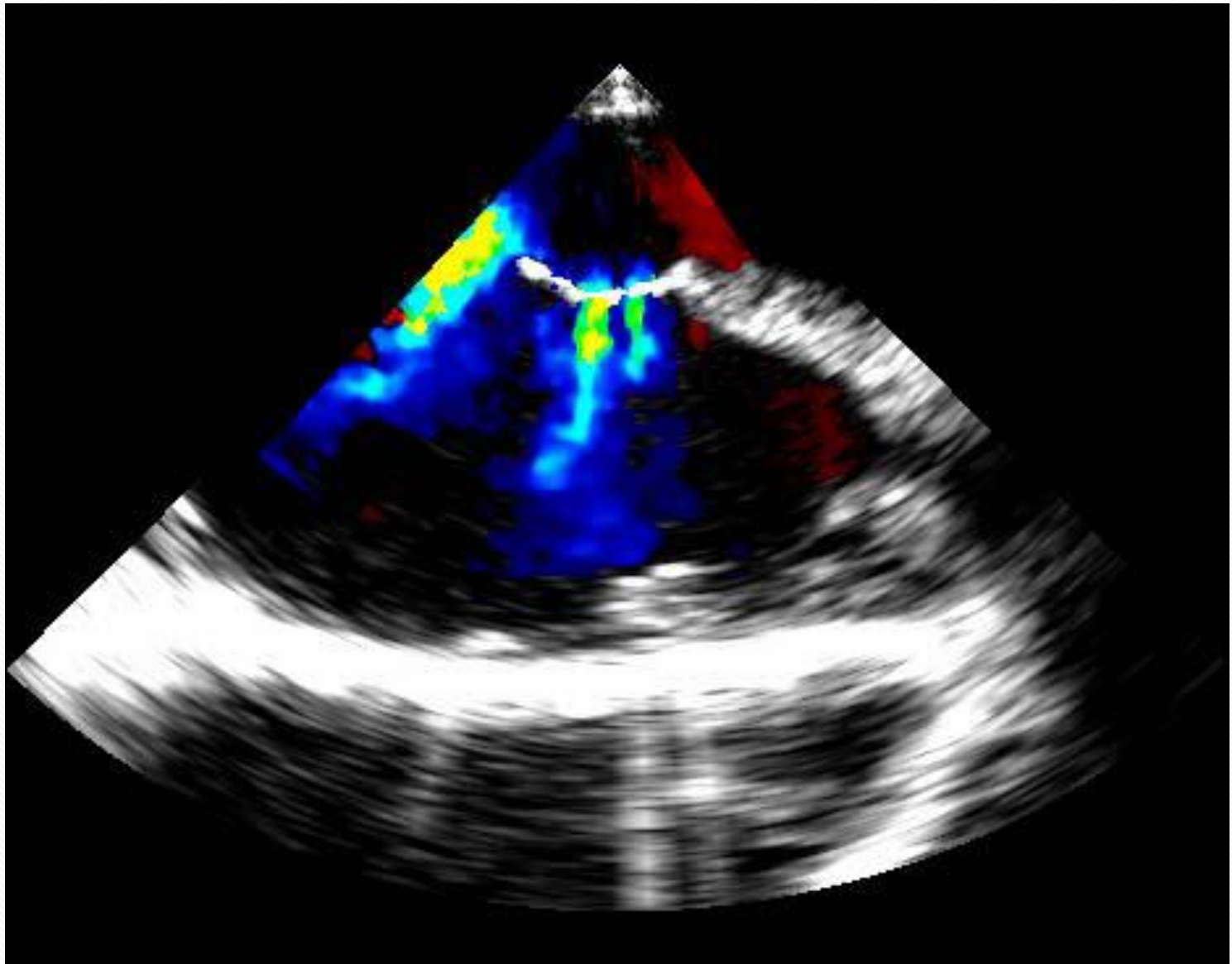
- Within the middle of the oval fossa
- • Native size $\times 1,5 + 14 \text{ mm} < \text{septal length (LA)}$
- • Sufficient rims
- – Ant. Inf. -> mitral valve
- – Ant. Sup. -> aortic valve
- – Post. Inf. -> IVC
- – Post. Sup.-> SVC, right pulmonary

14/03/2006 15:07:37



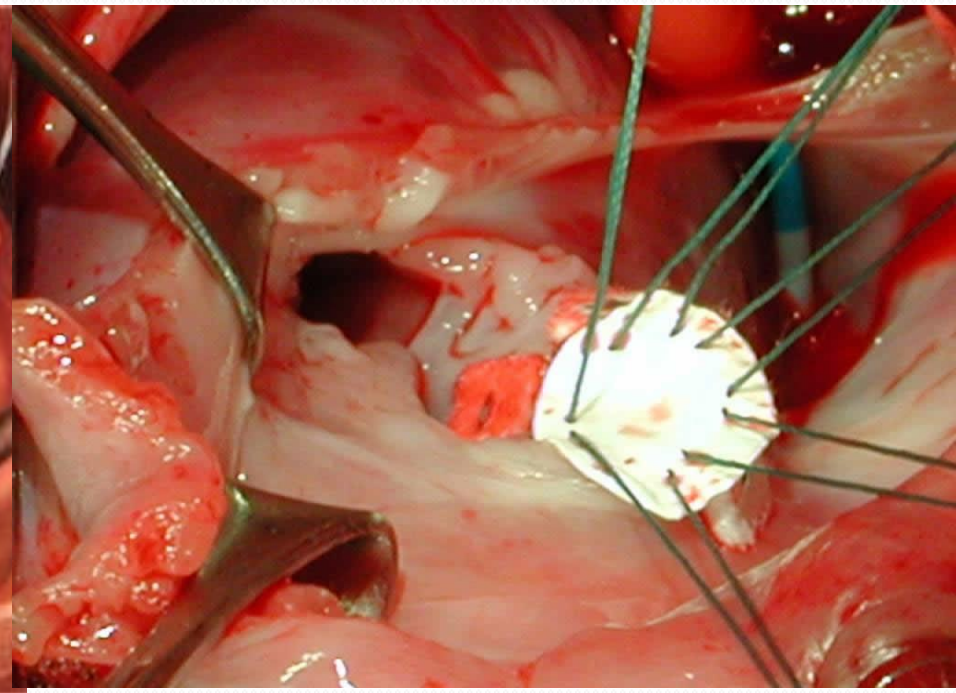
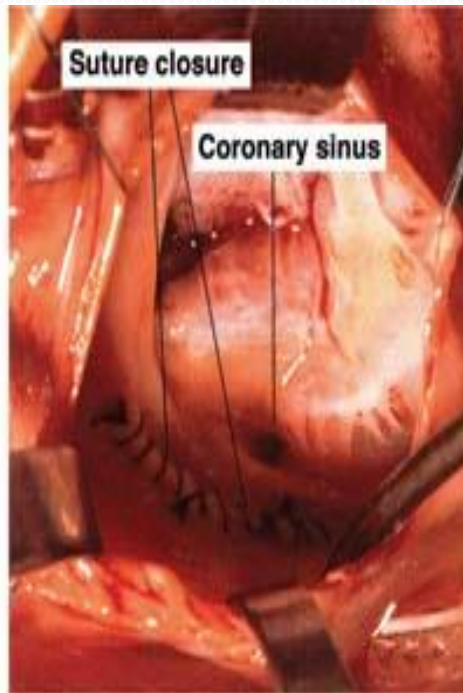
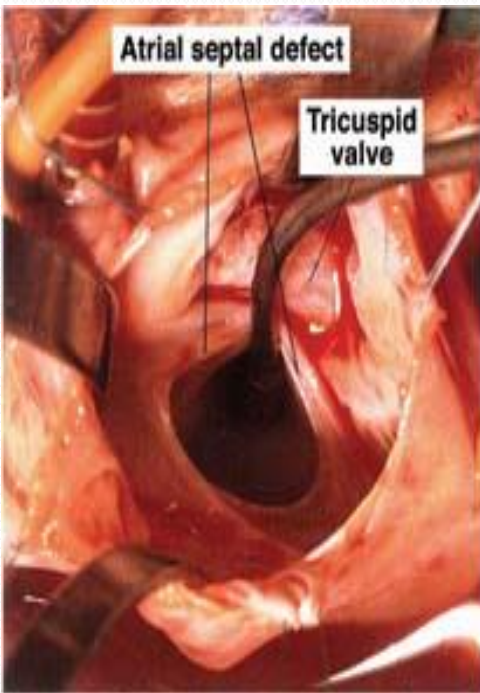
1:320





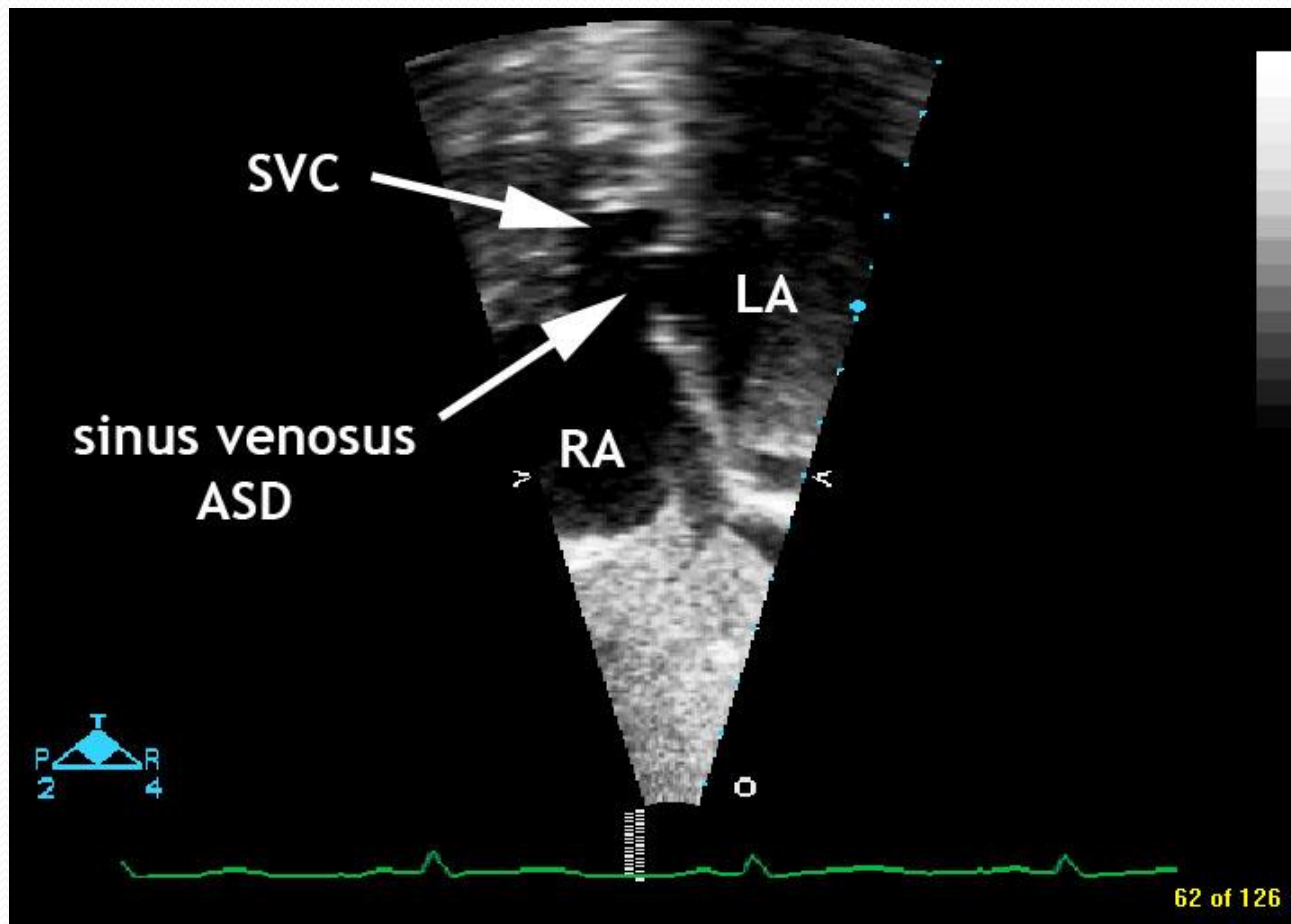
3. Inchidere chirurgicala

- timing-ul este in jurul varstei de 3-5 a (datorita posibilitatii de inchidere spontana).
- Poate fi efectuata si la varsta de sugar daca apare ICC si aceasta nu raspunde la tratament.
- doar chirurgical :
 - DSA-SV,
 - DSA-OP,
 - DSA-OS > 36 mm
- mortalitate < 1%



DSA-sinus venos

- 5-10 % din DSA
- Se asociaza frecvent **cu anomalii de intoarcere venoasa pulmonara**
 - -vene pulm drepte-AD
 - -vene pulm drepte-VCS
- Management
 - chirurgical



SAM
S5-1
29 Hz
18.0cm

2D
HGen
Gn 30
C 50
3 / 2 / 0
75 mm/s



96
BPM

DEFECT SEPTAL INTERVENTRICULAR

- **A. Prevalenta.**

- Este cea mai frecventa MCC (cu exceptia bicuspidiei aortice), 15-20% din MCC (ca defect izolat)

- Henri Roger was the first man to describe a ventricular septal defect, in 1879 he wrote:

"A developmental defect of the heart occurs from which cyanosis does not ensue in spite of the fact that a communication exists between the cavities of the two ventricles and in spite of the fact that the admixture of venous blood and arterial blood occurs. This congenital defect, which is even compatible with long life, is a simple one. It comprises a defect in the interventricular septum"



- **Perimembranos**=membranous,
- infracristal

-80%

-extindere inlet,outlet,muscular

- **Outlet**

-5-7%

-conal,infundibular,doubly committed

- **Inlet**

-5-8%

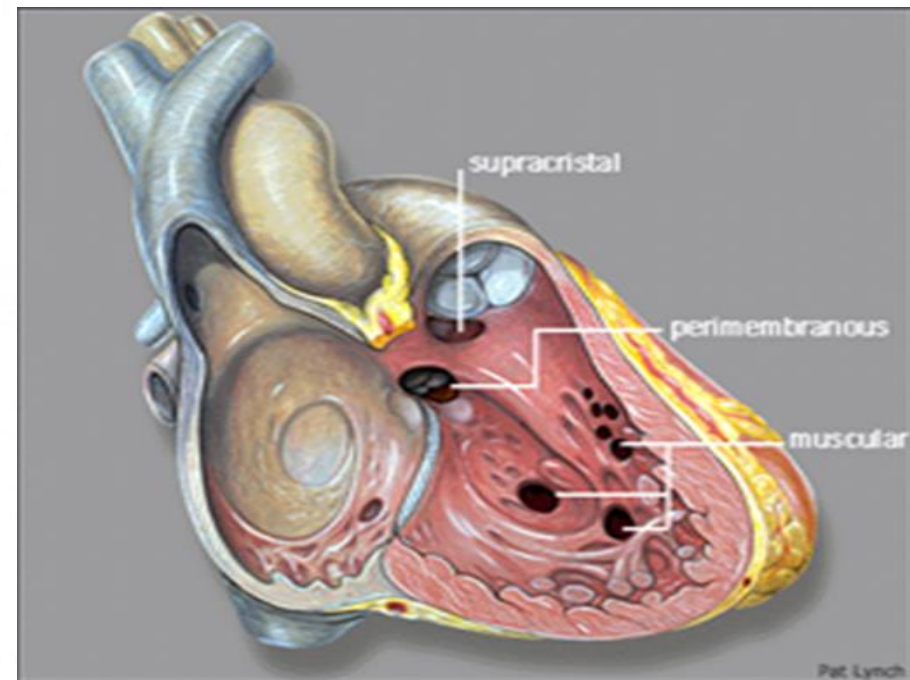
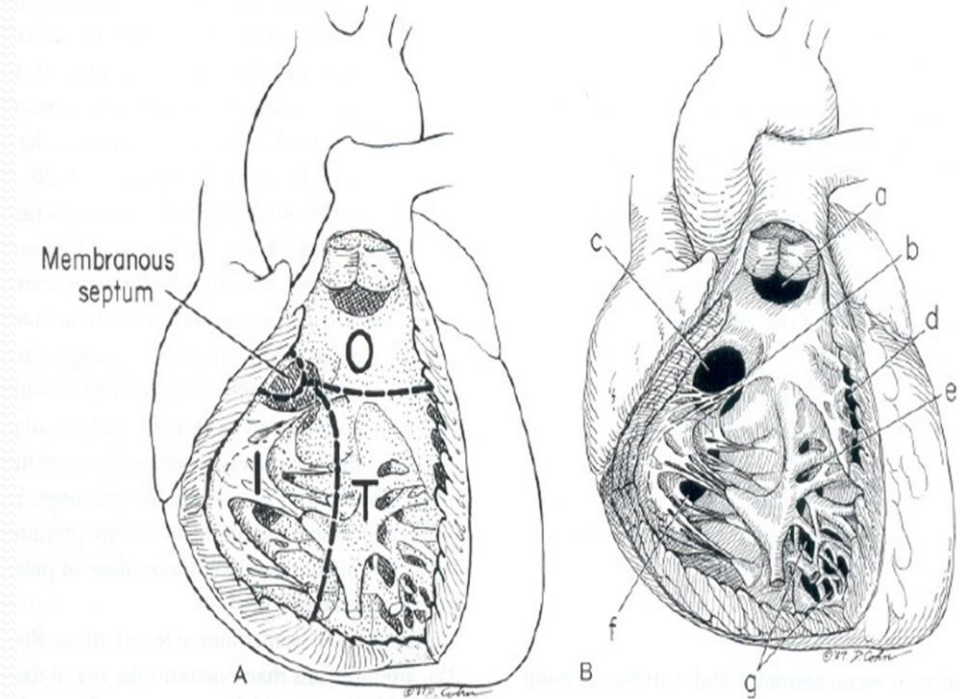
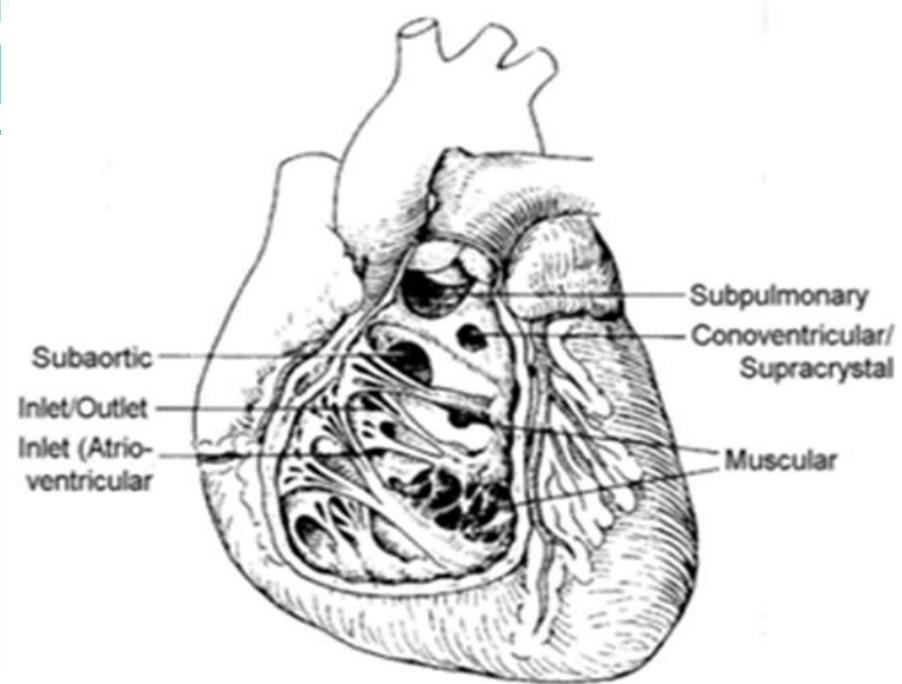
Specific CAVC

- **Muscular**

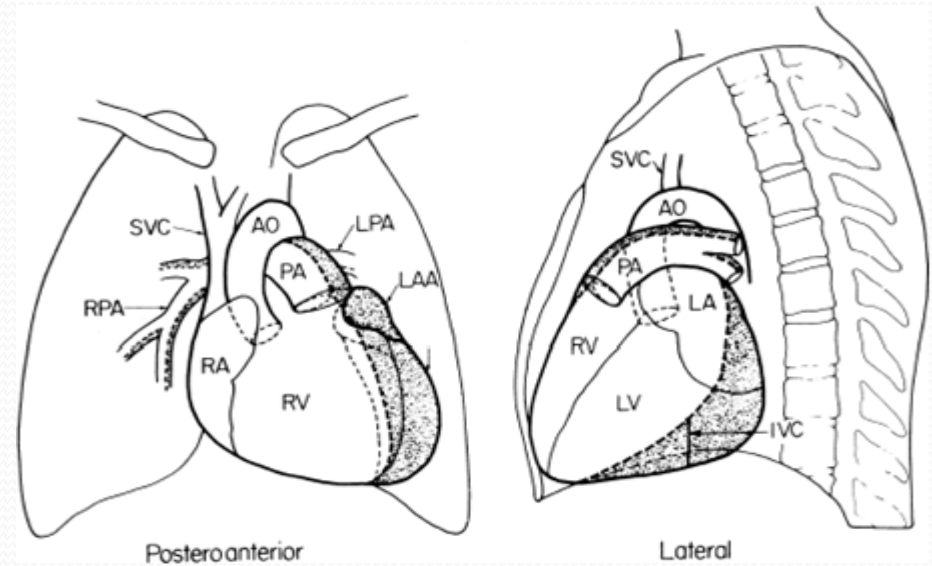
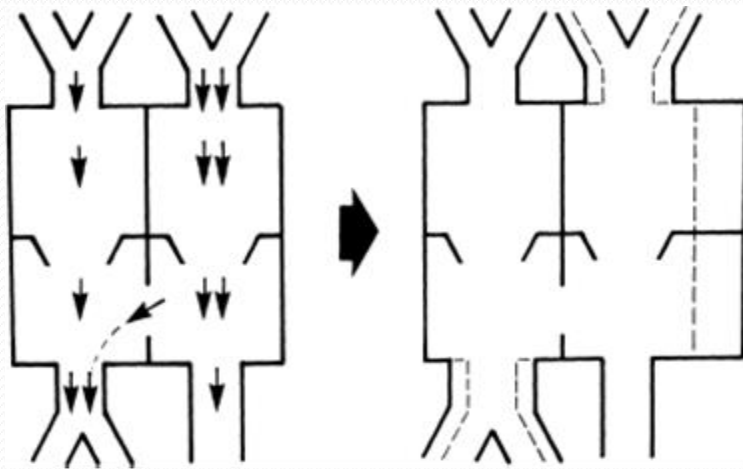
-5-20%

-Midmuscular,apical

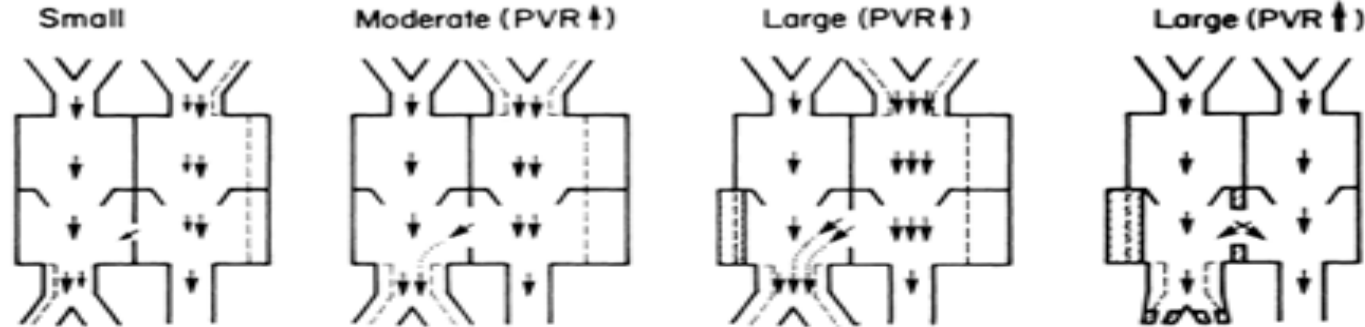
-Swiss cheese



Fiziopatologia-DSV



- suntul in DSV acianotic este stanga-dreapta
 - Magnitudinea suntului este determinata de :
 - 1.marimea defectului
 - 2.de nivelul rezistentei vasculare
 - 3.nu este influentat de locatie
 - primele semne hemodinamice de sunt sunt dilatarea cavitatilor stangi.
 - suntul se realizeaza in sistola cand VP este deschisa,deci VD nu face un efort suplimentar pt a ejecta vol VD+ vol SUNT in AP.
- Returul venos suprasolicita in schimb cavitatile stg.



Cardiomegaly on X-rays	No or Minimal	Moderate	Marked	No
RVP (%LVP)	25-30%	30-50%	60-80%	100%
ECG	Normal	LVH LAH (±)	LVH RVH LAH	Pure RVH

--sunturile mari daca nu sunt corectate la timp determina modificari ireversibile la nivelul arteriolelor pulmonare

Boala vasculara pulmonara (Sd.Eisenmenger)

- necesita ani de evolutie pana la instalare
- cu semne specifice atat pe ECG cat si pe RX.

La acest moment,rezistenta vasculara este semnificativ crescuta,magnitudinea suntului se reduce

Cavitatile stangi revin la normal,iar semnele ECG de HVS dispar.,ramanand semne de HVD datorita HTP.Deoarece magnitudinea suntului scade,intensitatea suflului scade ,chiar dispare (**atentie,in evolutie,un suflu care a disparut,dar insotit de semne de cianoza,inlocuirea semnelor de HVS cu HVD sau HBV,nu inseamna inchiderea suntului.**)

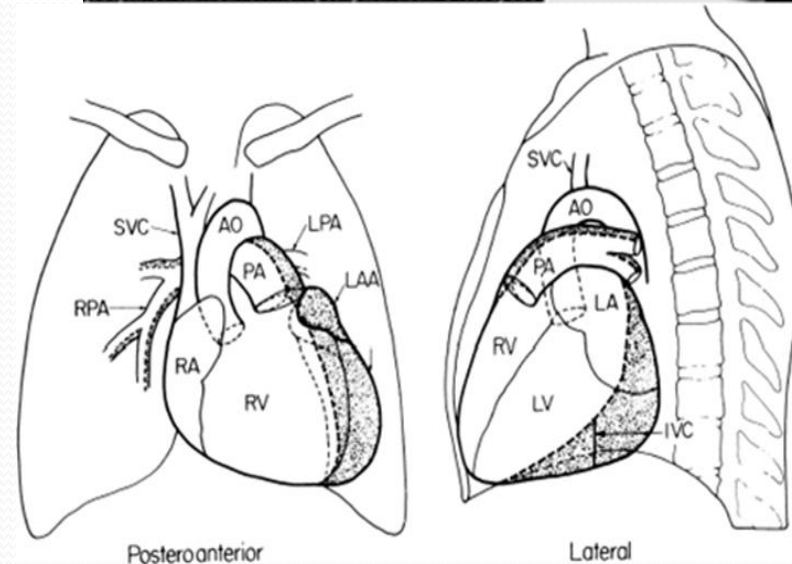
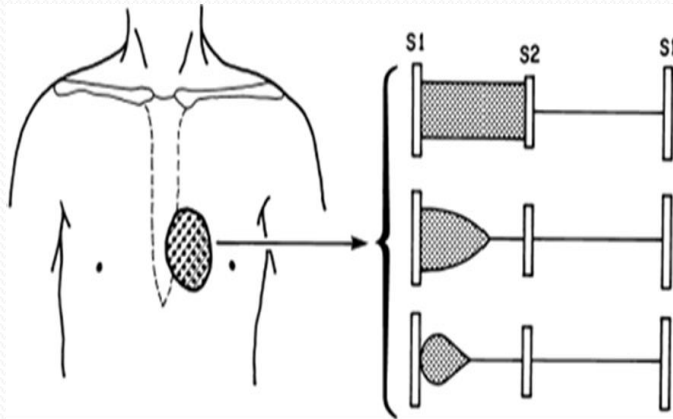
Evolutie clinica

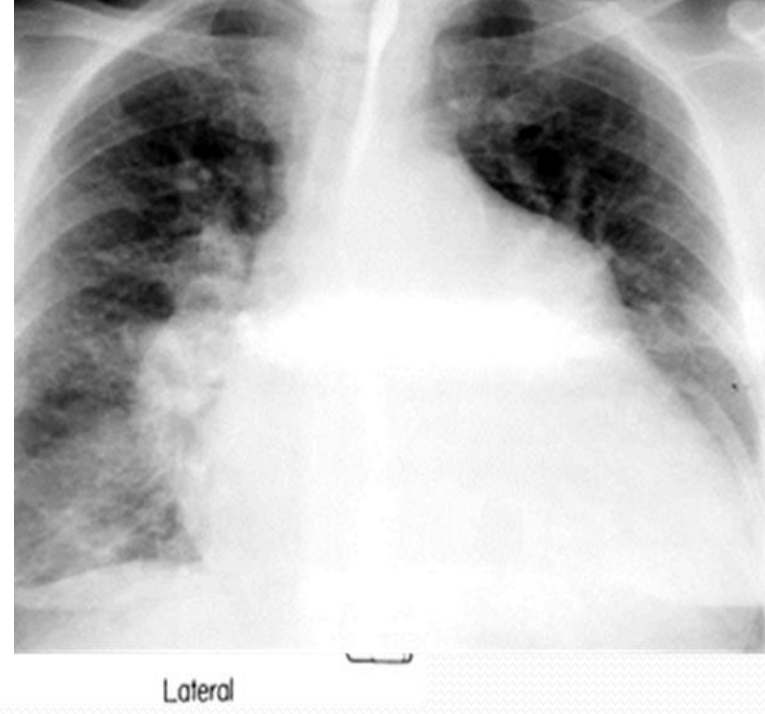
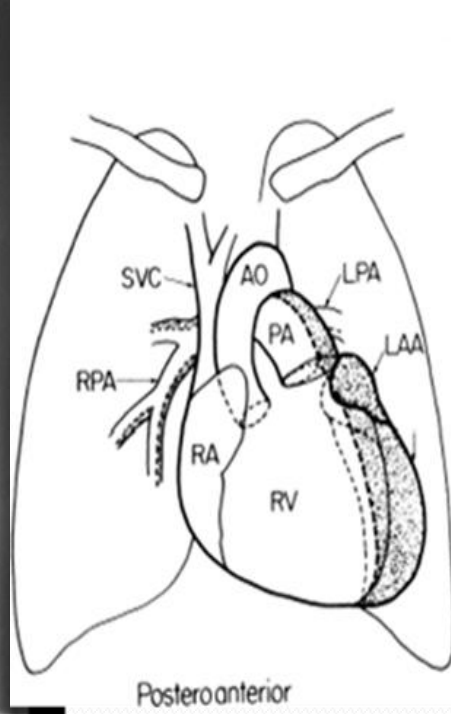
- **Depinde de :**
 - **-marimea defectului**
 - **-statusul rezistentei vasculare pulmonare**
- **-Suflul poate apare in saptamana 1-6,ca urmare a scaderii RVP in viata postnatala**
- **-Din sapt 2-luna 12 semne de ICC in DSV largi**
 - **-tahipnee,tiraj,transpiratii,oboseala la alimentatie**
- **Efortul de supt este cel mai important efort ca urmare ,istoricul alimentatiei reprezinta un element foarte important de apreciere a evolutiei**
- **Unii copii cu DSV larg au o descrestere usoara a RVP in primele luni de viata si nu trec prin faza de “high output cardiac failure”**

Evolutie clinica

- -DSV mici-pacientul este asimptomatic, cu o dezvoltare staturala si ponderala normala
- -DSV moderat-larg
 - intarziere a cresterii si dezvoltarii, scade toleranta la efort,
 - prezinta infectii respiratorii repetate,
 - ICC este relativ frecventa in perioada de sugar.
- -Semnele de HTP constau in aparitia cianozei

- 2.Examinare fizica
- -se apreciaza dezvoltarea staturo-ponderala,semnele de cianoza.
- -auscultatie





Rx

- Cardiomegalie implicand in special AS,VS,rareori VD.Circulatie pulmonara incarcata.
- Gradul cardiomegaliei si cresterea circulatiei pulmonare sunt direct relationate cu magnitudinea suntului.

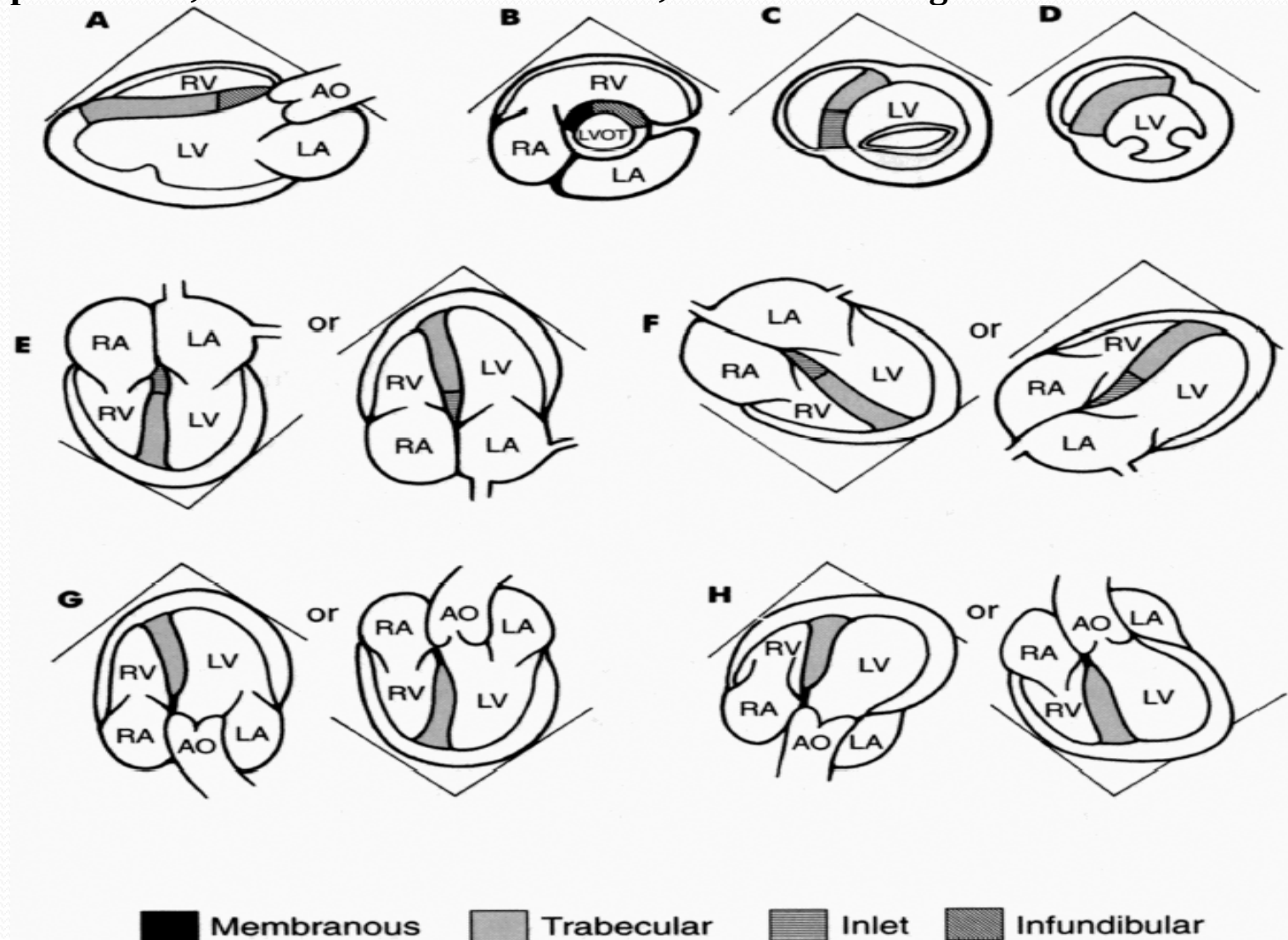
In BPVO AP si ramurile sunt f.dilatate,dar periferia pulmonara este ischemica

ECG :

- -pentru defectele mici,ECG este normal
- -pentru defecte moderate,HVS
- -pentru defectele largi ECG arata HBV
- -daca s-a instalat boala vasculara obstructiva,ECG arata doar HVD

5.ECO:M,2D,Doppler

Identifica numarul,marimea si localizarea .estimeaza presiunea pulmonara;identifica defectele asociate;se estimeaza magnitudinea suntului



FR 61Hz
10cm

2D

84%
C 50
P Off
Res



P

JPEG

*** bpm

FR 61Hz
9.0cm

2D
80%
C 50
P Off
Res

M3



JPEG

*** bpm

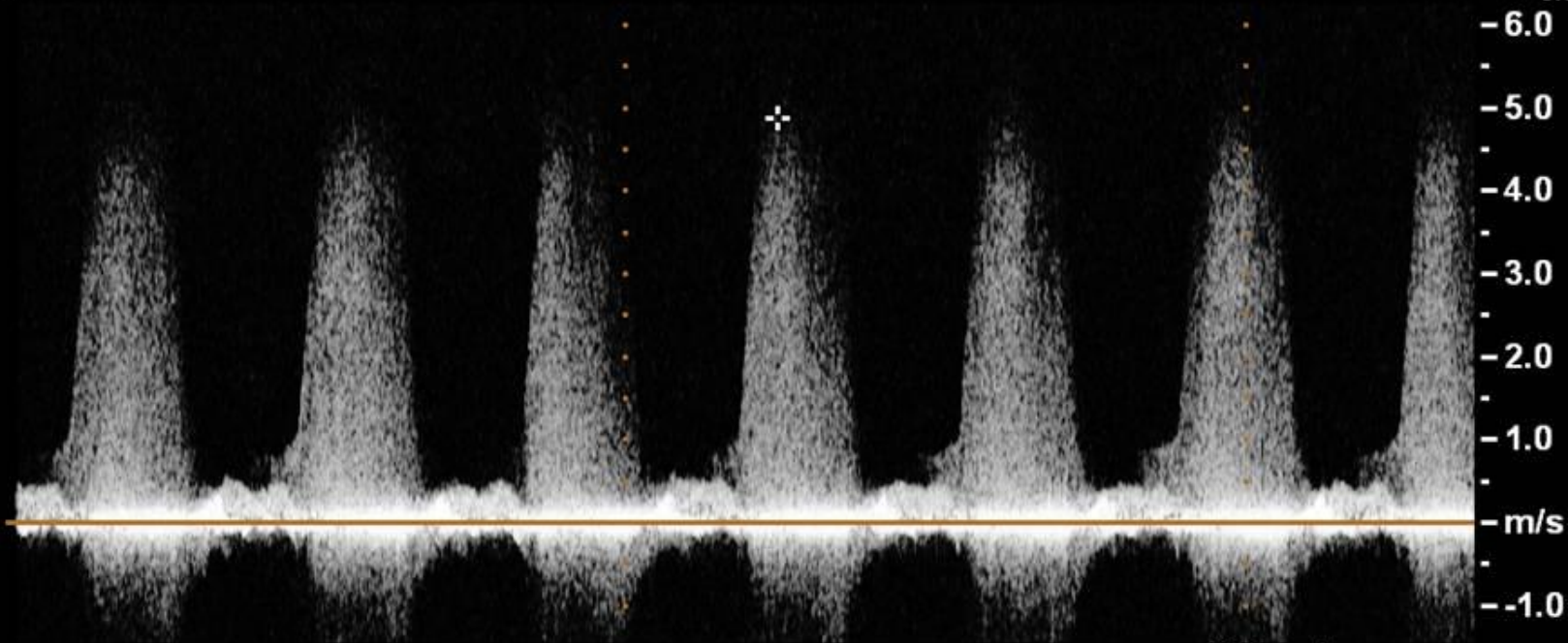
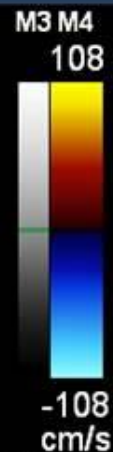
FR 45Hz
5.0cm

2D
66%
C 44
P Off
Gen
CF
77%
5.0MHz
WF High
Med



✧ Vel 488 cm/s
PG 95 mmHg

CW
50%
5.0MHz
WF 225Hz



100mm/s

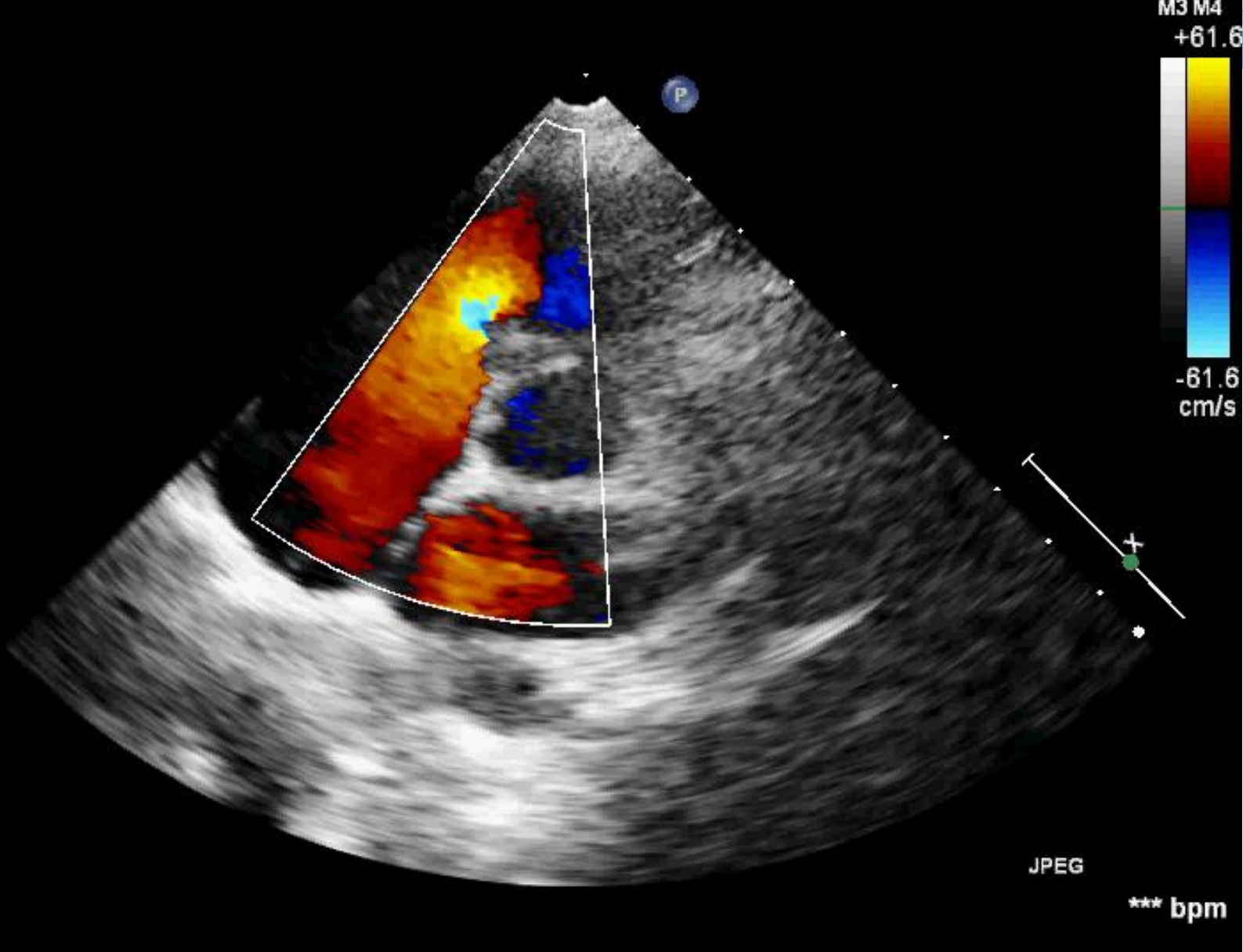
FR 29Hz
11cm

2D

84%
C 50
P Low
HGen

CF

66%
2.5MHz
WF High
Med



FR 61Hz
10cm

2D
72%
C 50
P Off
Res



M3

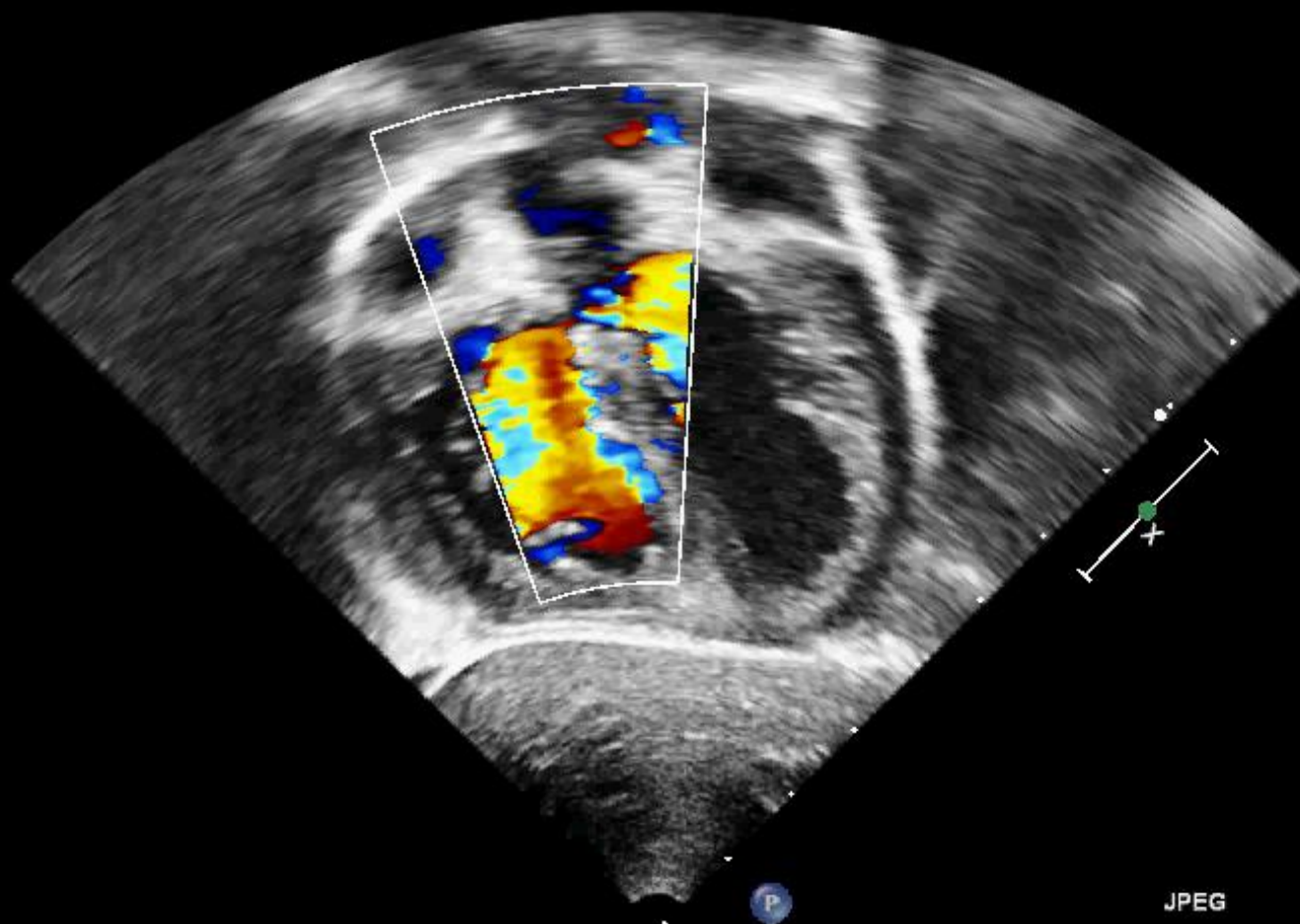
JPEG

*** bpm

FR 24Hz
10cm

2D
72%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



M3 M4
+61.6
-61.6
cm/s

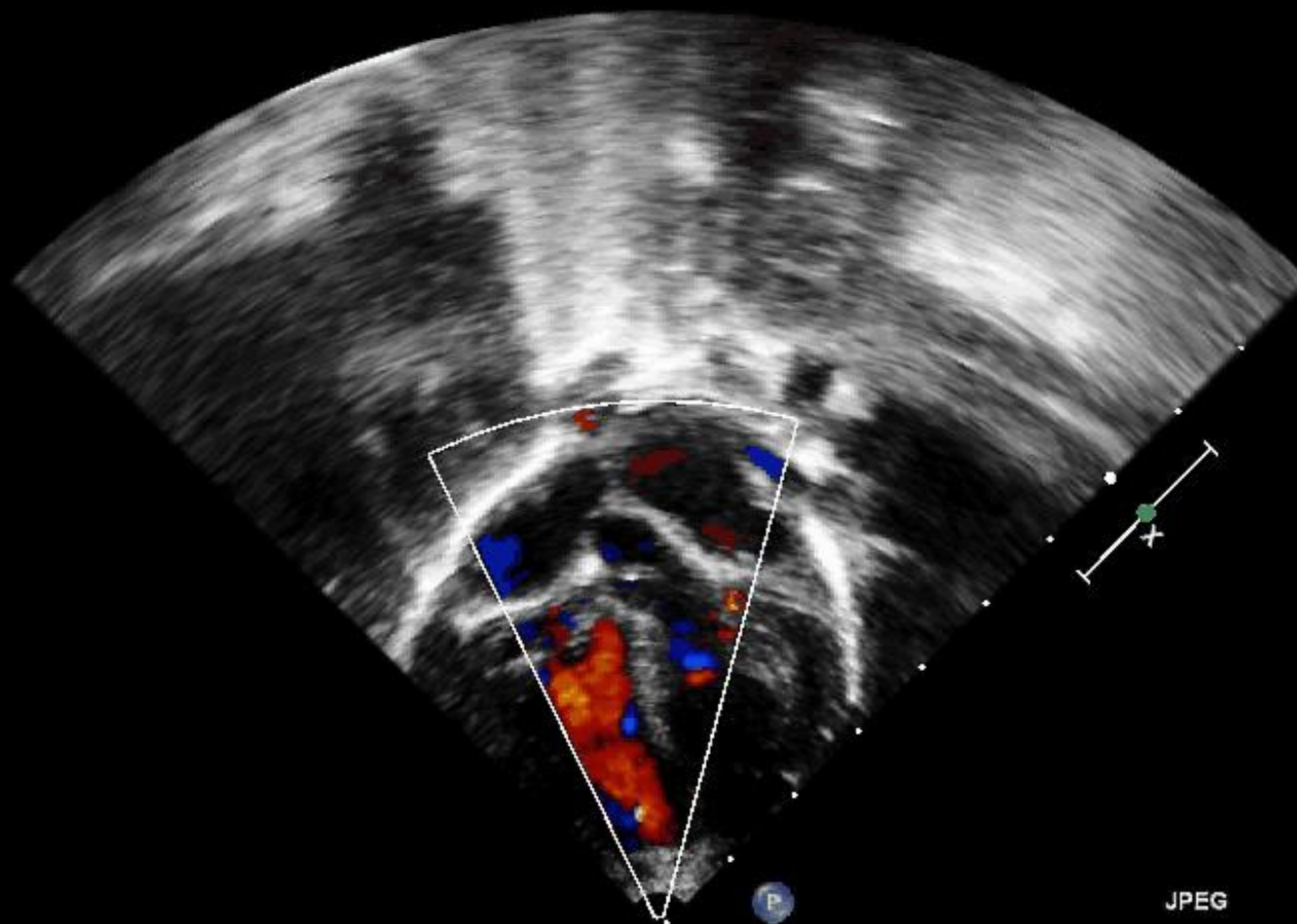
JPEG

*** bpm

FR 29Hz
10cm

2D
83%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



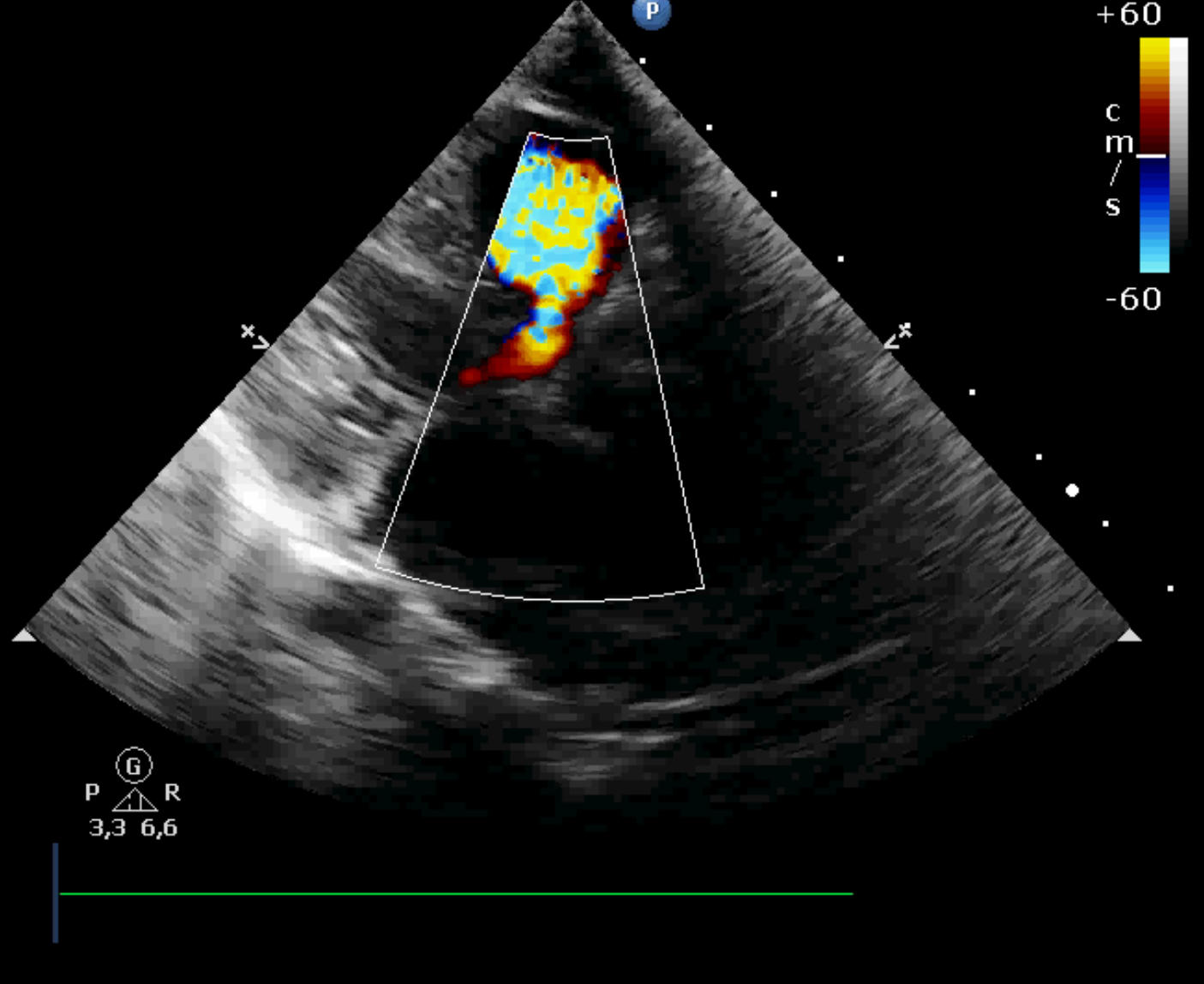
JPEG

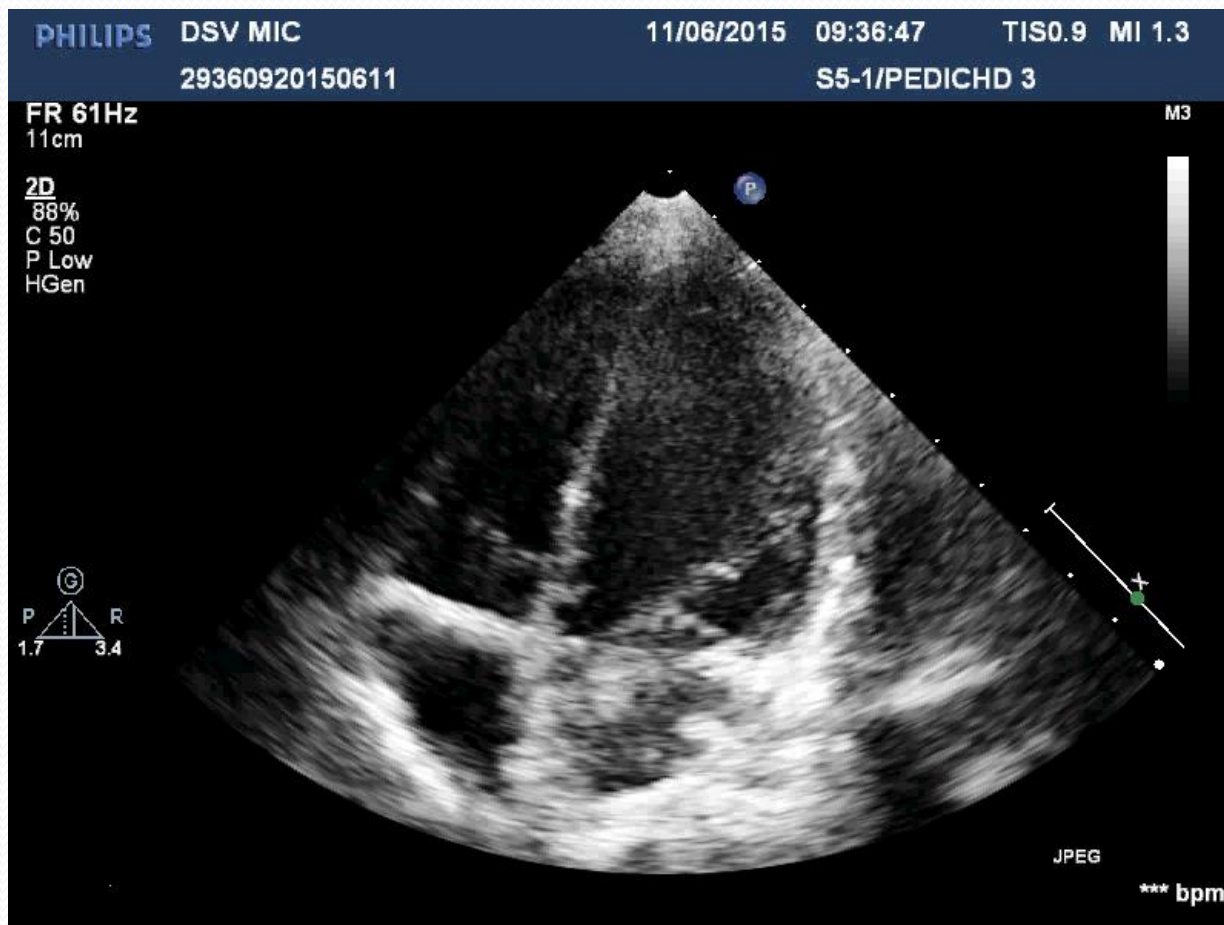
*** bpm

S5-1 NEW
S8-3
23 Hz
9,0cm

2D
HGen
Gn 43
C 50
2/2/0
75 mm/s

Color
3,1 MHz
Gn 62
4/7/2
Filtr High

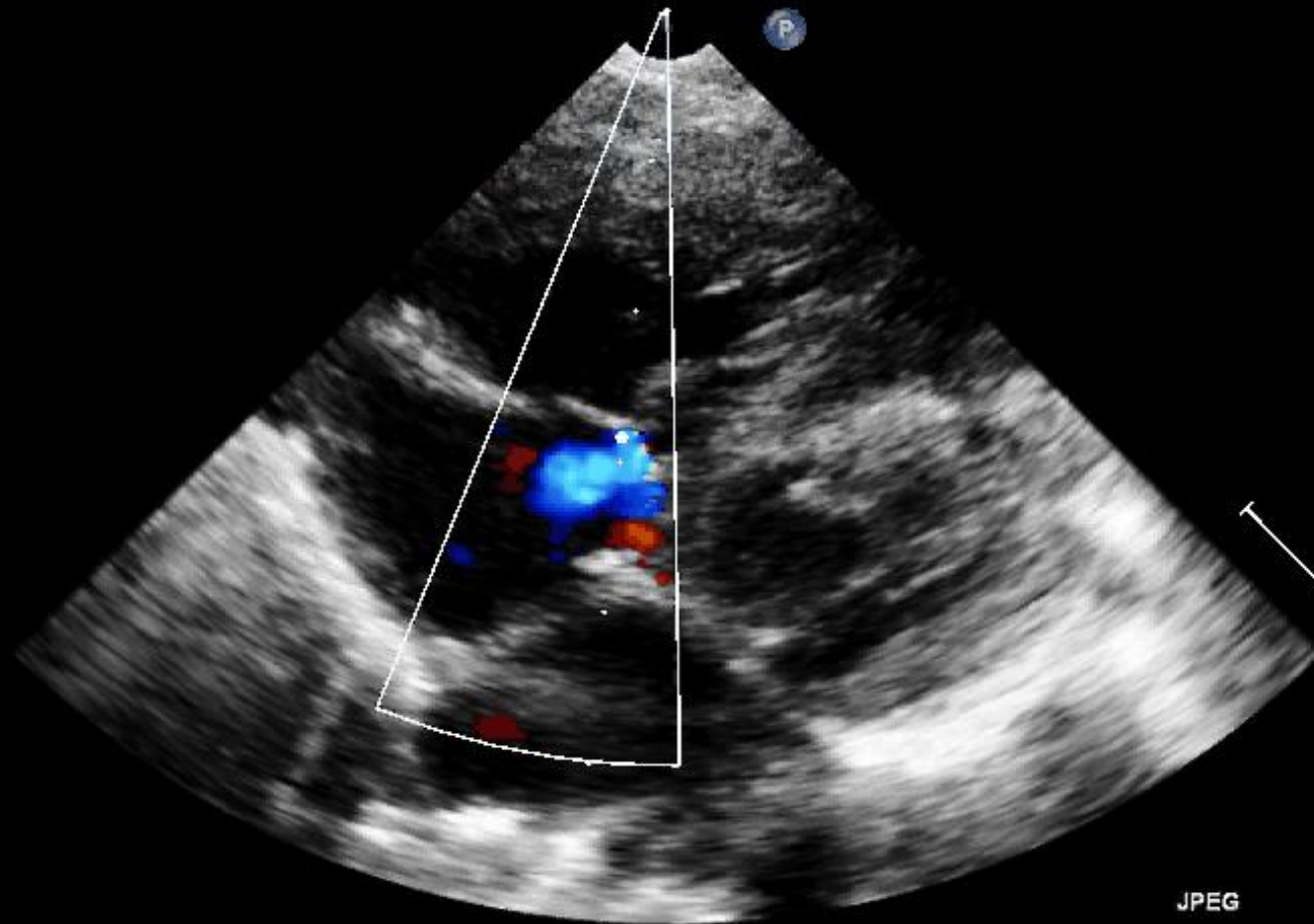




FR 48Hz
6.0cm

2D
62%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



M3 M4
+61.6
-61.6
cm/s

JPEG

*** bpm

● **E.Istorie naturala**

- **-inchiderea spontana poate apare in 30-40% din pacientii cu DSV membranos si muscular in primele 6 l de viata.Frecvent pentru defectele mici.**
- **-ICC apare la sugarii cu DSV larg,dar de obicei nu inainte de 6-8 s de viata.BVPO poate fi initiate de la 6-12 l la pacientii cu DSV larg dar inversarea suntului nu apare decat in adolescenta.**
- **-poate coexista o stenoza infundibulara/valvulara pulmonara care descreste magnitudinea suntului (plaman protejat)**
- **-EB apare rar**

● **F.Management**

● **1.Medical**

**a.tratamentul ICC : diuretic,tonicardiac,IEC;
corectarea anemiei ,daca exista.**

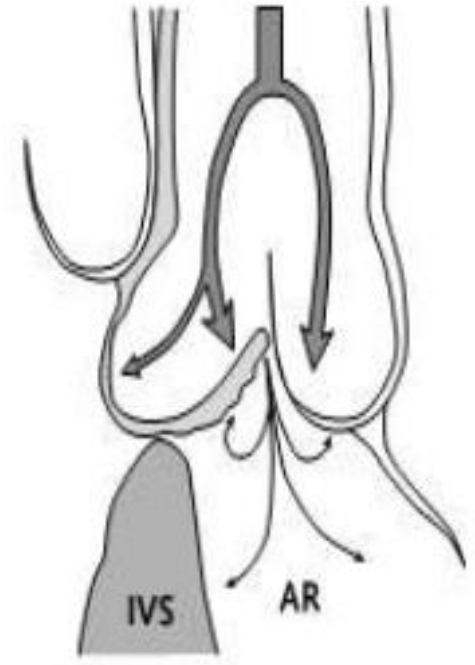
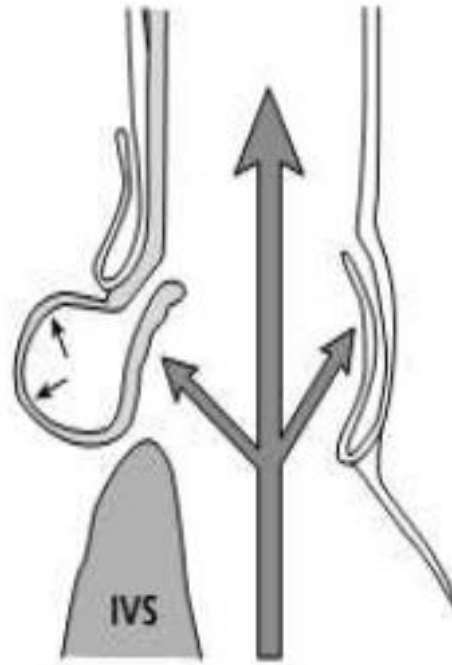
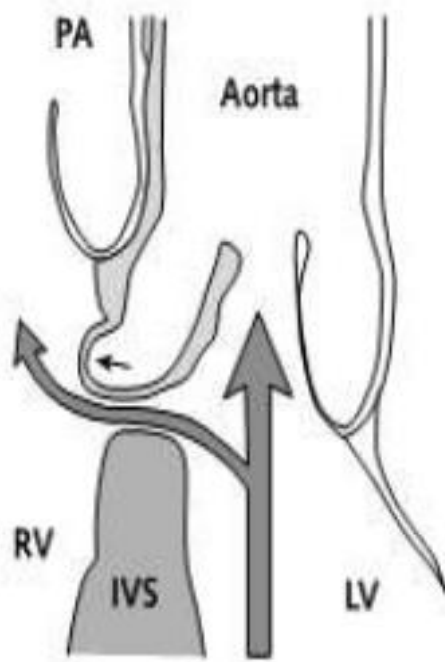
b.igiena dentara,profilaxia EB?

● **2.Inchidere nonchirurgicala**

-device-uri pentru defectele musculare unice

Management

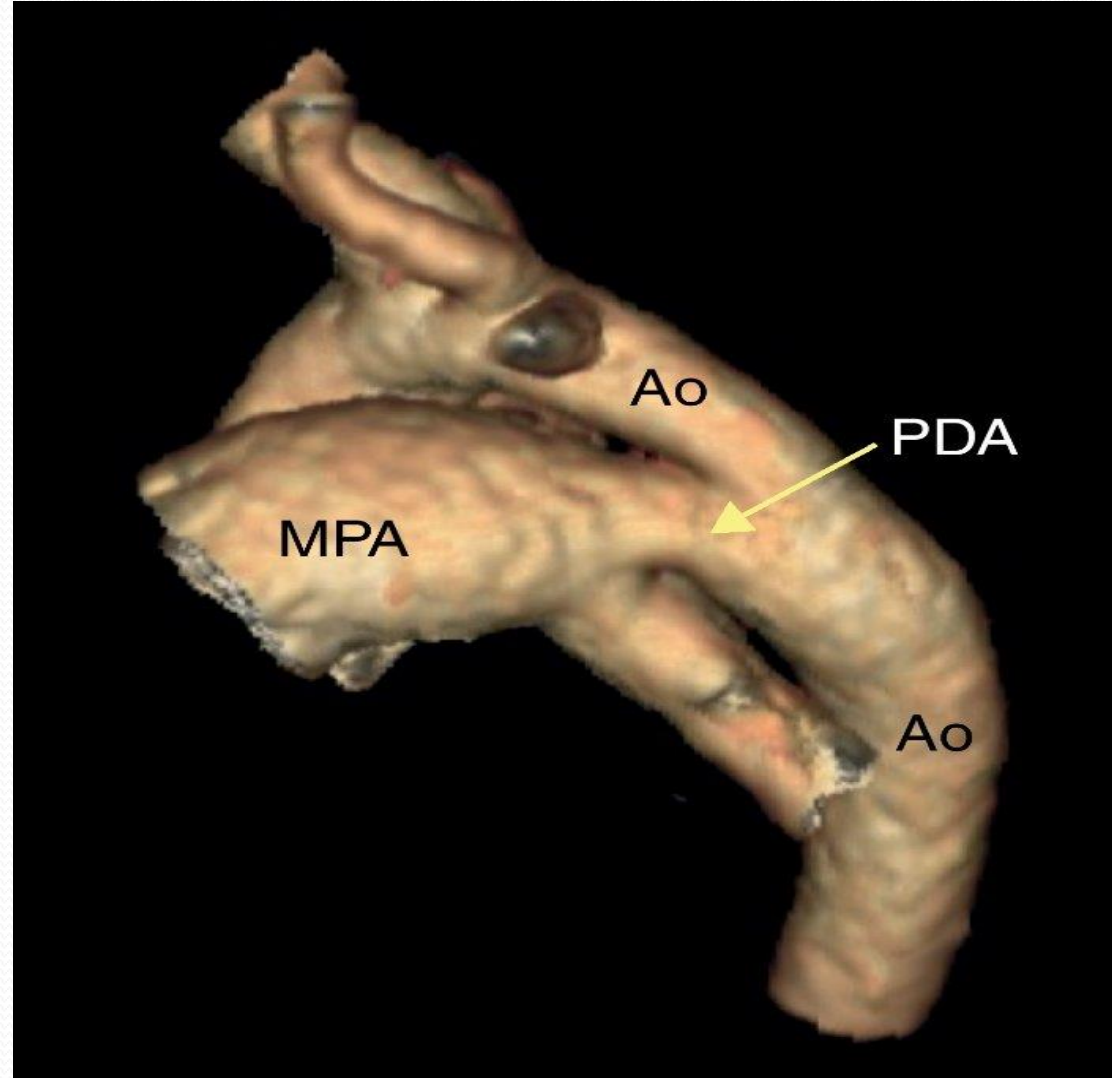
- 3. Inchidere chirurgicala:
- -sugarii care au DSV larg si dezvolta ICC si stagnare ponderala ,
 - se adm trat cu digoxin si diuretice
 - Daca nu se obtine o ameliorare a cresterii ,DSV trebuie operat in primele 6 l de viata
- -dupa varsta de 1 an ,un sunt mai mare de $Q_p/Q_s=2/1$ necesita inchidere ,in functie de presiunea in AP
- DSV supracristal cu insuficienta aortica
- -nu se inchid sunturile mai mici de $Q_p/Q_s=1,5/1$



Efect Venturi

Canal arterial permeabil

- .Prevalenta
- -5-10% din MCC
- Este o problema frecventa la prematuri



Importance of DA during fetal life



- Due to high resistance of fetal pulmonary circulation, **only 5-10%** of the right ventricular output of the fetal heart passes **through the lungs**.
- Through DA most of the RV output passes to the descending aorta.
- Thus the ductus arteriosus is necessary to divert blood flow from the high-resistance pulmonary vascular bed to the systemic circulation.

High PGE₂ & PGI₂ level

[due to

- production by placenta & DA
- decreased metabolism in fetal lung]



Interaction with ductal Prostanoid receptors



Low PaO₂



Relaxation of **DA**



MCC Ductal dependente

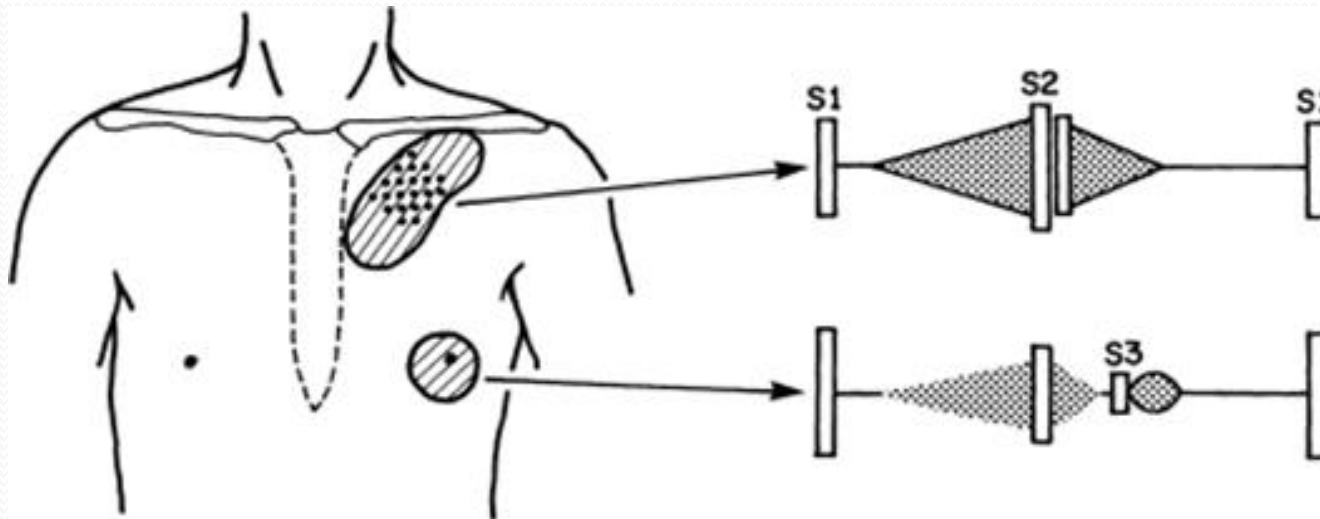
- Sd VS hipoplazic
- Tetralogie Fallot forma severa
- Atrezie VP
- Atrezie AP
- Co severa Ao
- Atrezie VT
- TMV
- Intrerupere arc aortic

Evolutie clinica

- -daca ductul este mic pacientii sunt asimptomatici.
- -un sunt larg determina
 - infectii respiratorii frecvente,atelectazii,
 - ICC (cu tahipnee si falimentul cresterii)

2.Examinare fizica :

- -Sunturile largi determina tahicardie si dispnee.
- Daca s-a instalat BVPO apare sunt dreapta-stanga cu cianoza in jumatarea inf.a corpului.
- -auscultatie: suflu continuu



- **3.ECG:**
- **Asemanator ca la DSV,semne de HVS**
-
- **4.Rx :**
- **-identic cu DSV**

- **5.Ecocord :2D,doppler**
- **-se vizualizeaza,se estimeaza magnitudinea suntului**

Type	Description
Silent PDA	Less than 1.5 mm and no murmur
Very small PDA	≤ 1.5 mm with audible murmur
Small PDA	1.5-3 mm and murmur
Moderate PDA	3-5 mm and murmur
Large PDA	>5 mm and murmur

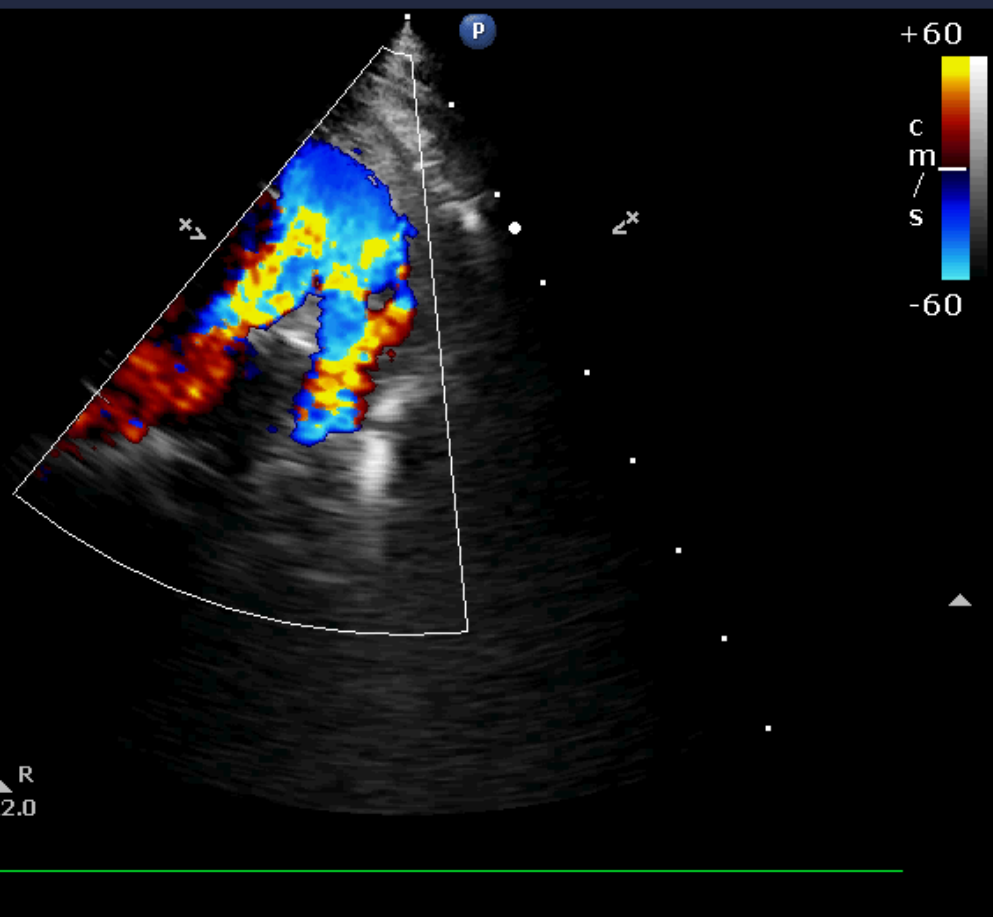
HEART NEOI
S12-4
33 Hz
8.0cm

2D

Res
Gn 75
C 50
6 / 3 / 0
100 mm/s

Color

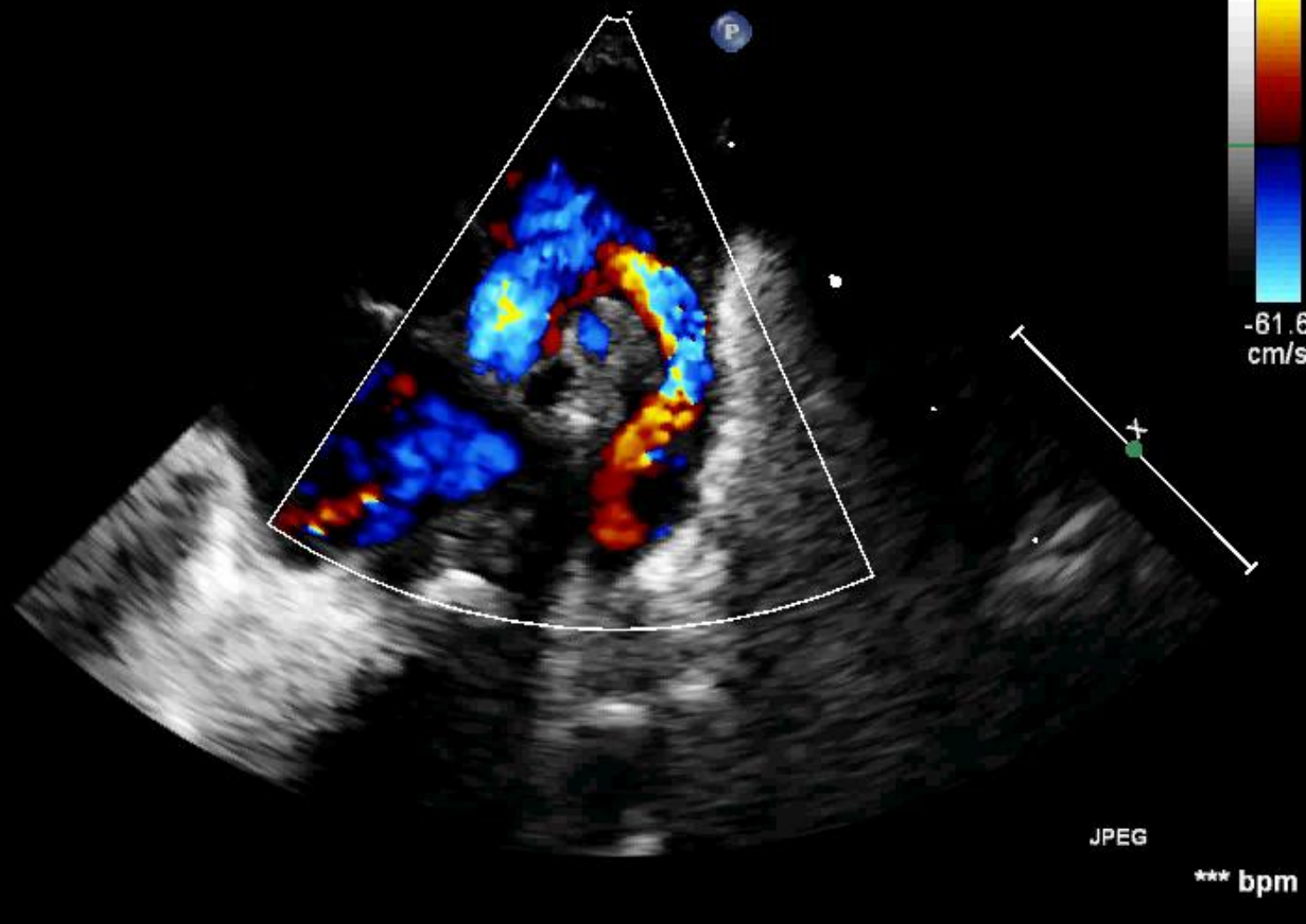
5.0 MHz
Gn 60
3 / 6 / 0
Fltr Med



FR 26Hz
5.0cm

2D
81%
C 50
P Off
Gen

CF
54%
4.5MHz
WF High
Low



FR 95Hz
5.0cm

2D
83%
C 50
P Off
Gen

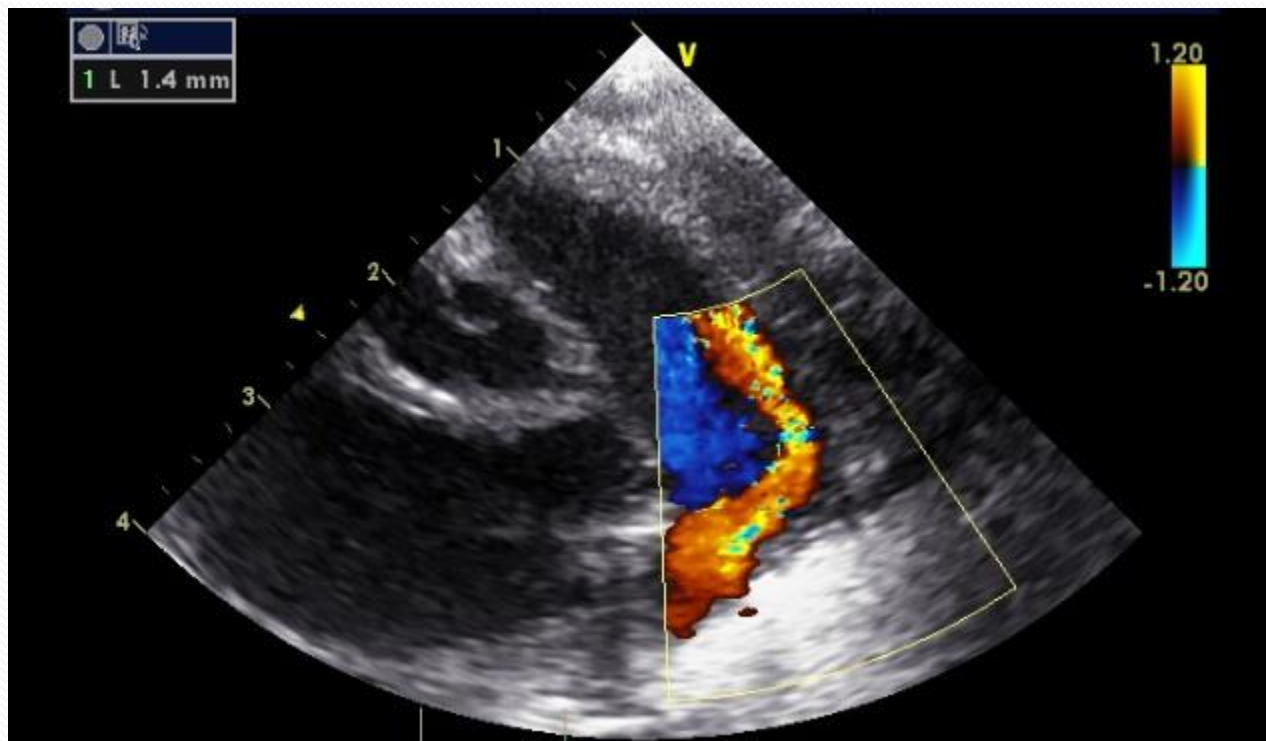
M3

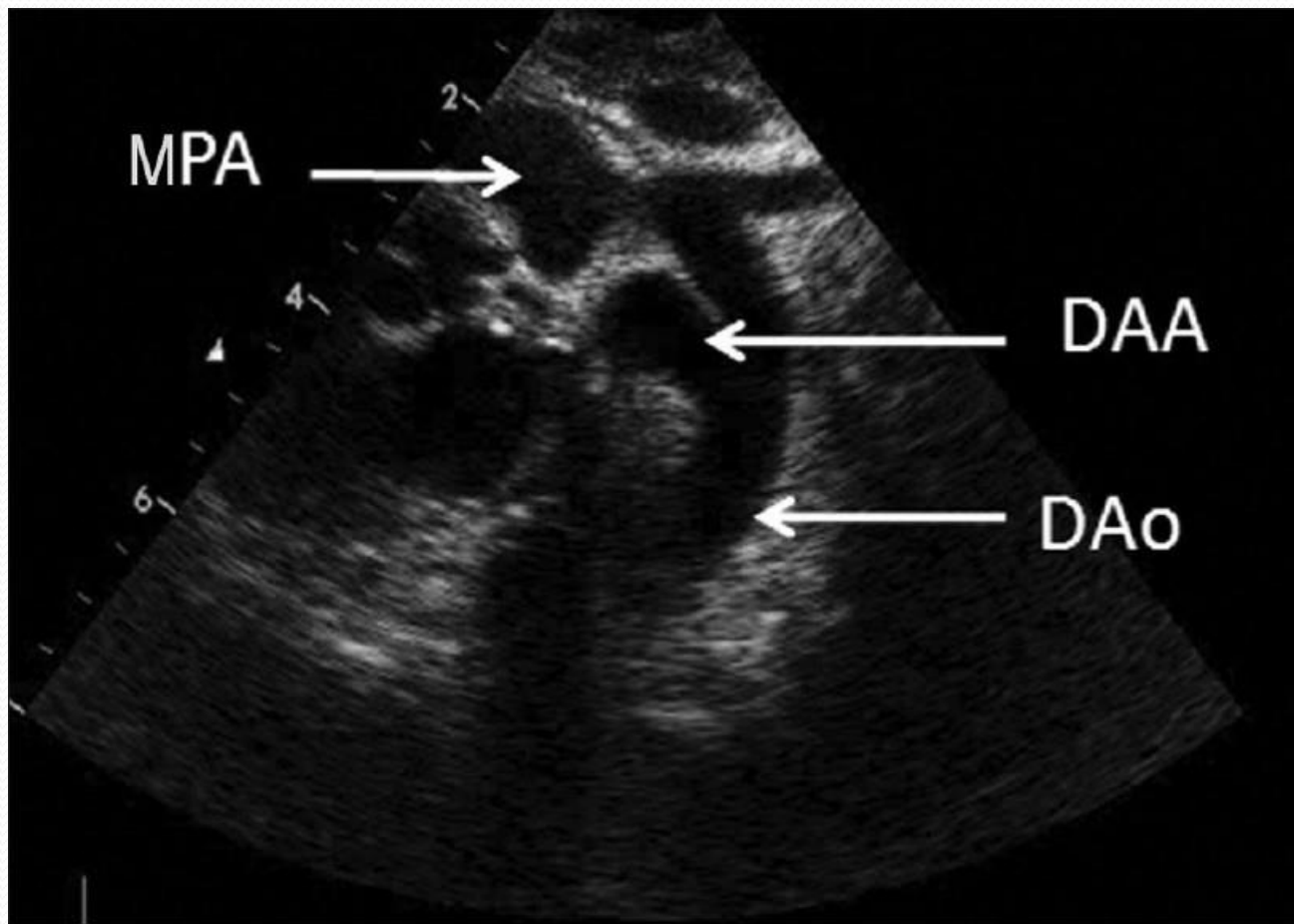


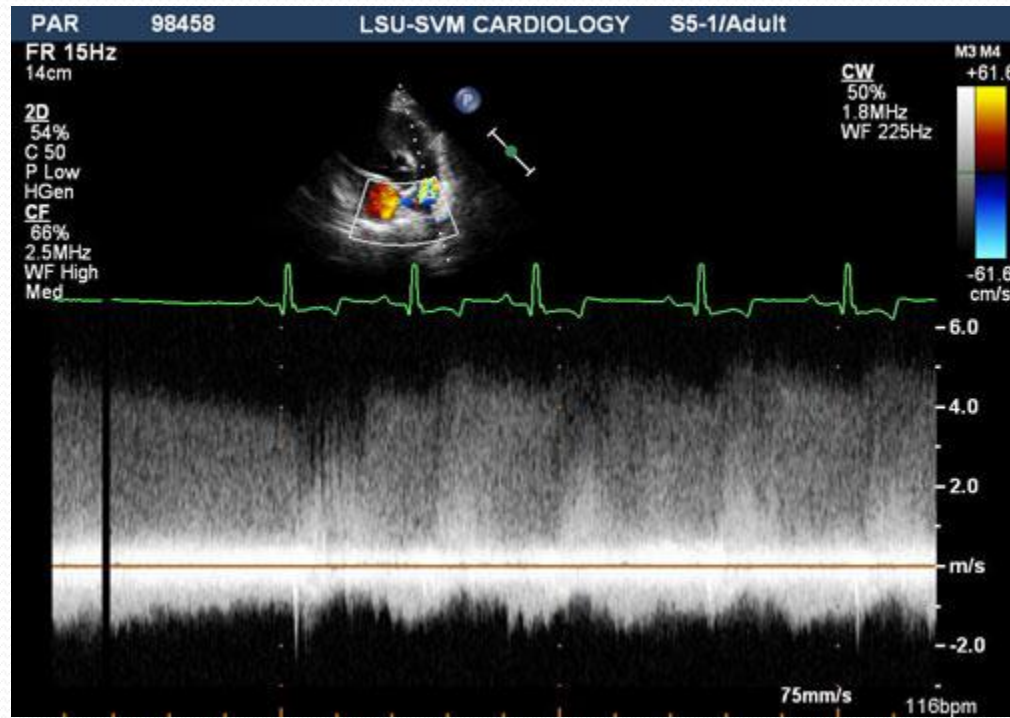
JPEG

*** bpm



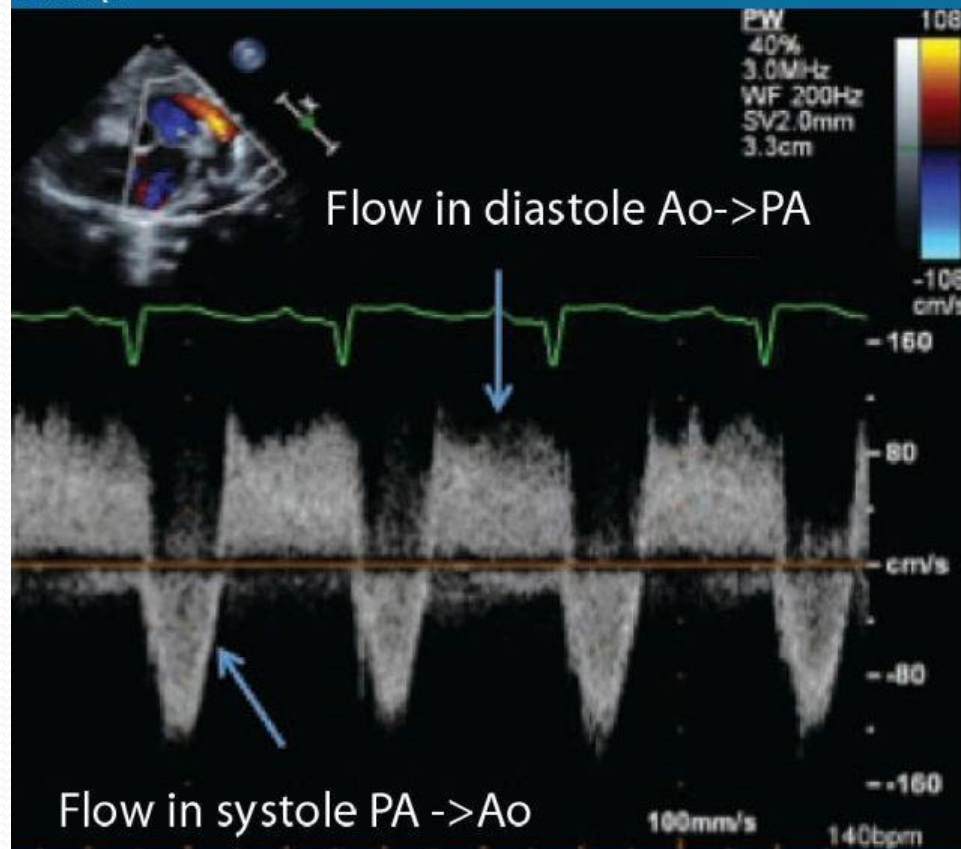




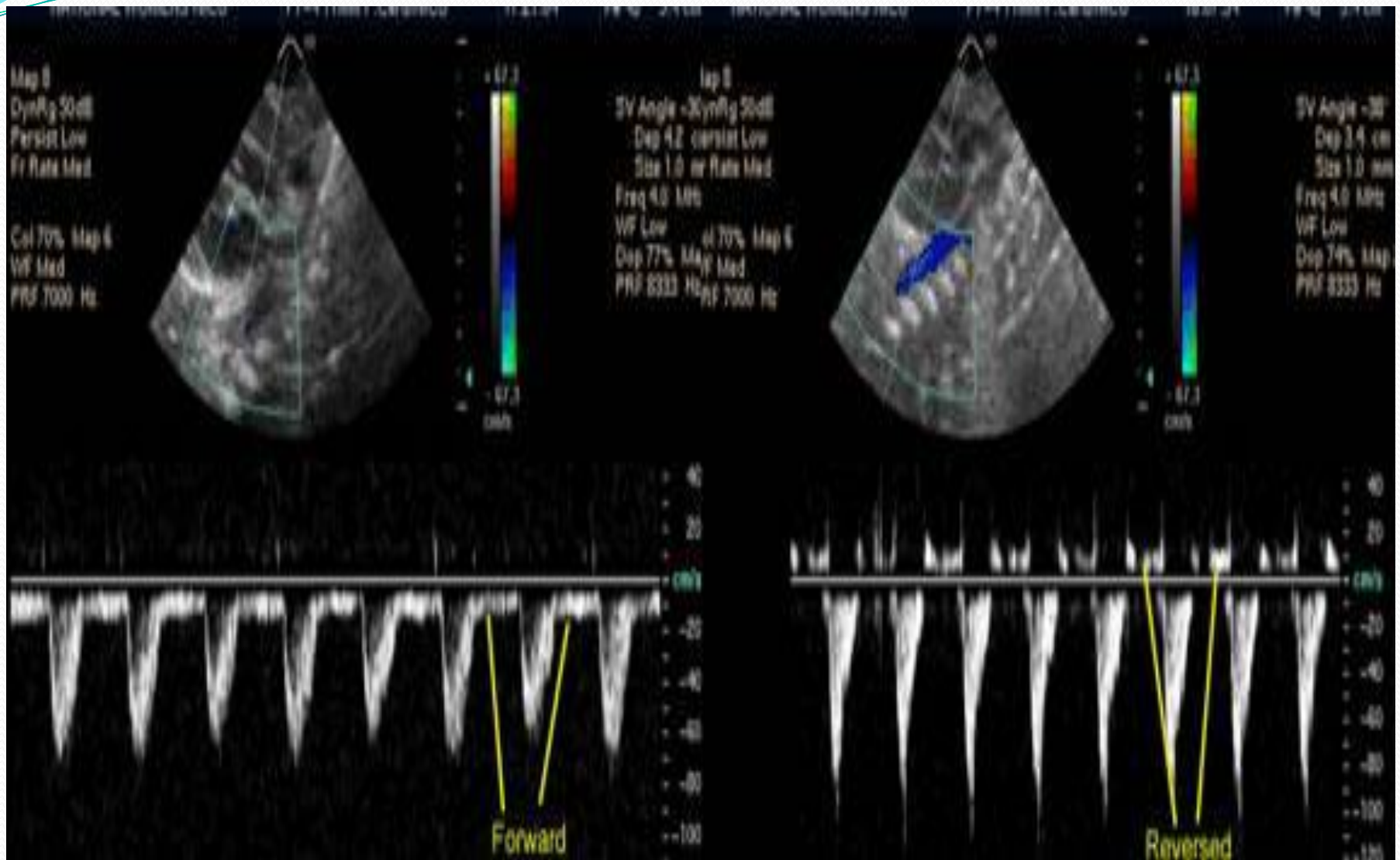




Medscape



Source: Expert Rev Cardiovasc Ther © 2012 Expert Reviews Ltd



Istorie naturala

- -la copiii la termen nu mai are loc inchiderea spontana (spre deosebire de prematuri,,la copiii la termen CAP se datoreaza unei anomalii structurale a tes muscular neted din canal si nu scaderii raspunsului la oxigen al tes muscular.
- -la sunturile largi
 - ICC si pneumonii recurente
 - -canalele largi pot determina BVPO daca nu sunt inchise la timp
- - f rar pot determina aparitia EB

Management

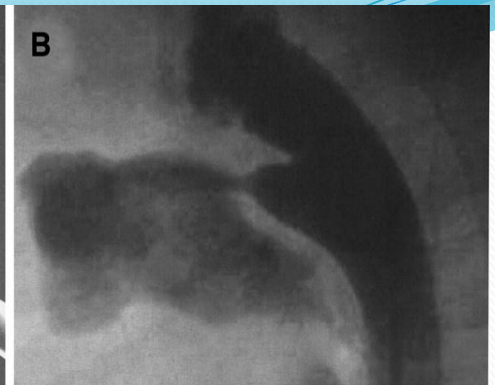
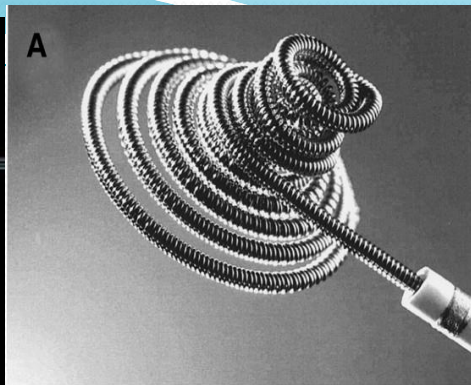
1. Medical

- Restricte de lichide 130ml/kg/zi
- -indometacin 0,1 mg/kg la 8 ore
- Ibuprofen 10 mg/kg bolus urmat de 5 mg/kg/zi pentru 2 zile

Ibuprofen si indomethacin par sa fie egale ca eficienta

-trat ICC, al pneumoniilor recurente

PDA Closure (cont.)



2. Inchidere nonchirurgicala

-device-uri sau coils

3. Inchidere chirurgicala

-timing intre 6l si 2 a

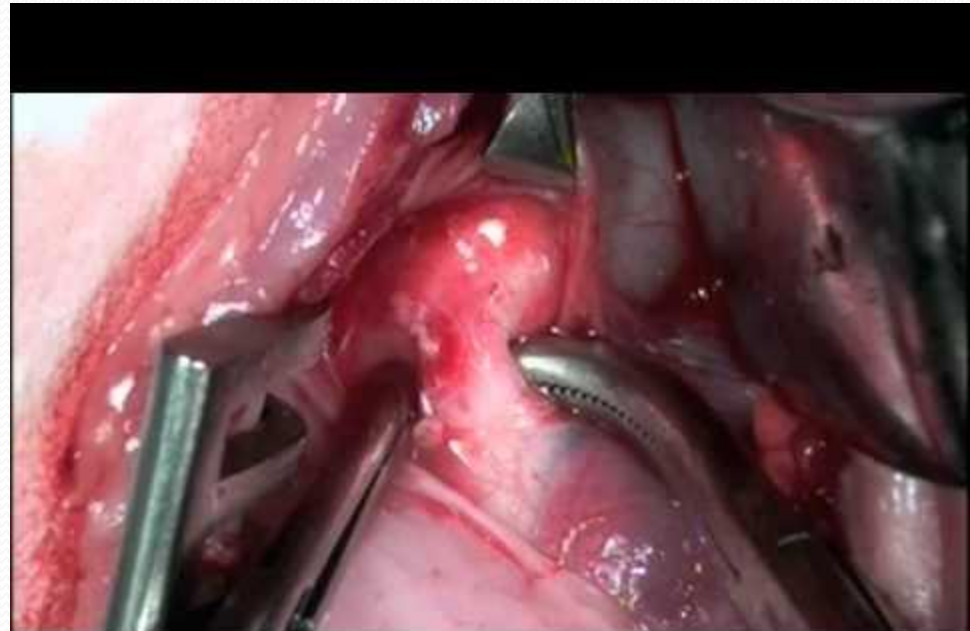
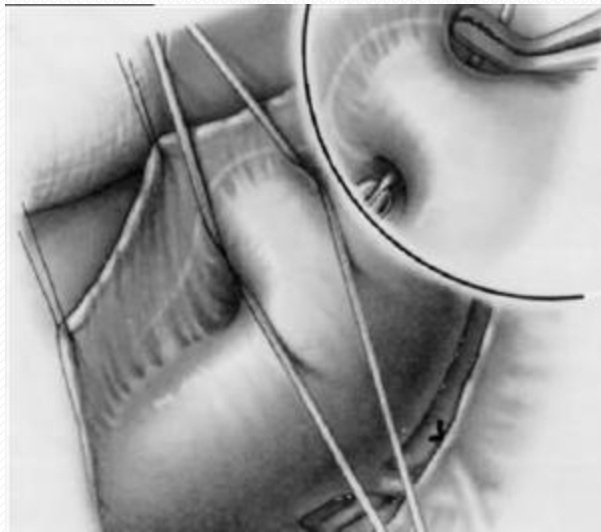
.La copiii cu ICC,HTP, inchiderea chirurgical se realizeaza de urgenta.

-mortalitate<1%

-complicatii :-injurie de nerv laringeal,voce ragusita

-injurie de nerv frenic stg,paralizia hemidiafragmului stg

-se poate recanaliza



- 
- CAP mici diagnosticate intamplator ,fara suflu ,nu au indicatie de inchidere interventionala/chirurgicala

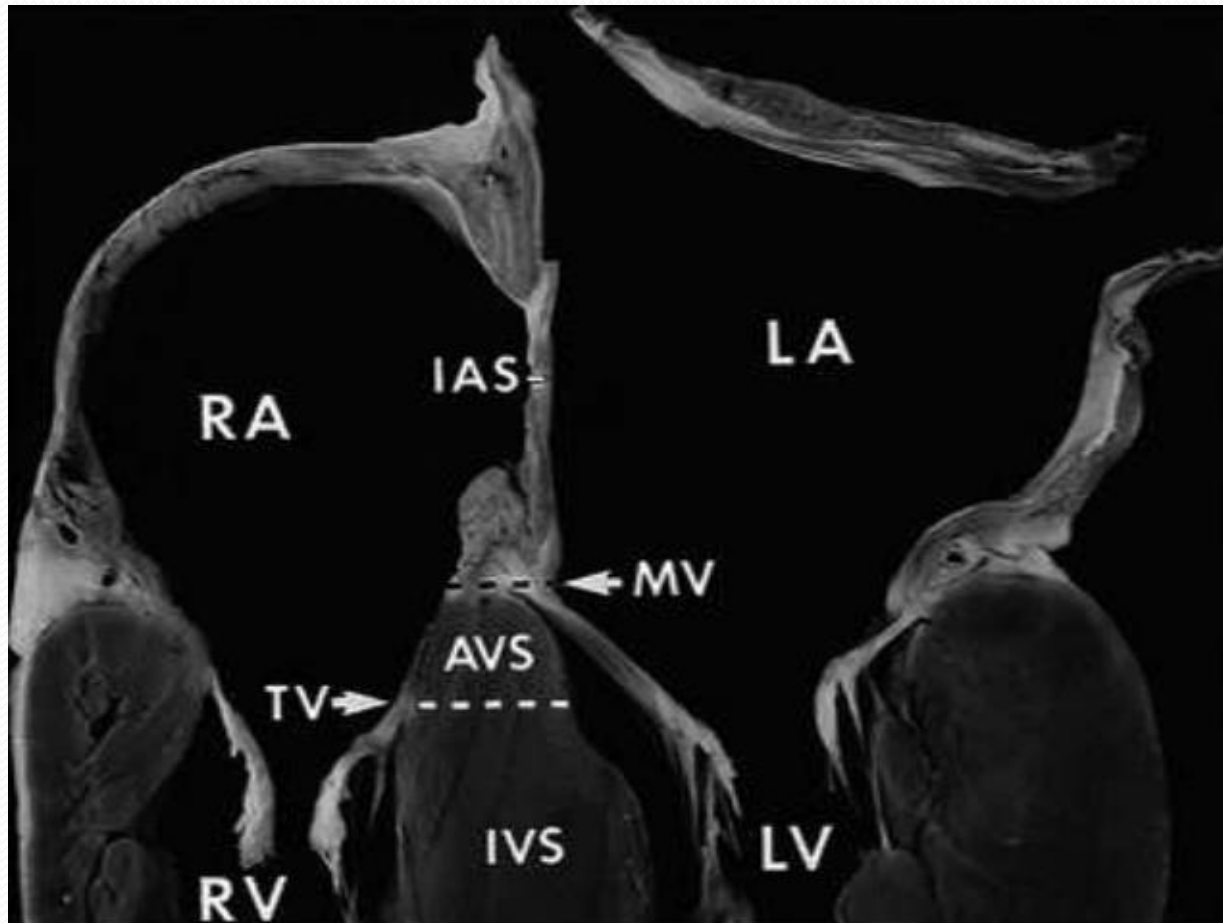
Much more to come

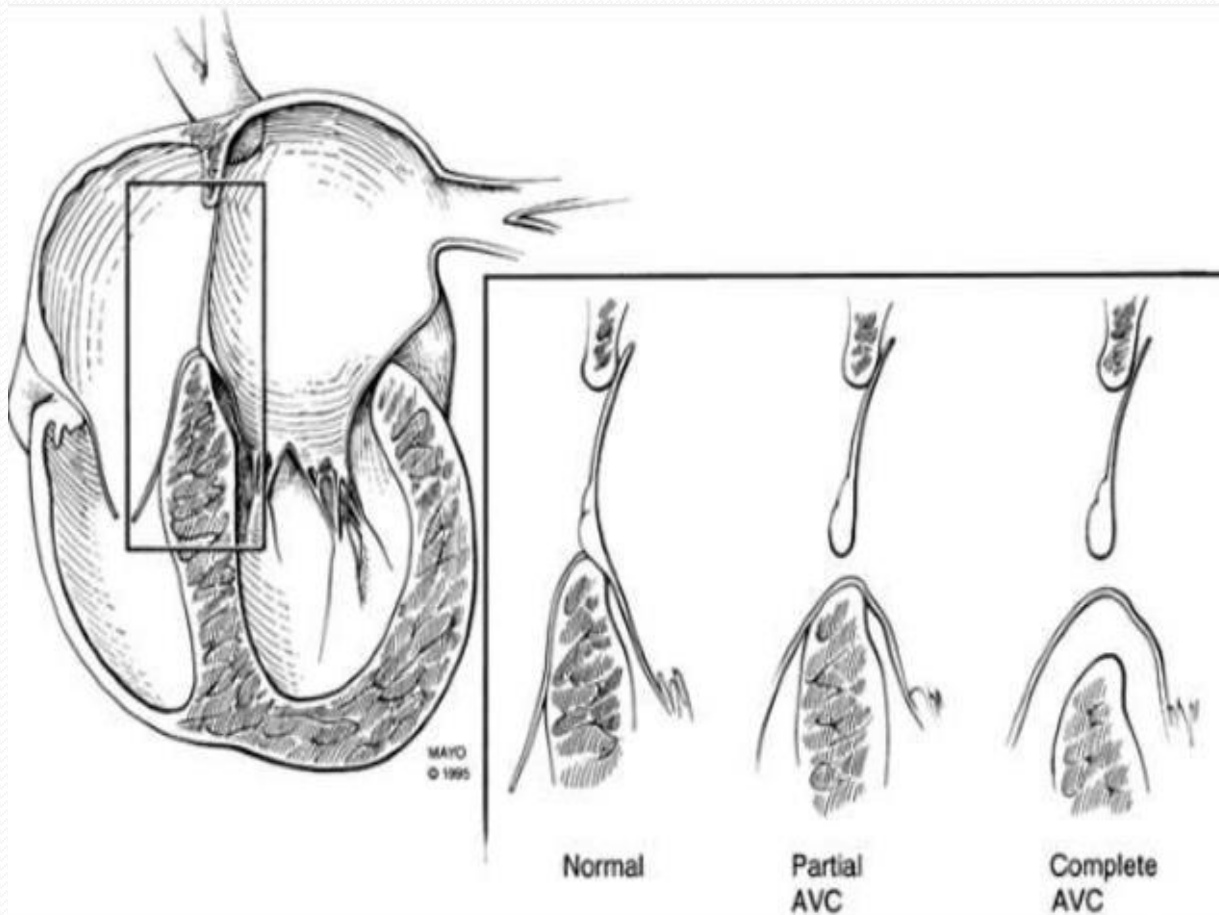
Are we
all still
awake?



CANALUL ATRIOVENTRICULAR COMUN

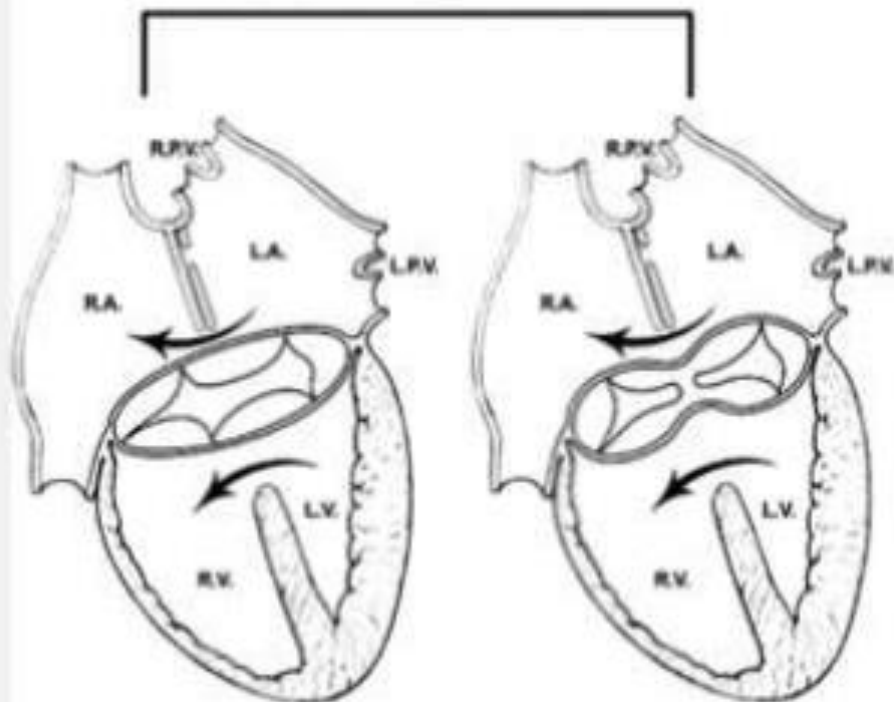
- 4-5% din MCC
- 40 % din Sd.Down asociaza CAVC





AVSD Summary

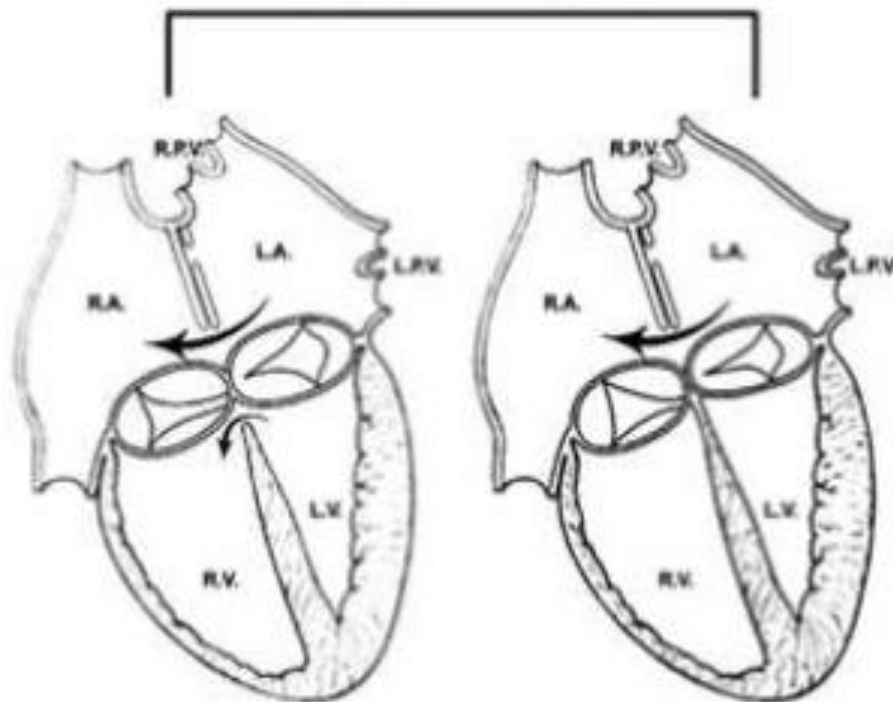
Similar physiology – VSD & ASD



Complete

Intermediate

Similar physiology – ASD



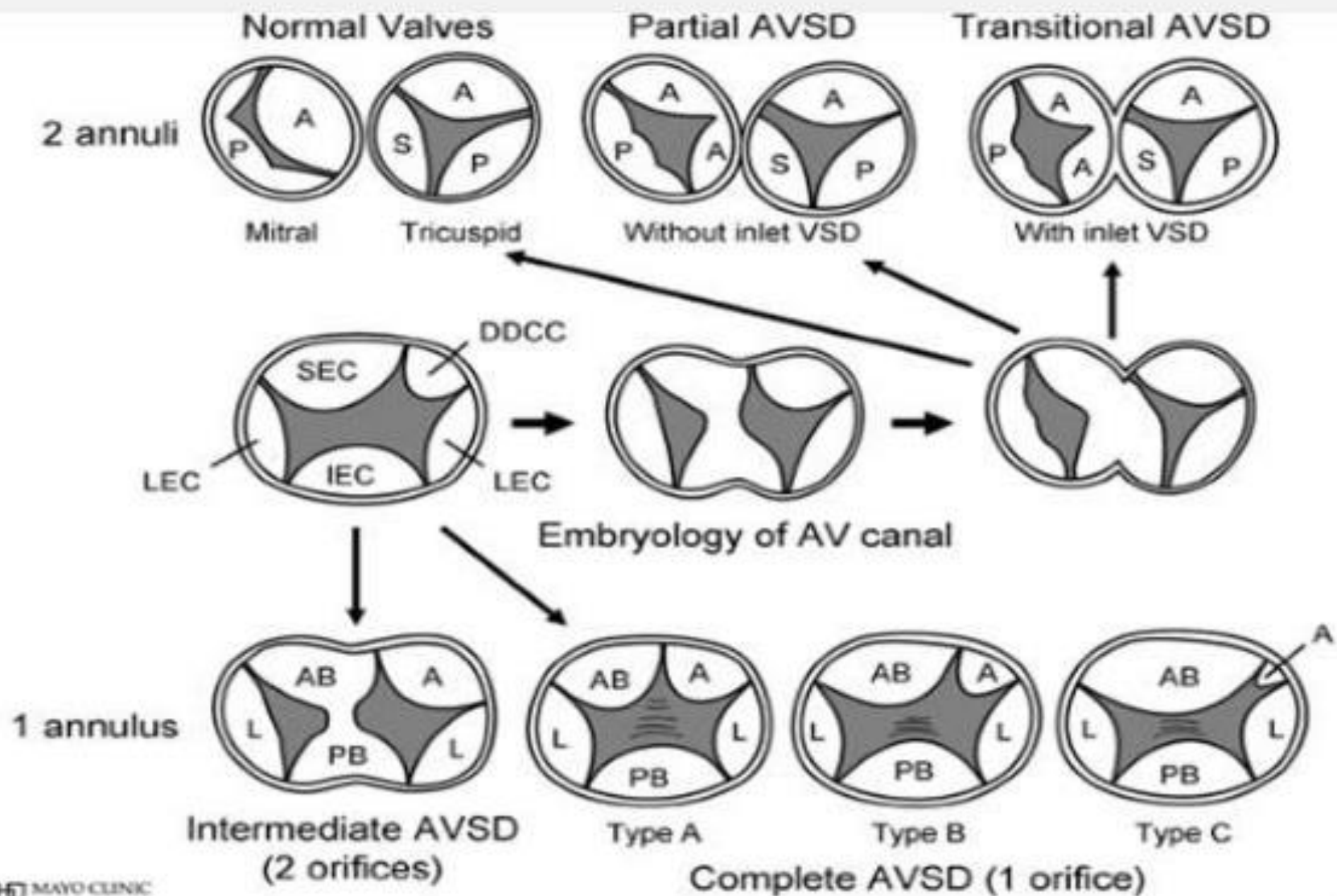
Transitional

Partial

Similar AV valve anatomy:

A tongue of tissue divides the common AV valve into a right and left component by connecting the anterior and posterior "bridging" leaflets centrally

Embryologic development of the the spectrum of AVSD



CAVC partial

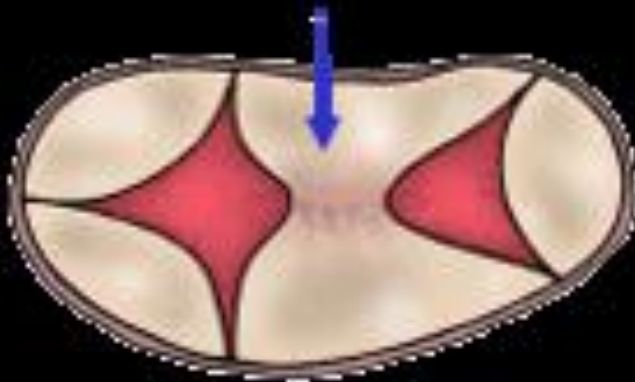
- -inelul Mi, inelul T sunt distincte si separate
- -DSA-OP
- -cleft VMA
- -cleft de VT septala
- Cel mai frecvent DSA-OP+ cleft VMA

CAVC complet

- DSA-OP larg
- DSV inlet larg
- VAV unica cu 5 valvule si frecvent regurgitanta



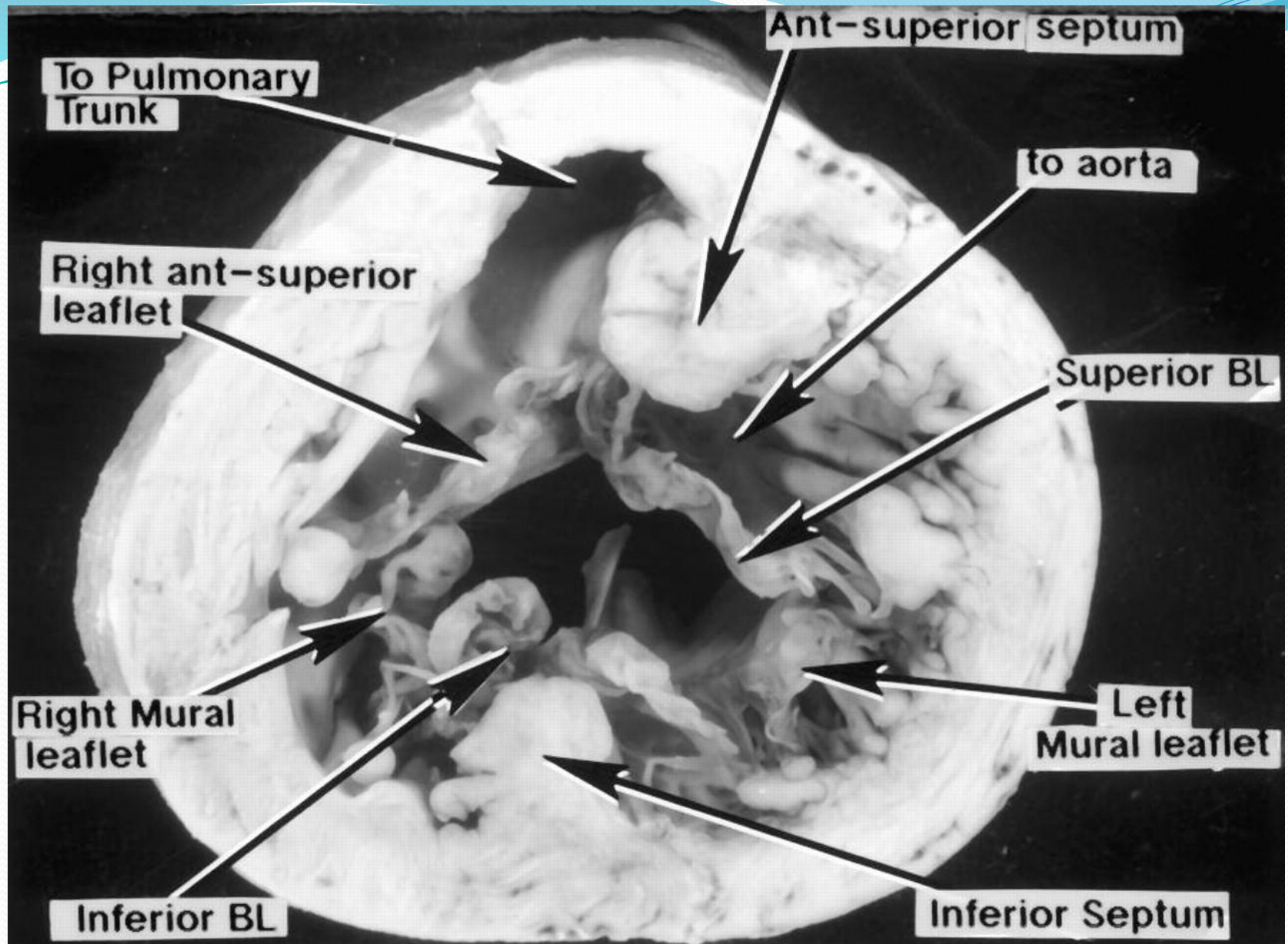
Normal



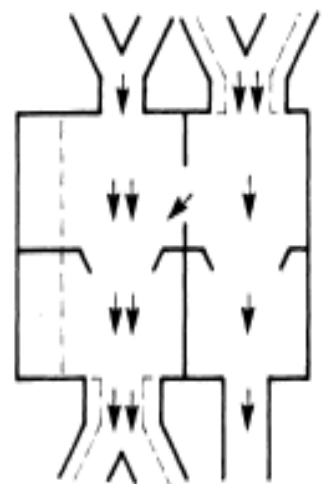
Partial AVSD



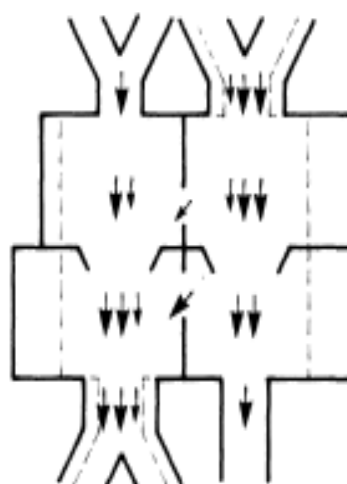
Complete AVSD



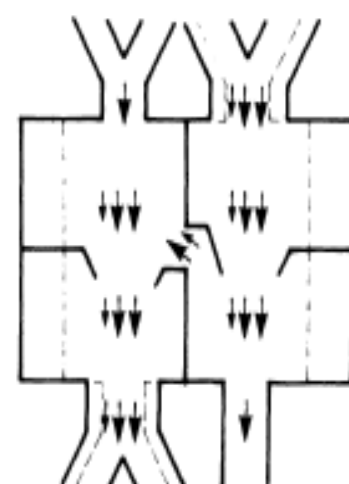
Ostium Primum



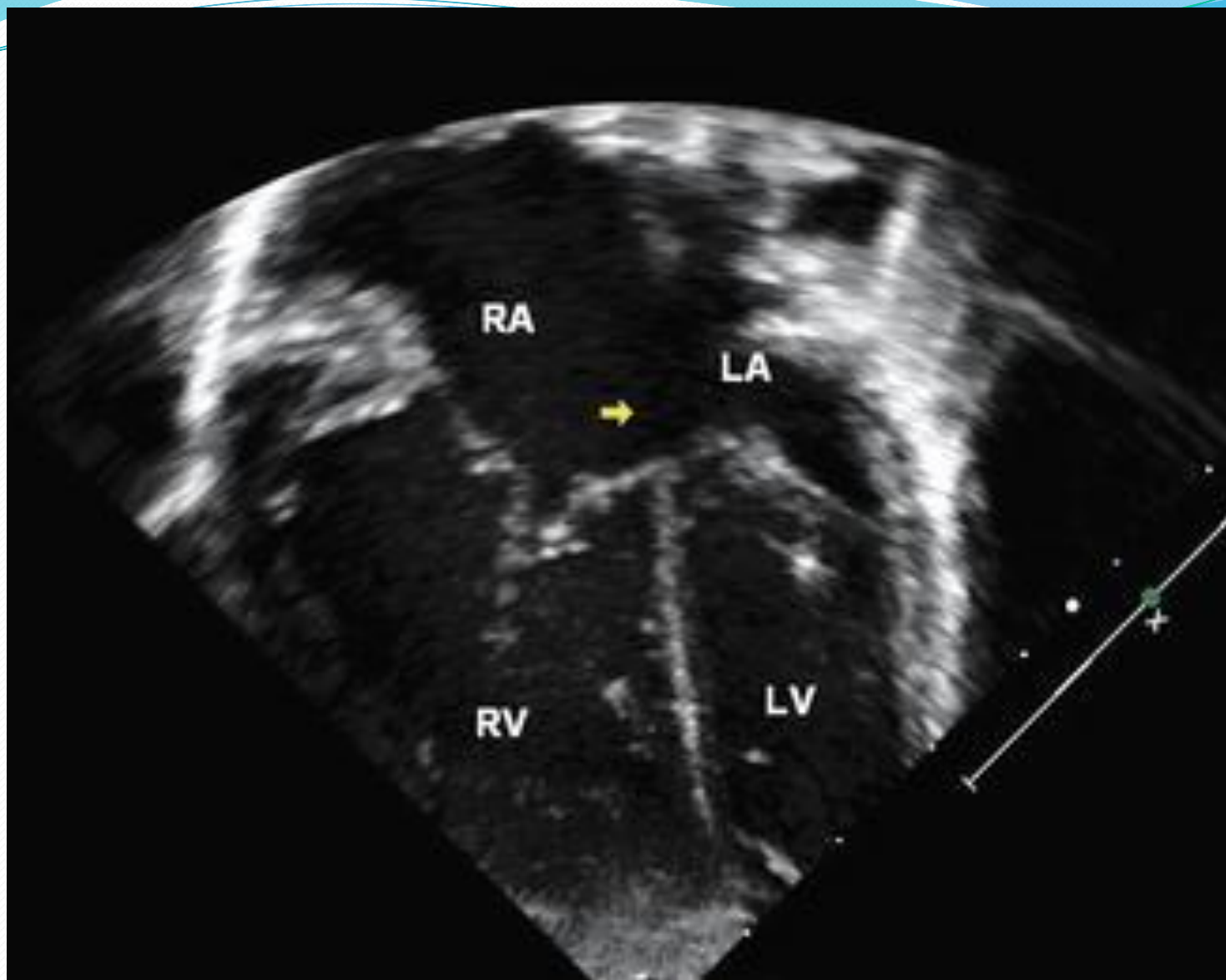
Complete ECD
with Large VSD
(dependent shunt)



LV-RA Shunt, Large
(obligatory shunt)



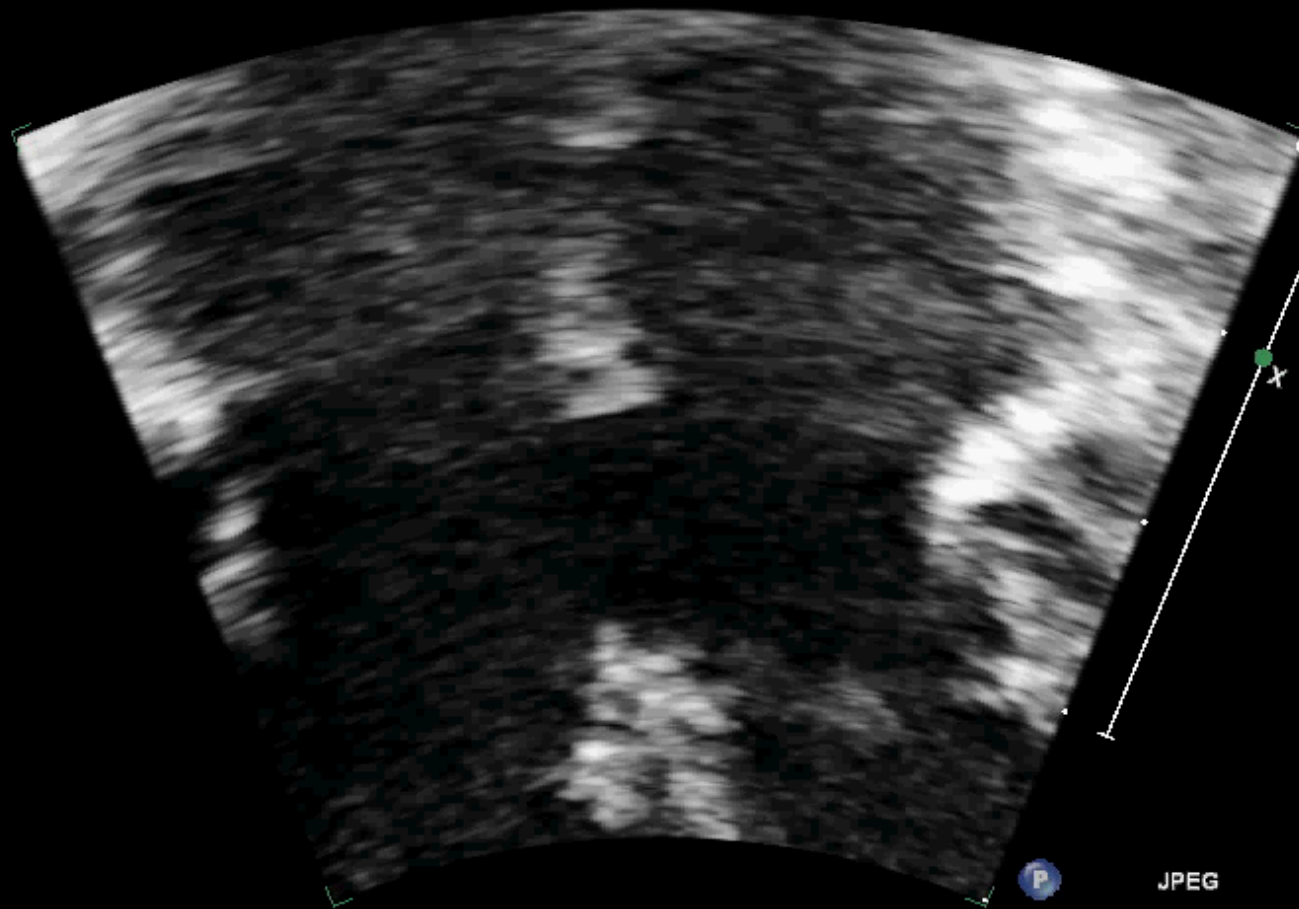
Cardiomegaly on X-rays	Mild to Moderate	Marked	Moderate to Marked
Congestive heart failure	Late childhood or adulthood	Within 1-2 months	Within a few weeks
ECG	LAHB (-20 to -150 degrees)		
	↑PR (±) RBBB or RVH	↑PR LVH RVH CAH (±)	↑PR LVH RVH or RBBB CAH (±)



FR 120Hz
8.0cm

2D
68%
C 50
P Off
Res

M3



JPEG

*** bpm

FR 61Hz
10cm

2D
72%
C 50
P Off
Res

M3



JPEG

*** bpm

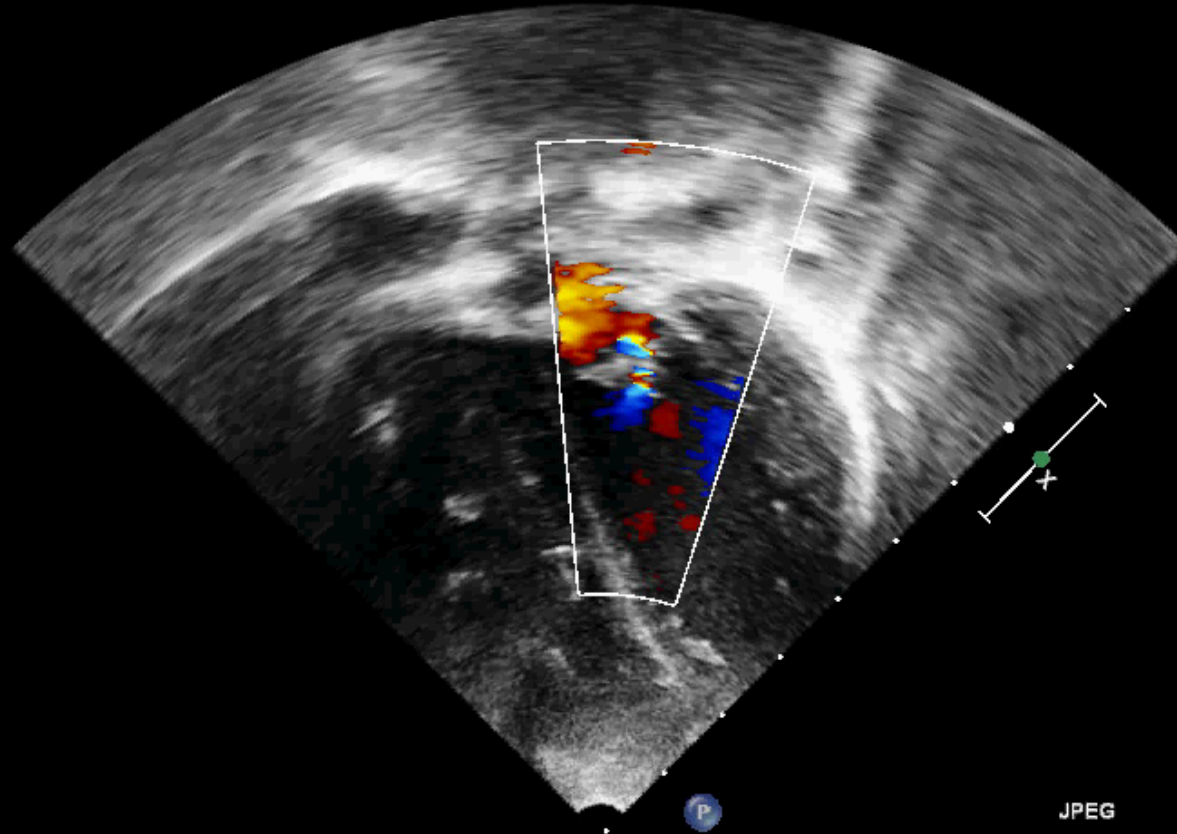
27111120150611

S8-3/PEDCHD3

FR 24Hz
10cm

2D
79%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



M3 M4
+61.6



JPEG

*** bpm

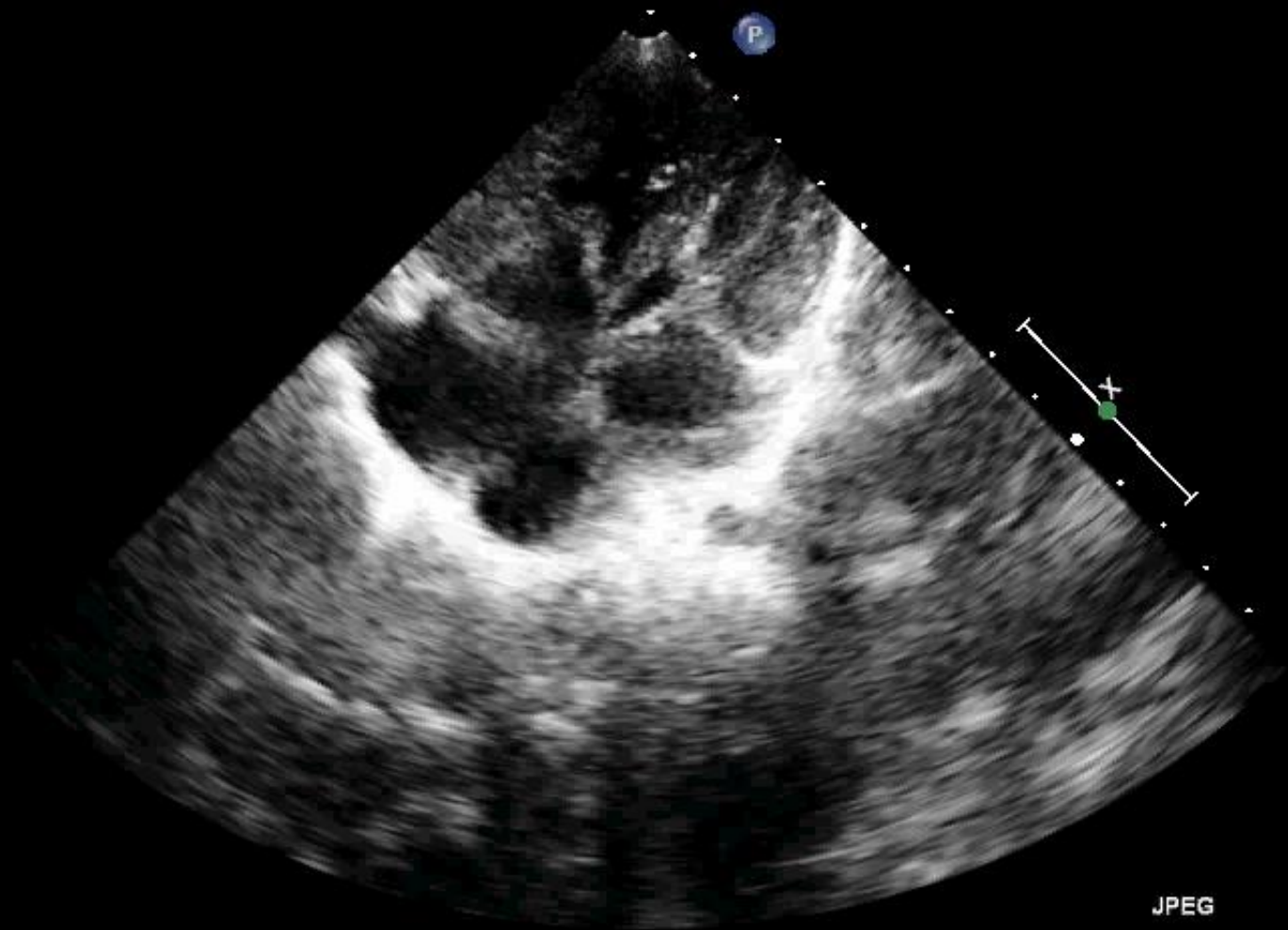
44361020150416

S5-1/Ped-CHD

FR 50Hz
15cm

M3

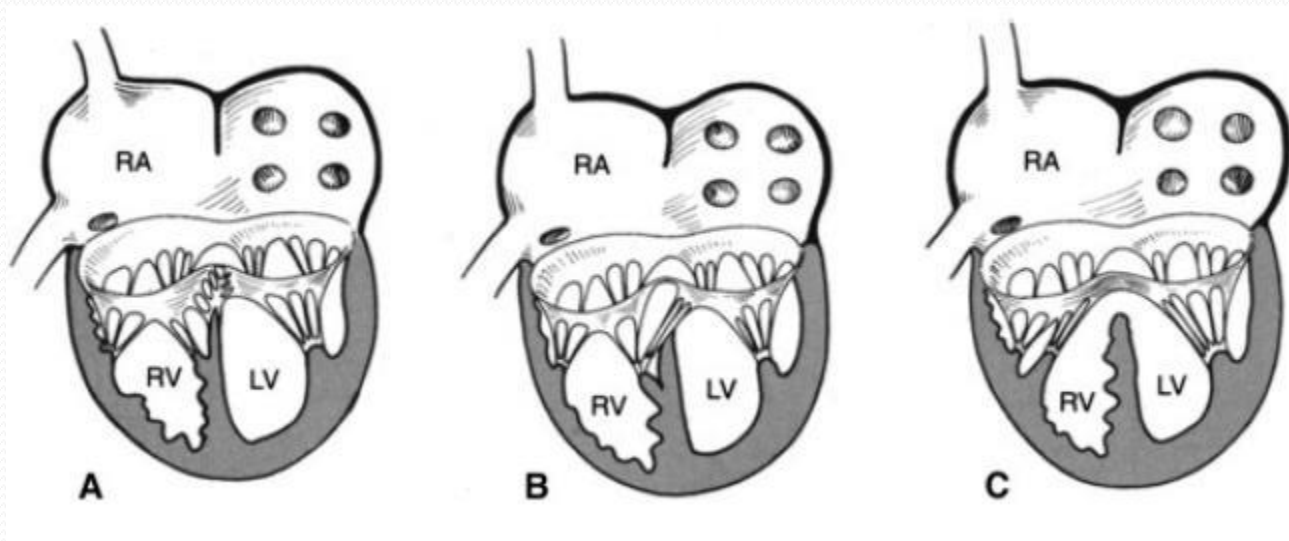
2D
64%
C 50
P Low
HGen



JPEG

*** bpm

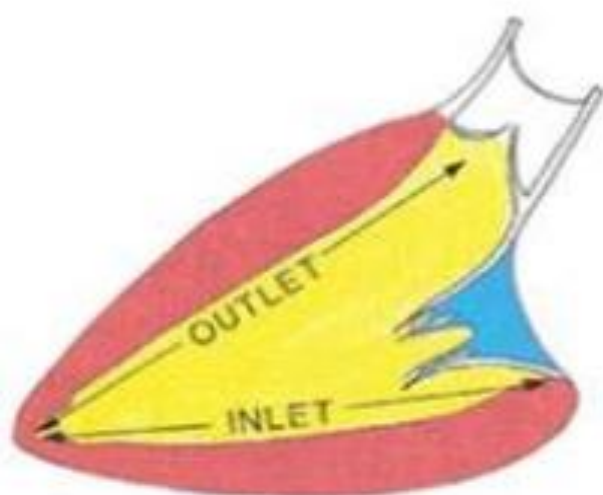
Clasificarea Rastelli-CAVC



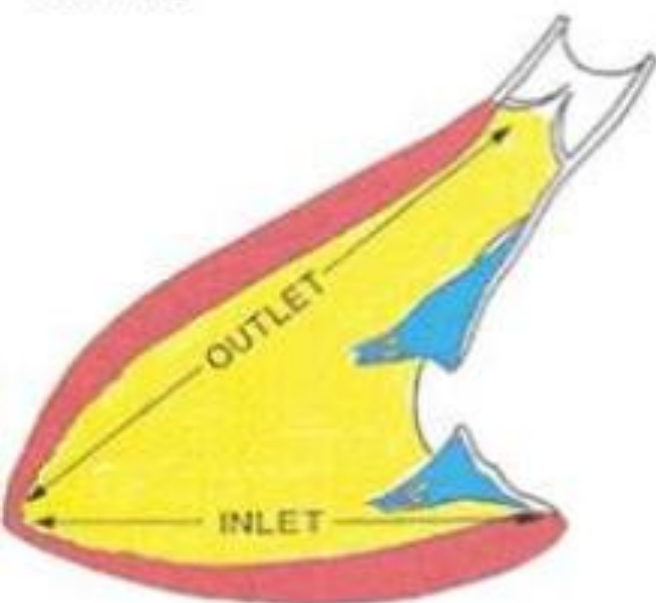
Embryogenesis

- ❖ In the normal heart, the aortic valve is wedged between the mitral and tricuspid annuli. In AVSD the aortic valve is displaced anteriorly and creates an elongated, so-called gooseneck deformity of the LVOT

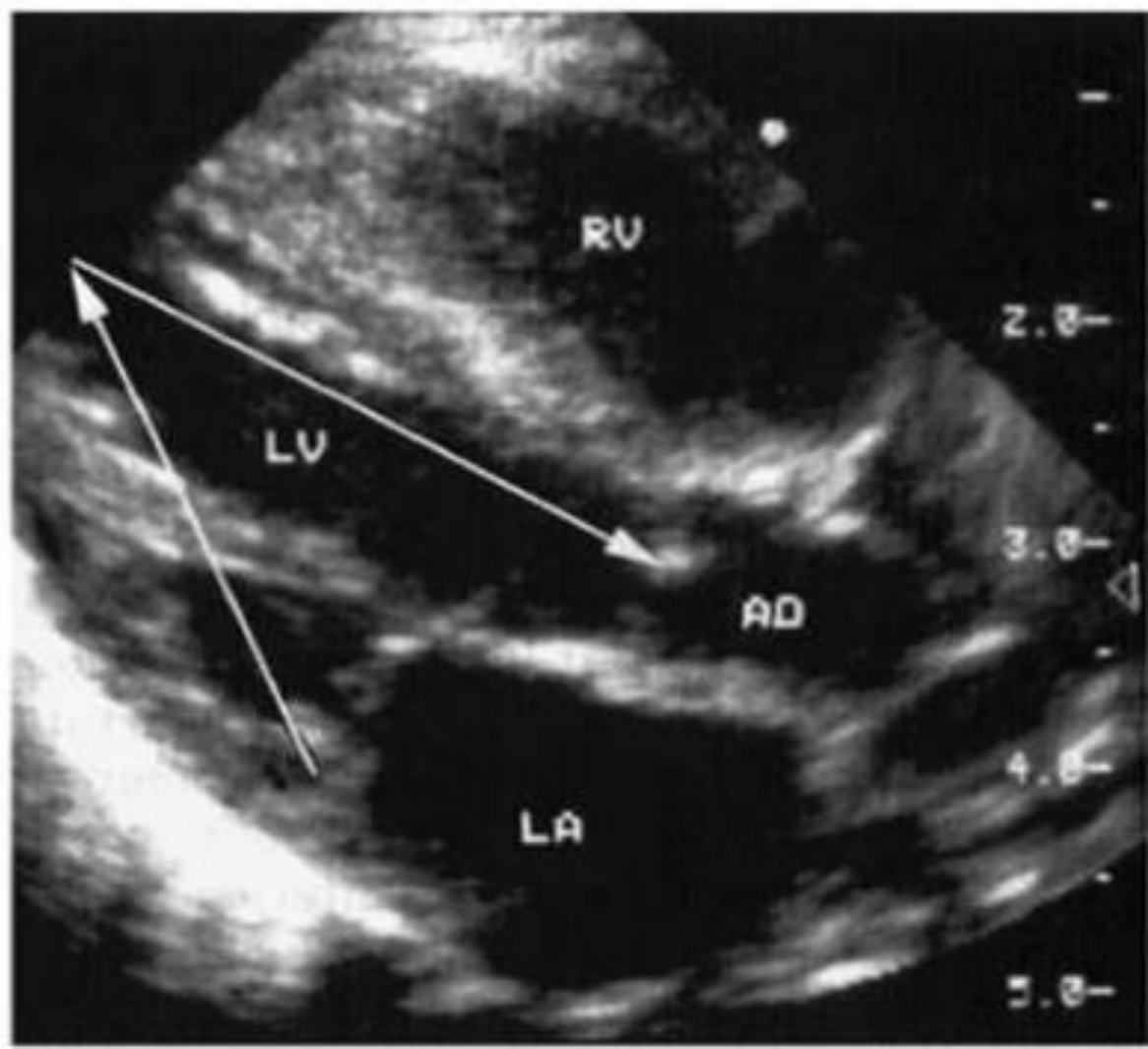




NORMAL



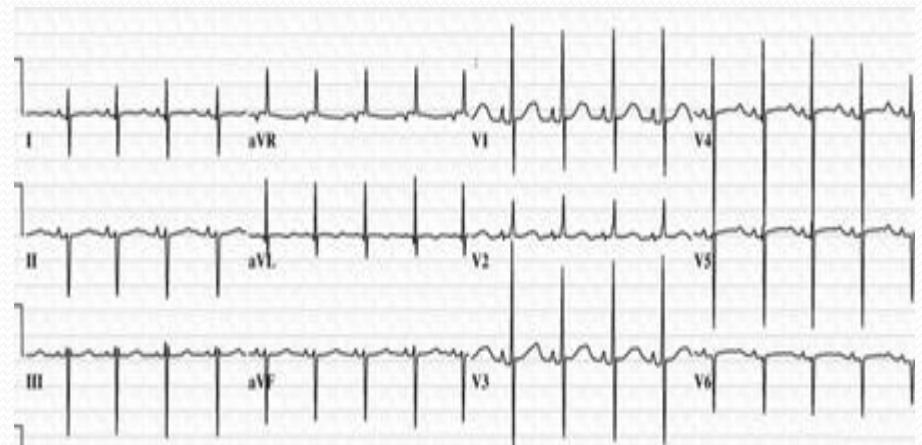
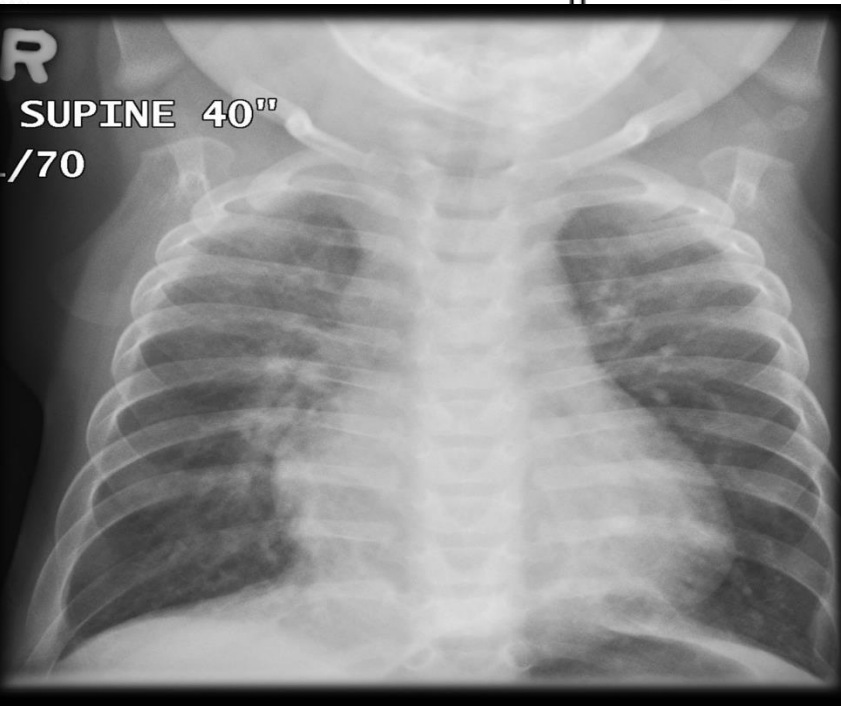
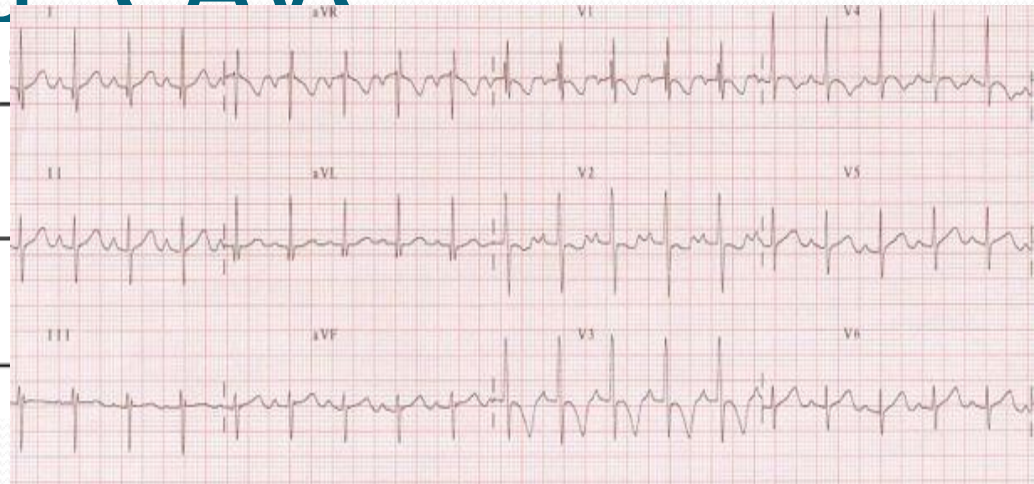
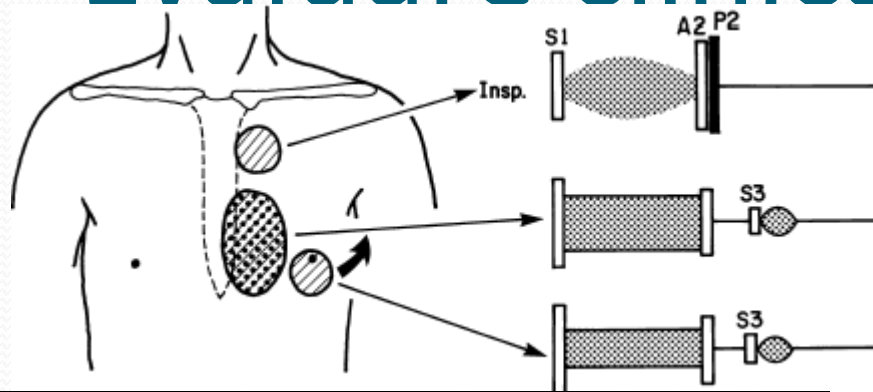
ATRIOVENTRICULAR SEPTAL DEFECT

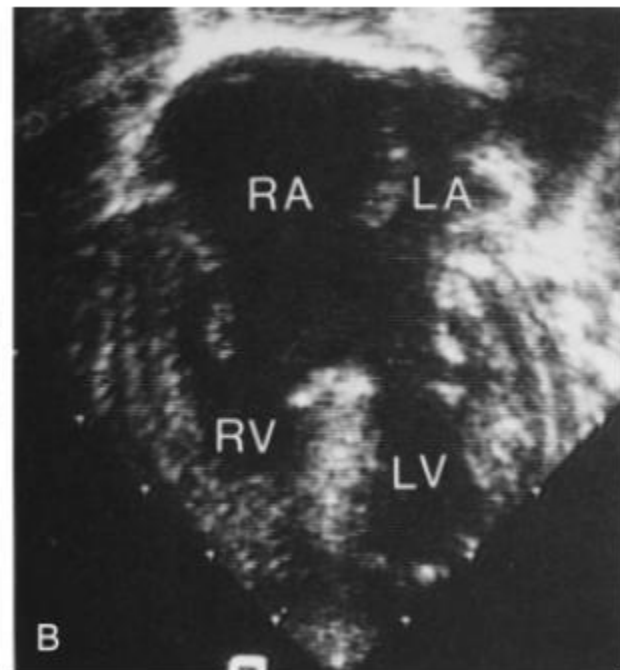
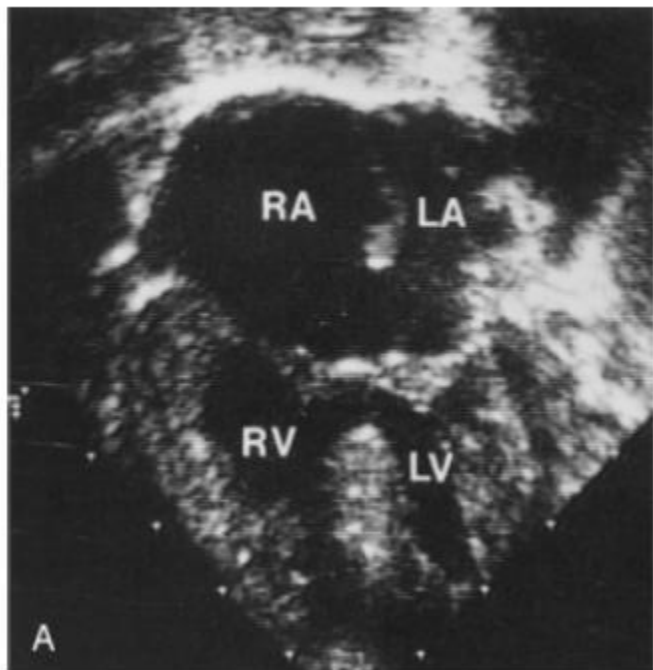


Relation Between the Associated Anomalies and Rastelli Classification

AVSD	No.	Rastelli Type A	Rastelli Type B	Rastelli Type C	p Value
Without obstruction	92	56 (61%)	2 (2%)	34 (37%)	< 0.01
With SAS or CoA, or both	23	18 (78%)	1 (4%)	4 (18%)	
With ToF	18	0 (0%)	3 (17%)	15 (83%)	
Total	133	74 (56%)	6 (4%)	53 (40%)	

Evaluare clinica - CAVC





FR 61Hz
10cm

2D
64%
C 50
P Off
Res

M3



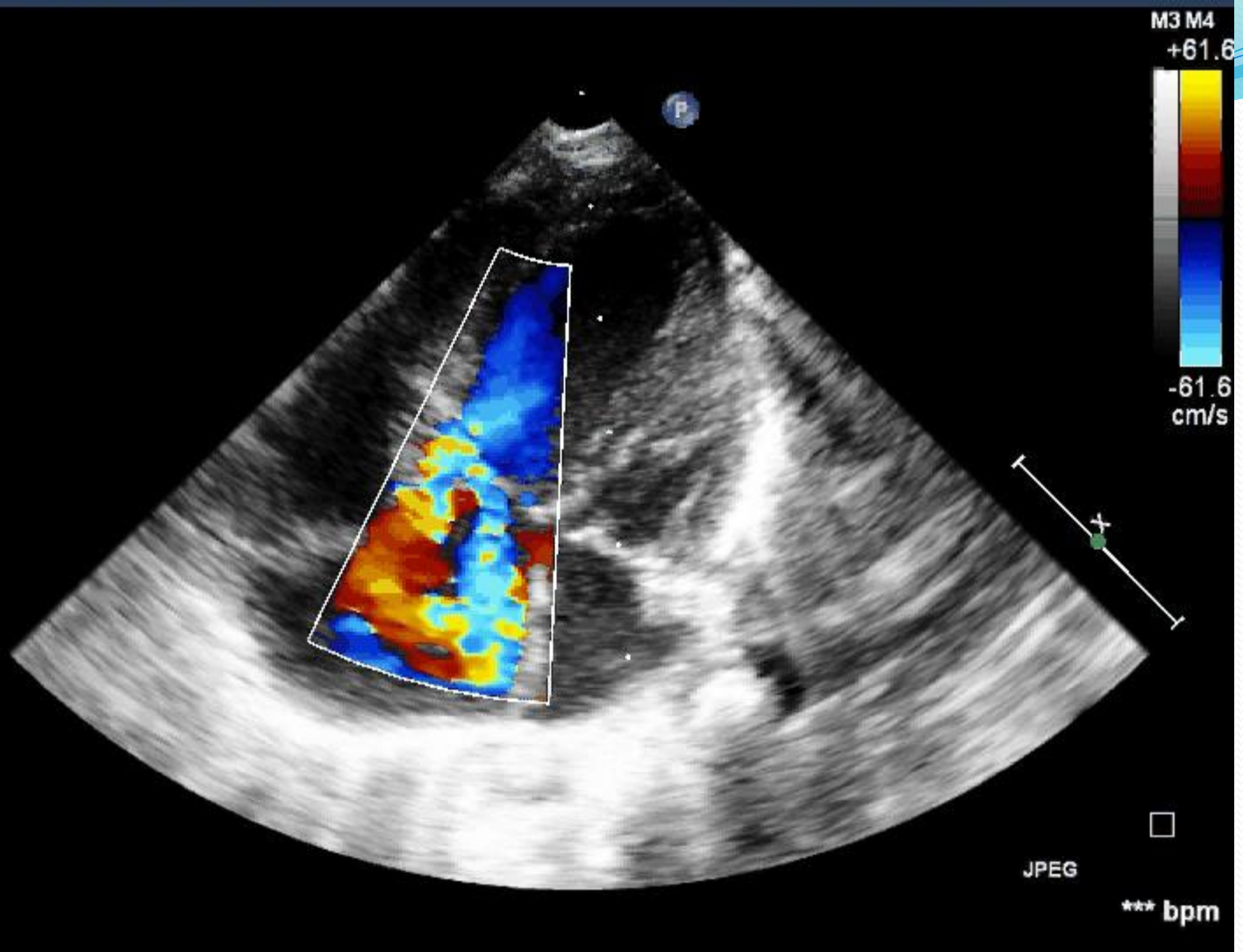
JPEG

*** bpm

FR 46Hz
7.0cm

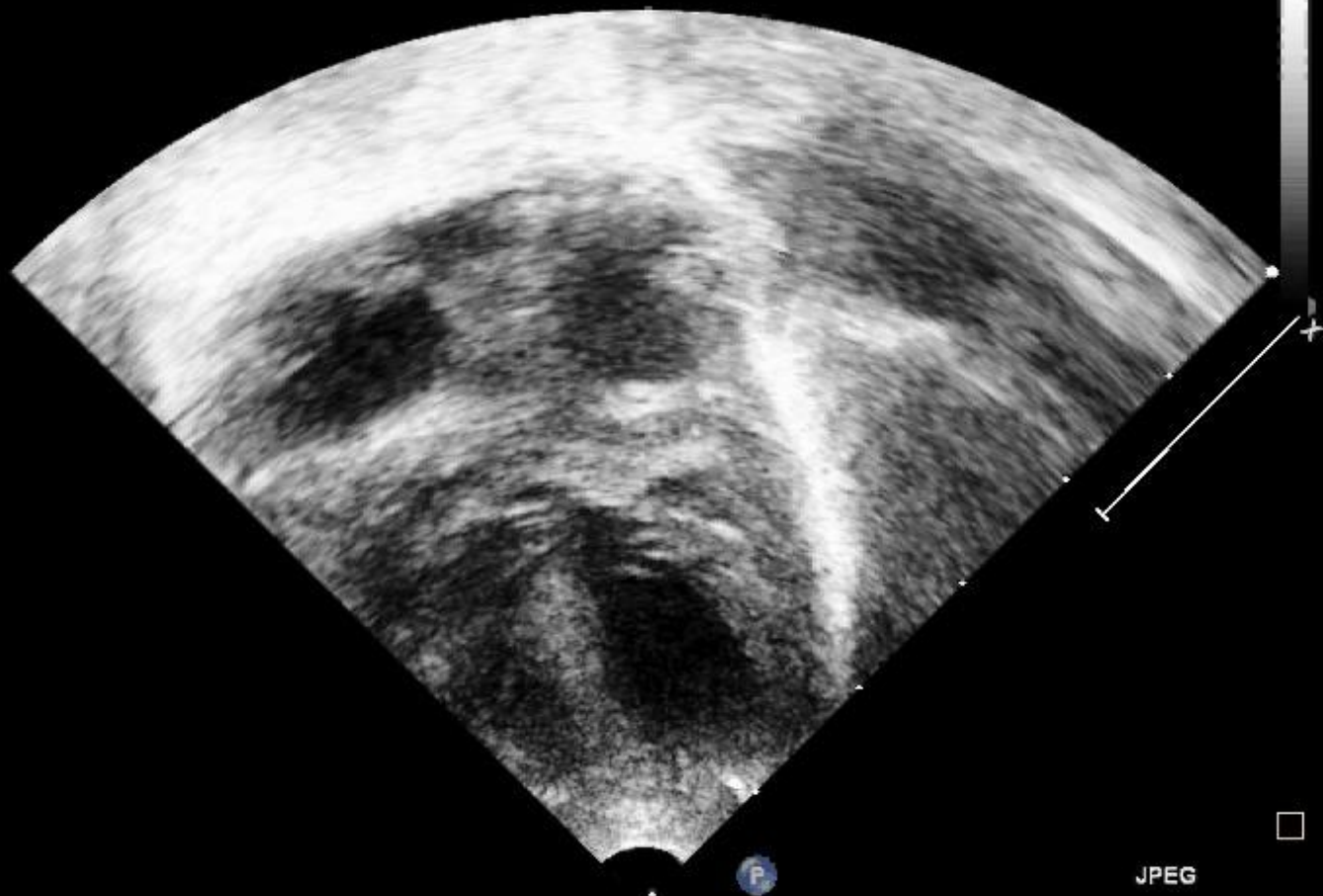
2D
71%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



FR 61Hz
6.0cm

2D
65%
C 50
P Off
Res



JPEG

*** bpm

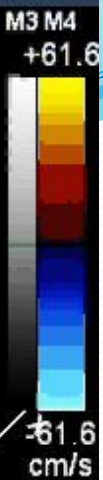
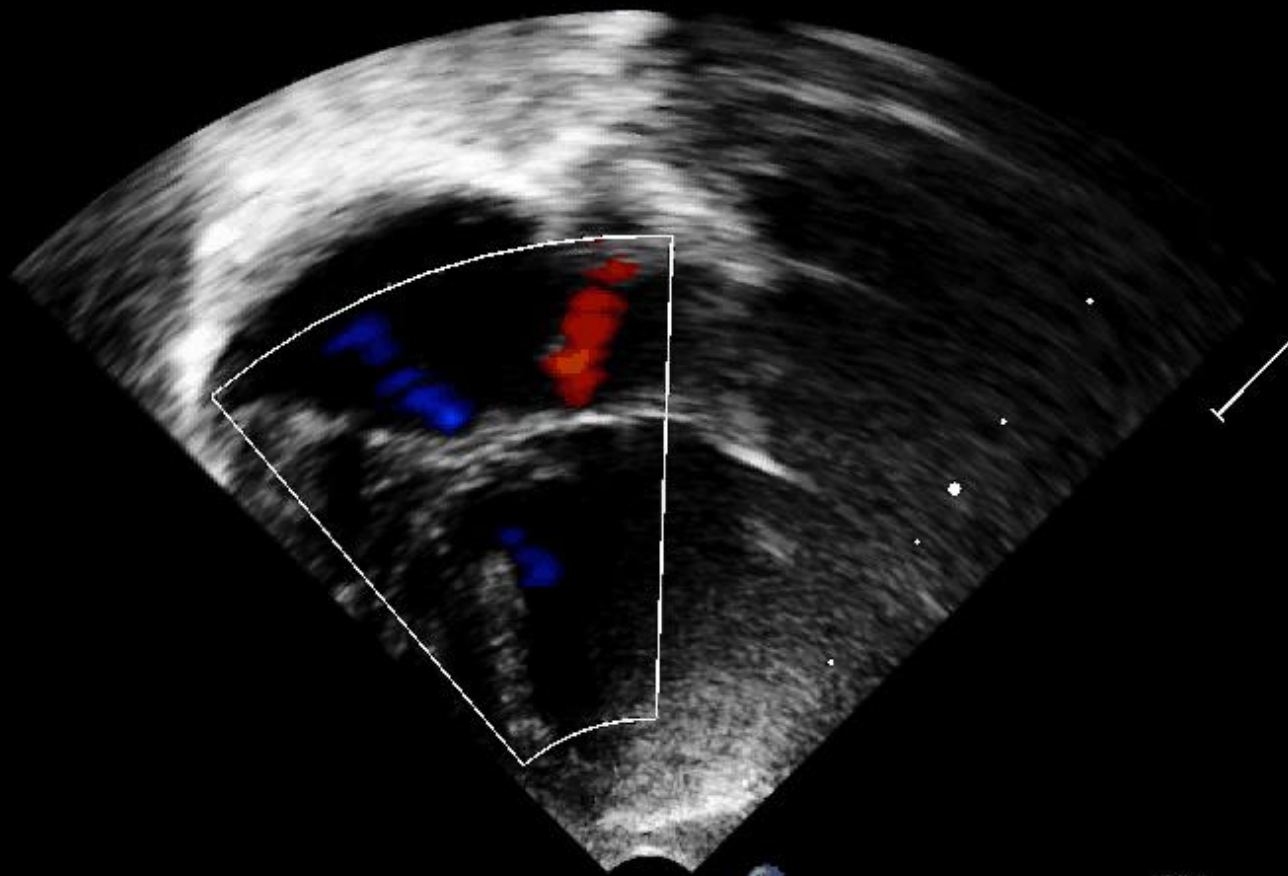
FR 32Hz
6.0cm

2D

62%
C 50
P Off
Res

CF

77%
3.0MHz
WF High
Med

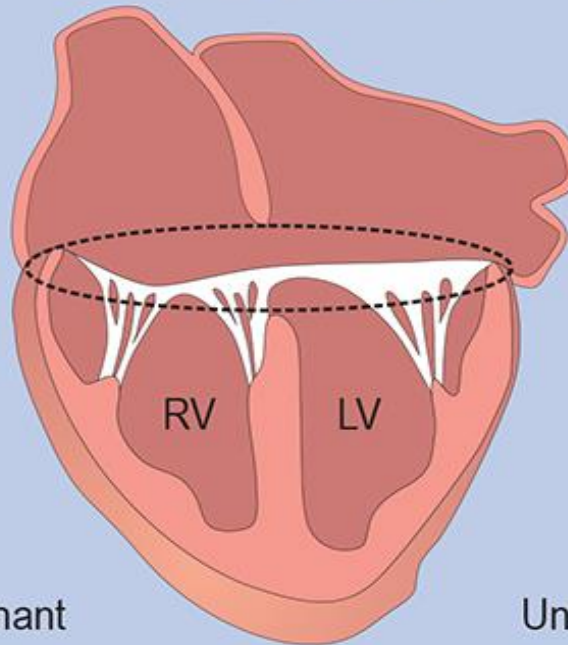


P

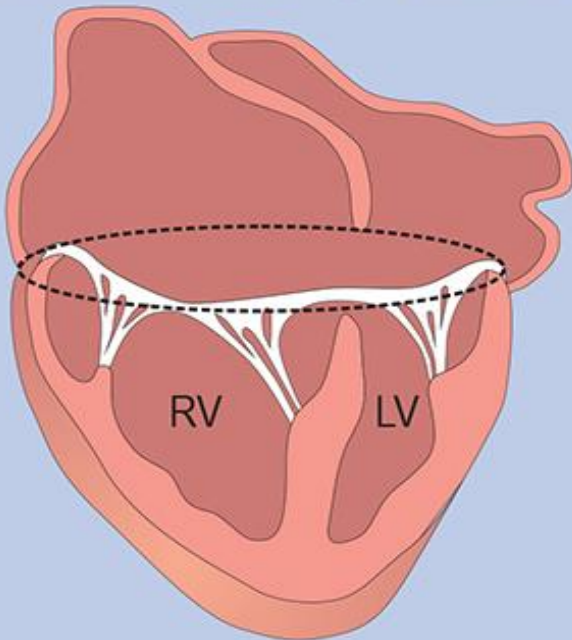
JPEG

*** bpm

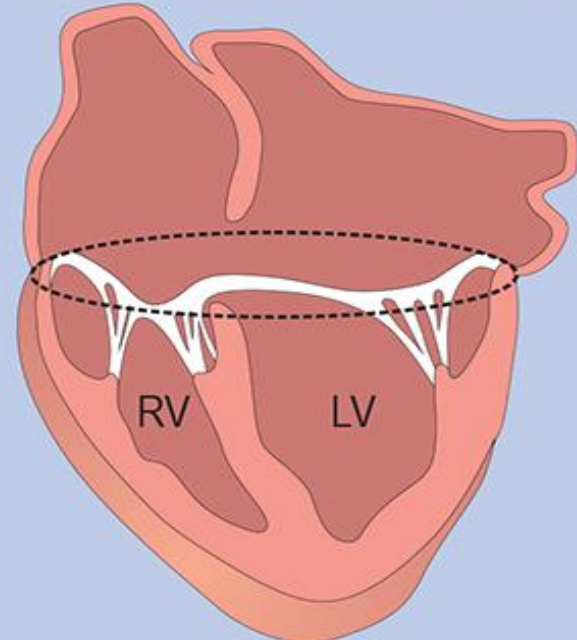
Balanced AV Canal



Unbalanced AVSD Right-Dominant



Unbalanced AVSD Left-Dominant



FR 61Hz
7.0cm

2D
65%
C 50
P Off
Res

M3



JPEG



*** bpm

Evolutie-CAVC

- **CAVC complet**

- -falimentul cresterii
- -infectii respiratorii frecvente
- ICC: tahicardie,tahipnee,tiraj

- **CAVC partial**

- -evolutia DSA ,dar cu semne mai preoce de aparitie a HTP

Management

- Medical
 - -trat IC (digoxin,diuretic,IEC)
 - -trat. Infectiilor respiratorii
 - -profilaxia endocarditei infectioase
- Chirurgical
 - Timing 3-6 l datorita riscului de aparitie a HTP
 - Asocierea cu Sd Down creste riscul de aparitie precoce al HTP
 - Mortalitate 5 % (cu sau fara Sd Down)

- 
- Ventriculi nebalanti-corectie chirurgicala tip ventricul unic
 - Complicatii:
 - IM reziduala de grade diferite
 - BAV total

MCC necianogene concluzii

- Nu reprezinta o urgenta neonatala
- Sunturile largi necesita corectie chirurgicala in perioada de sugar
 - DSV larg
 - CAP larg
 - CAVC complet +/- Sd.Down

