

New murmur: acute valvular regurgitations .

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Acute valvular regurgitation

Clinical case

- Mr "Dupont", a 53 y old men, without any particular medical history
- On Thursday octobre 14th , he was working at the airport as usual

When....

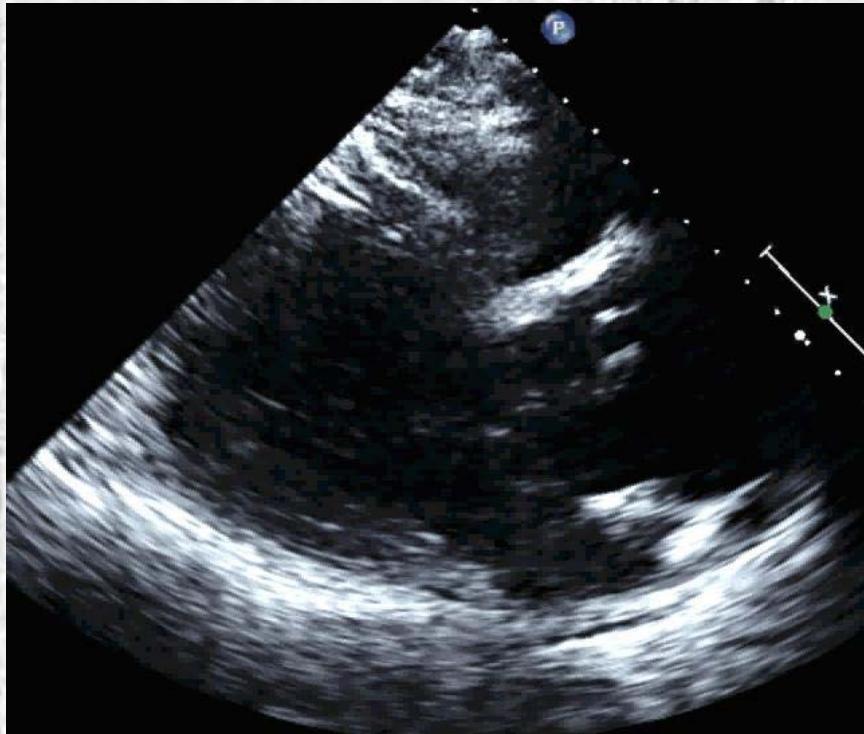
- Suddenly, he complains of chest pain and collapse...
- Emergency team called, diagnoses a **heart attack** and prepare patient for transfer to hospital emergency department (opioids, were given)
- Patient arrives shocked in the ER

ECHOCARDIOGRAPHY....



Acute valvular regurgitation

Clinical case





Acute valvular regurgitation

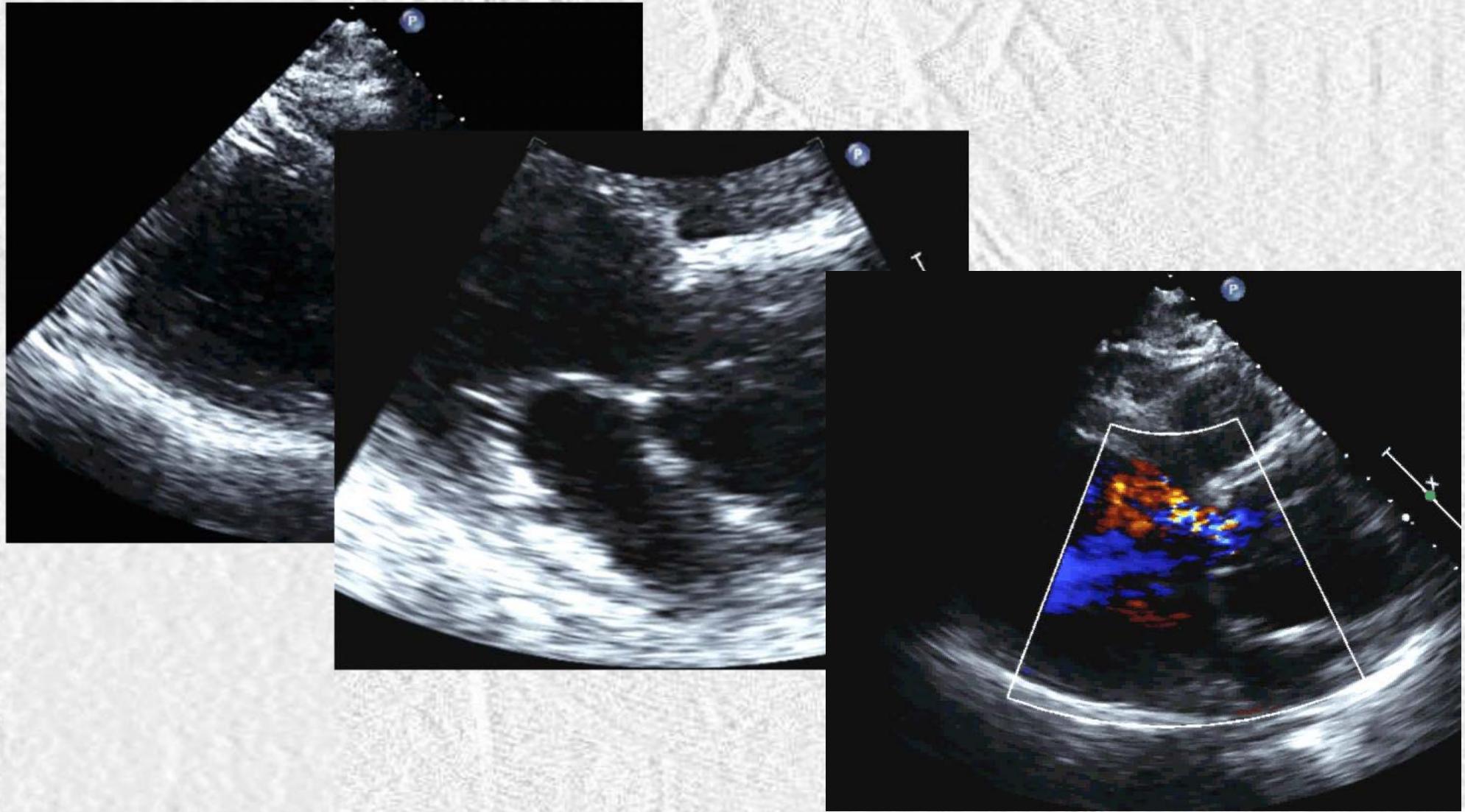
Clinical case





Acute valvular regurgitation

Clinical case





Acute valvular regurgitation

Presentation...

- From a new murmur tocardiovascular collapse depending how acute is the regurgitation...
- Examination findings suggesting acute regurgitation may be subtle, and the clinical presentation may be nonspecific.
- The presentation of acute valvular regurgitation may be mistaken for other acute conditions, such as sepsis, pneumonia, or nonvalvular heart failure.....



Acute valvular regurgitation

Causes

Aortic

Endocarditis
Aortic dissection (A)
Ruptured
fenestration
Blunt chest trauma
Prosthetic
dysfunction
Complic
percutaneous tech

Mitral

Organic

Endocarditis
Chordal rupture
Papillary muscle
rupture
Prosthetic
dysfunction

Functionnal

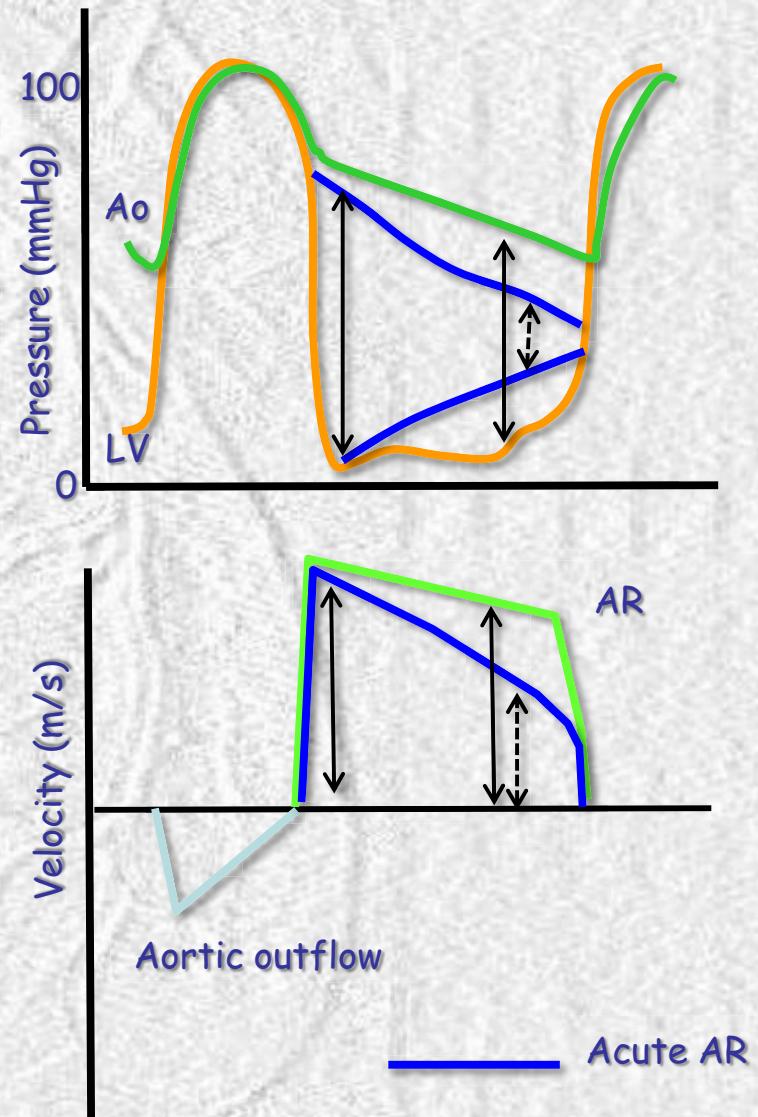
Papillary muscle
dysfunction du
to ischémia
Cardiomyopathy
(acute)



Acute valvular regurgitation

Physiopathology of aortic regurgitation

	<u>Acute</u>	<u>Chronic</u>
Cardiac output	↓	
Pulse pressure	↓	↓
Syst pressure	↓	↑
LV ED pressure	↑↑	↑
LV size	N	

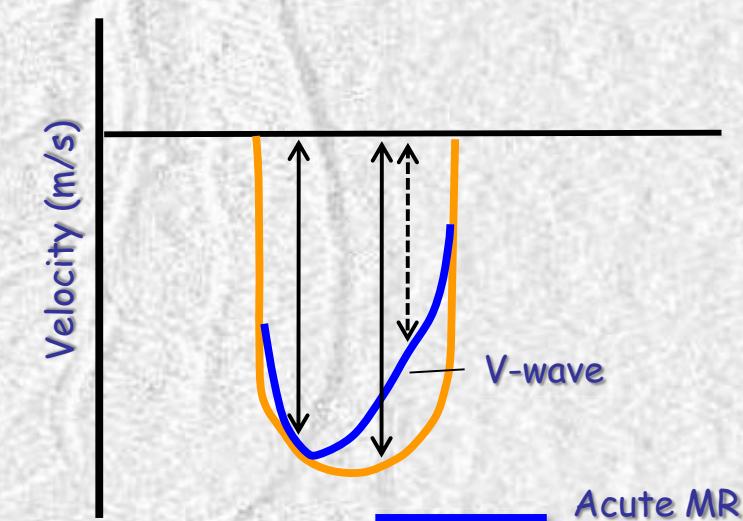
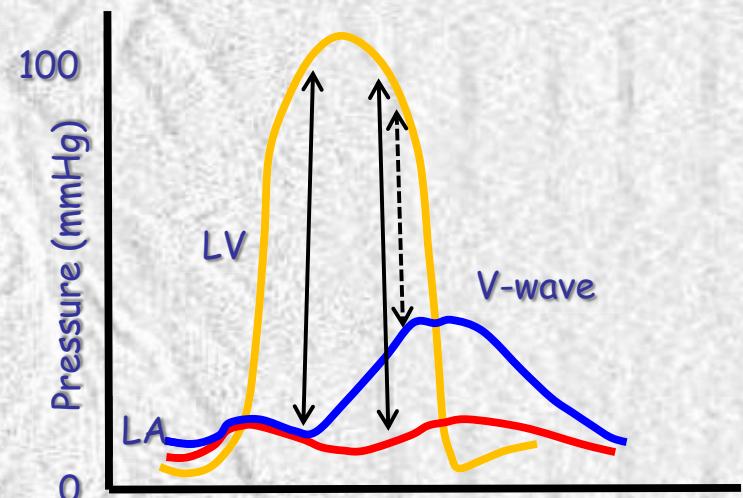




Acute valvular regurgitation

Physiopathology of mitral regurgitation

	<u>Acute</u>	<u>Chronic</u>
Cardiac output	↓	
Ejection Fraction	N ↓	
LV ED pressure	↑↑	
LA compliance	↑	
LV size	N	





Acute valvular regurgitation

Clinical presentation

- Dyspnea, hemodynamic instability, shock
- Symptoms related to underlying cause: fever...
- Worsening of a previous regurgitation
- Clinical sign: murmur
 - but: not always easy to diagnose

cfr: rapid equilibration of pressure.....



Acute valvular regurgitation

Diagnosis

- EKG: tachycardia, non specific ST changes or ischemic ST changes....
- Chest Xray: pulmonary oedema, normal sized heart, enlarged aortic root..

ECHOCARDIOGRAPHY

The corner stone of diagnosis !



Acute valvular regurgitation

Echocardiography



- Confirm the diagnosis
- Demonstrate the mechanism
- Quantify the severity of regurgitation



Acute valvular regurgitation

Aortic regurgitation: endocarditis

56 yo man with
fever for 5 day
and alteration of
general condition

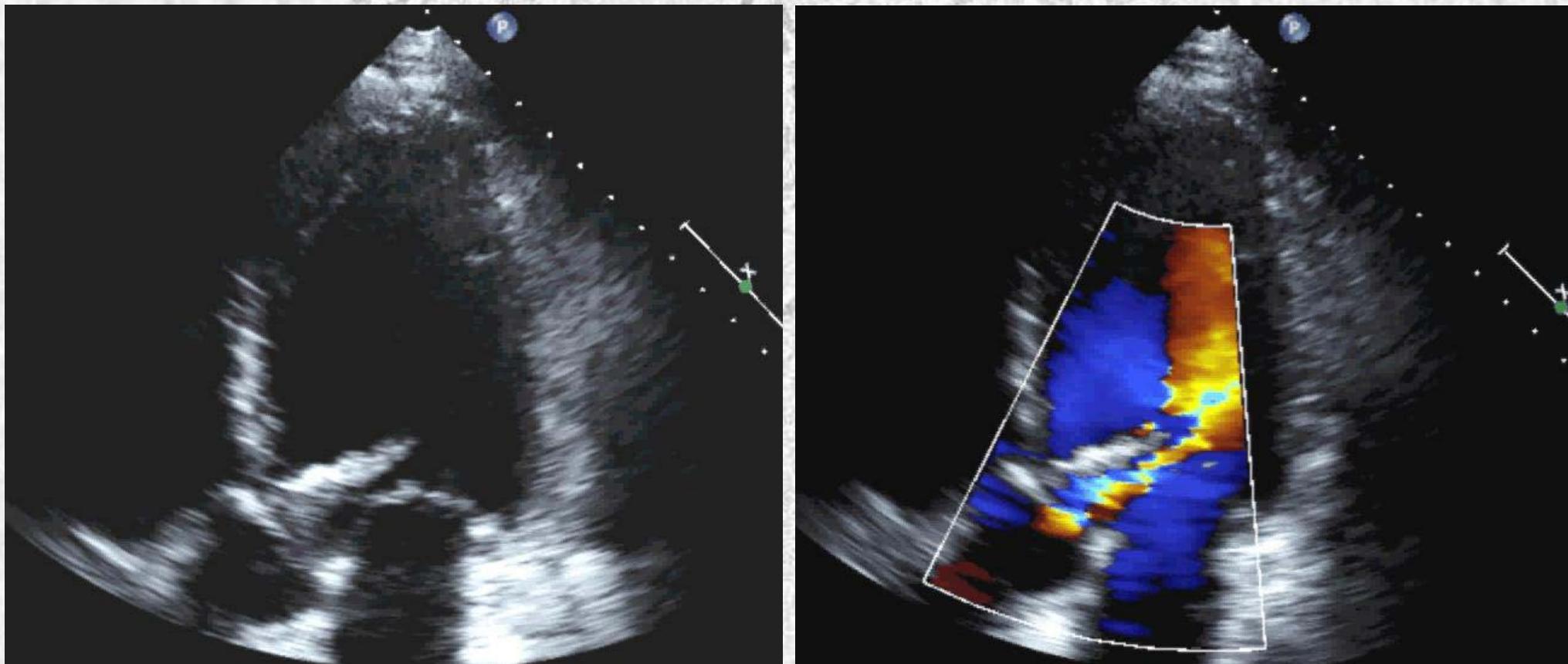
No cardiac condition
known





Acute valvular regurgitation

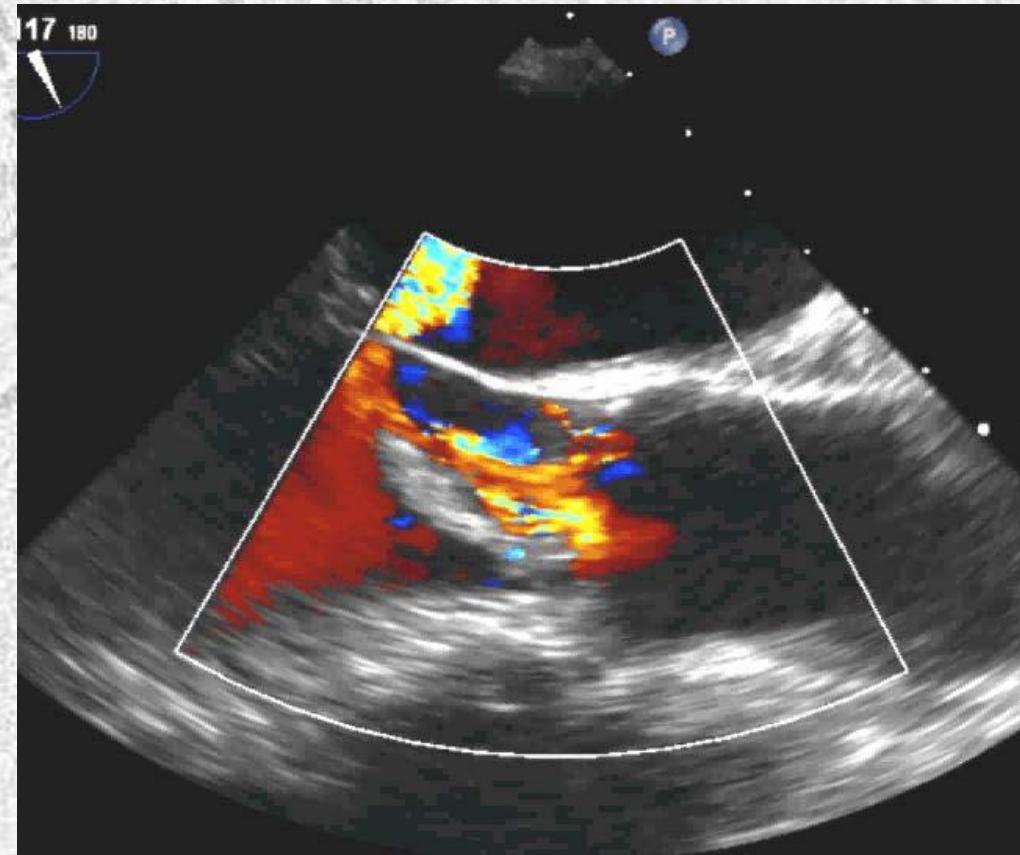
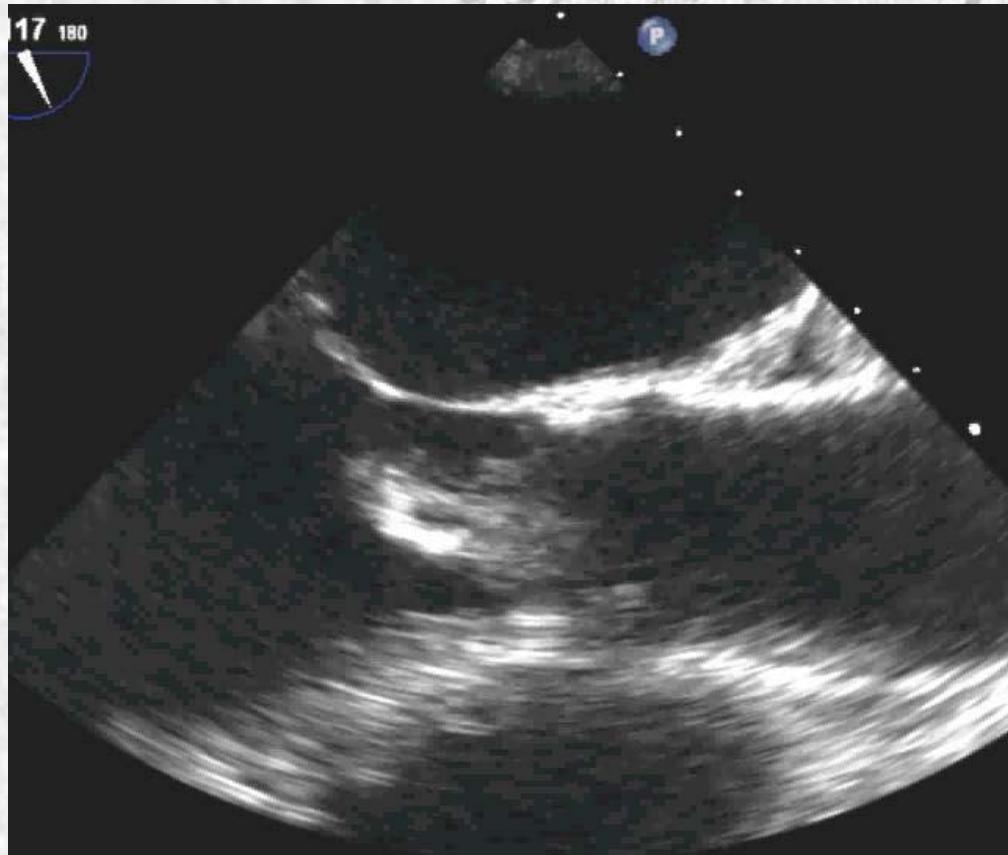
Aortic regurgitation: endocarditis





Acute valvular regurgitation

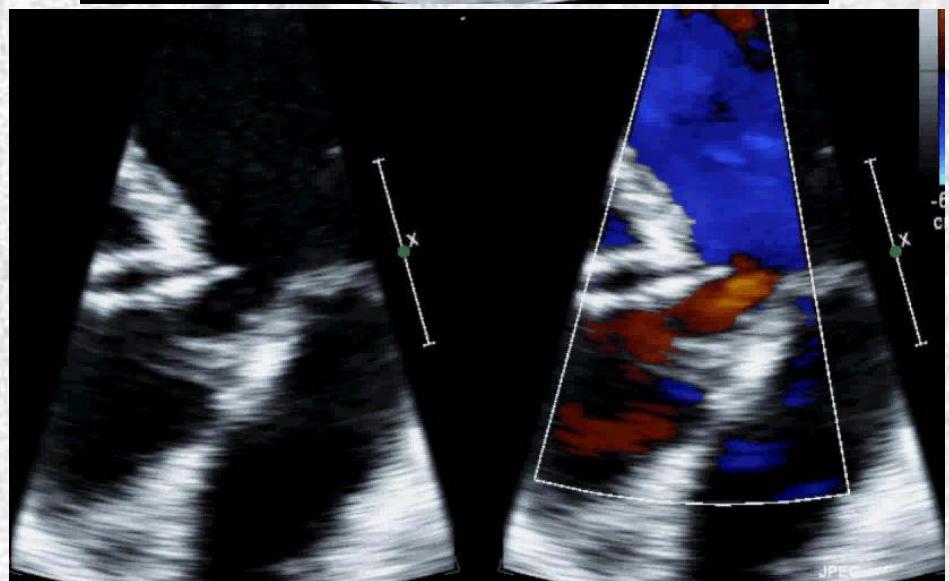
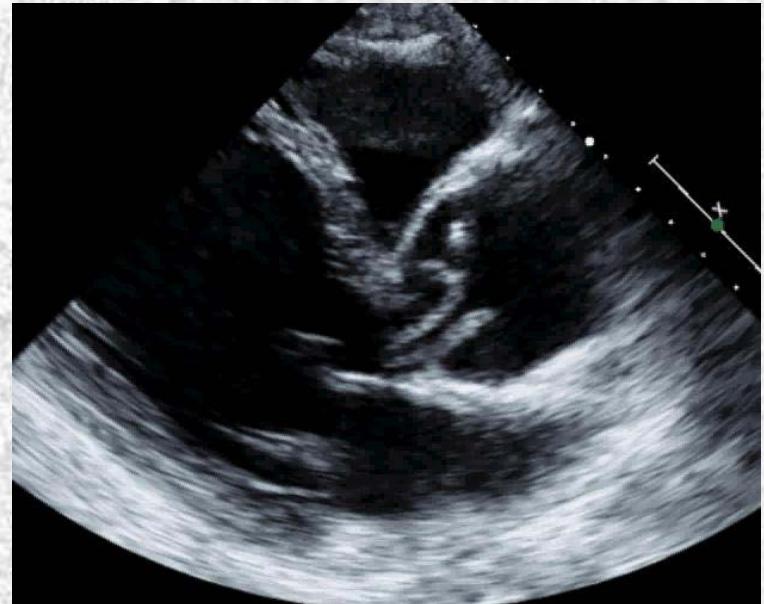
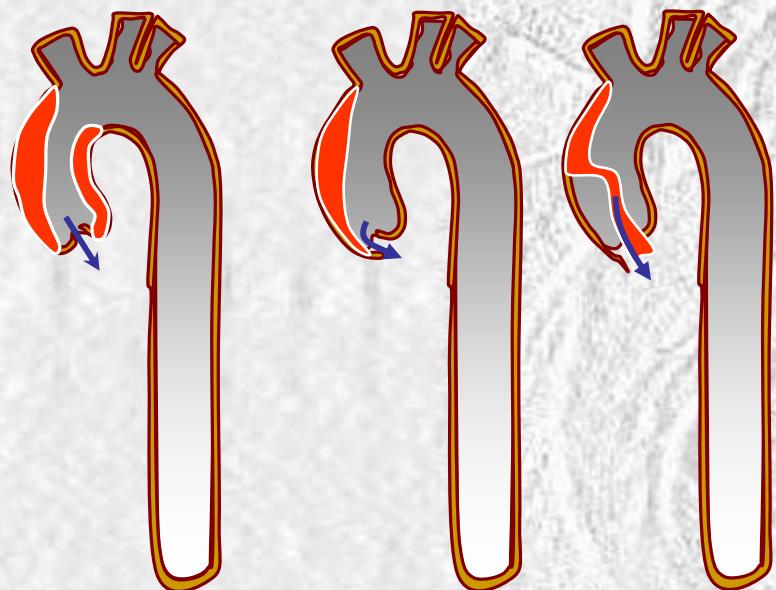
Aortic regurgitation: endocarditis





Acute valvular regurgitation

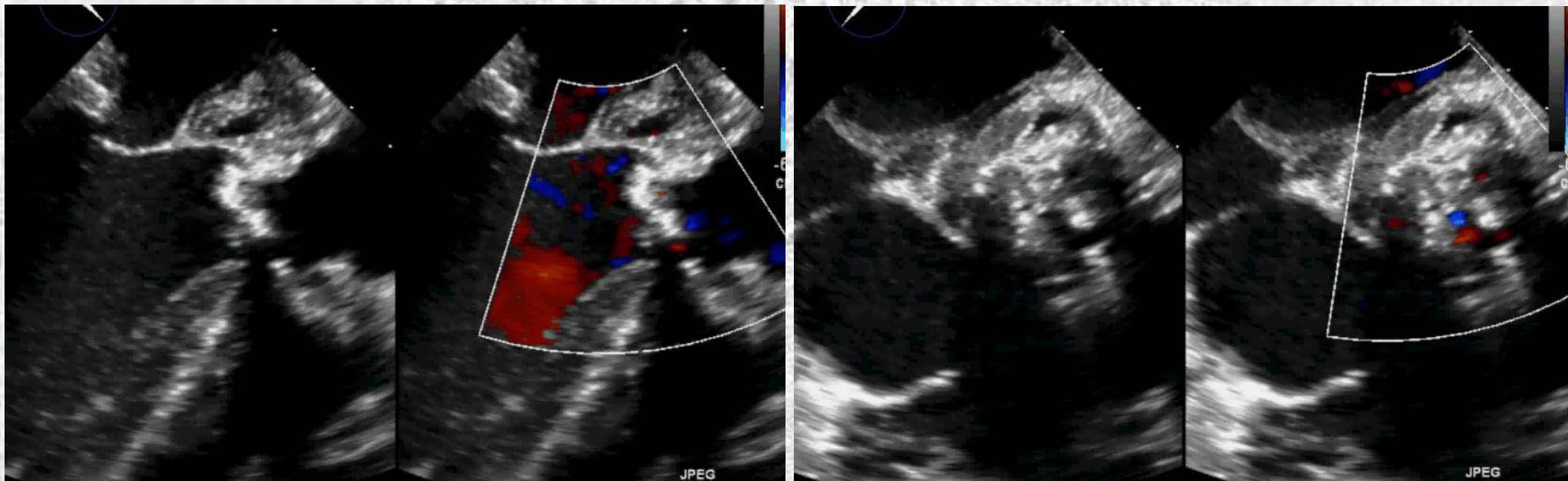
Aortic regurgitation: aortic dissection





Acute valvular regurgitation

Valve dysfonction

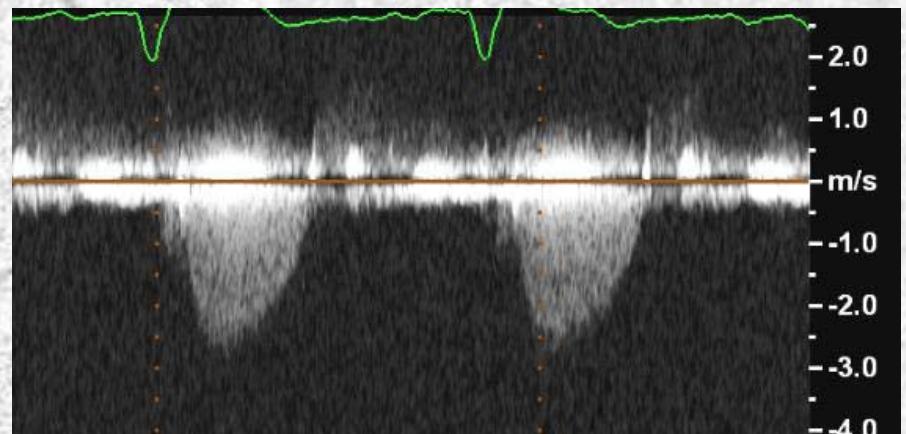
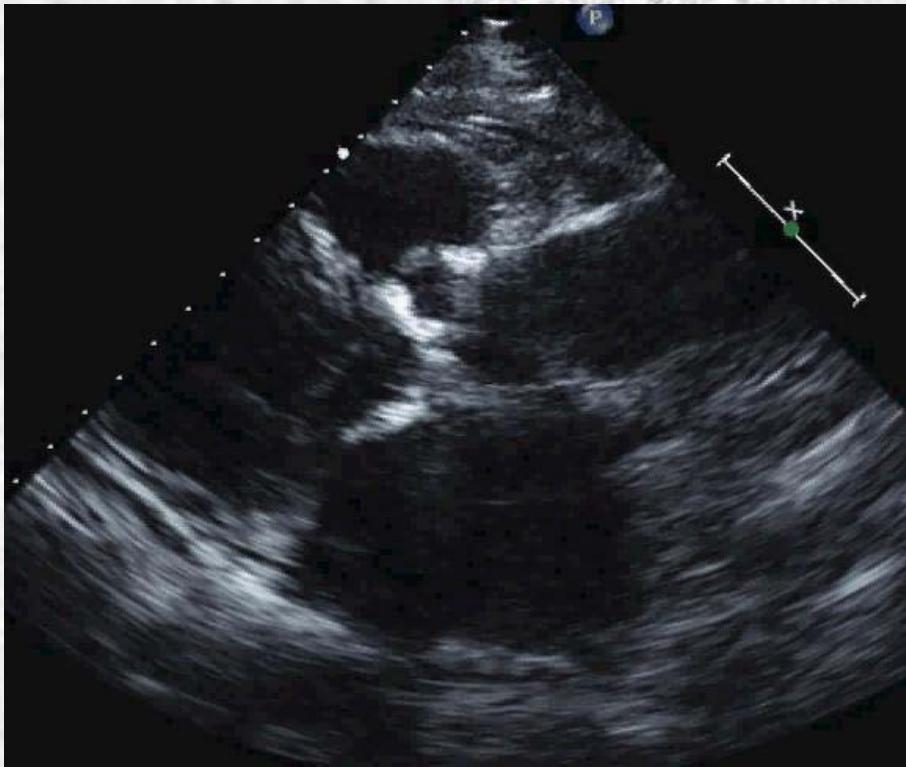


40 yo woman with history of aortic stenosis treated with aortic homograft 5 y ago, fever, new aortic murmur and rapid worsening to cardiogenic shock



Acute valvular regurgitation

Aortic valvuloplasty

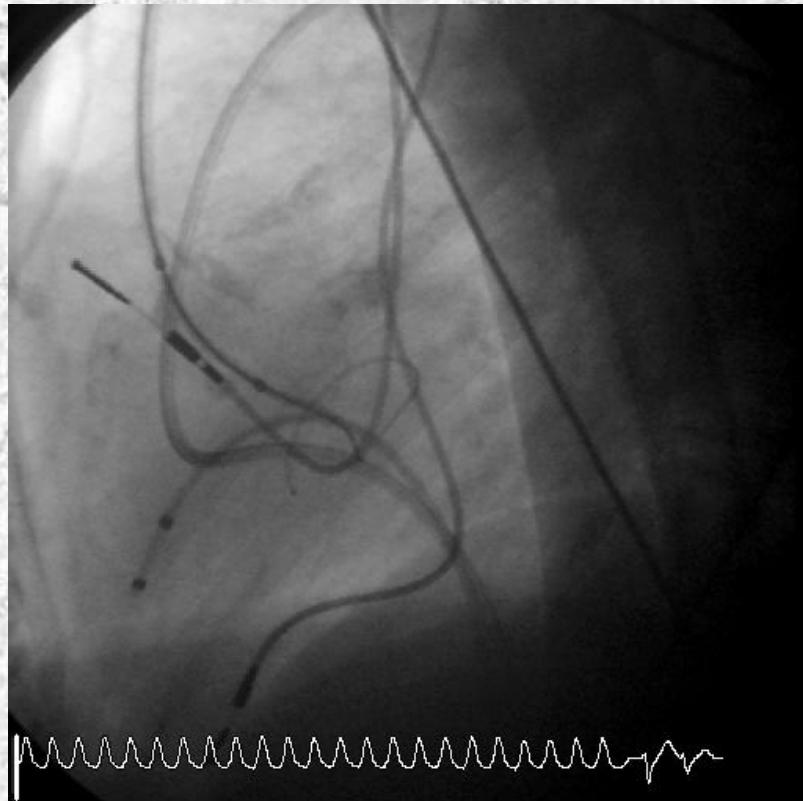


91 yo woman admitted for pulmonary edema, diagnosed with critical aortic stenosis



Acute valvular regurgitation

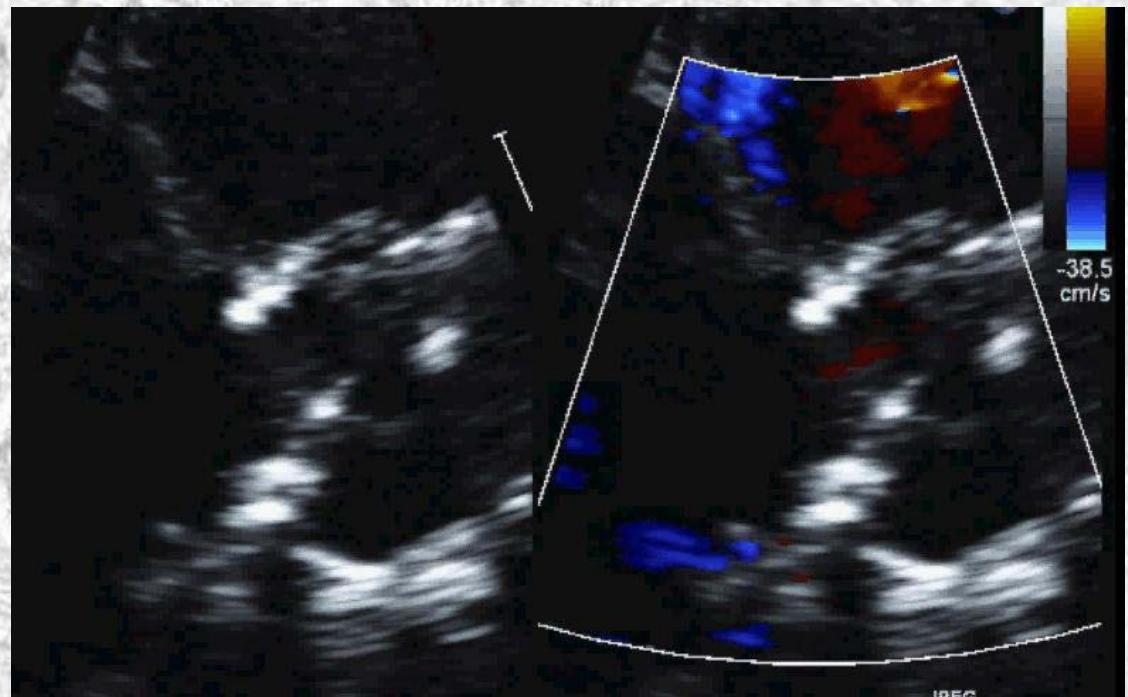
Aortic valvuloplasty





Acute valvular regurgitation

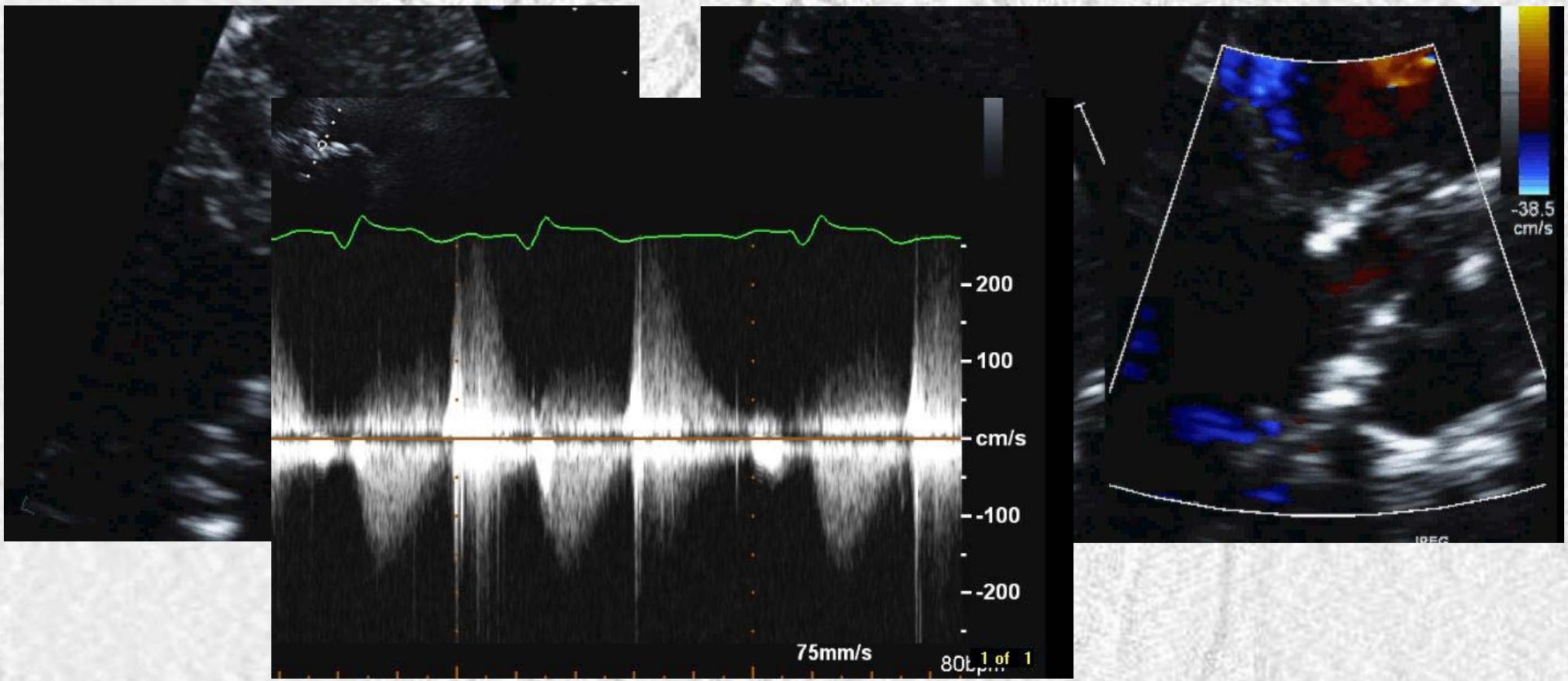
Aortic valvuloplasty





Acute valvular regurgitation

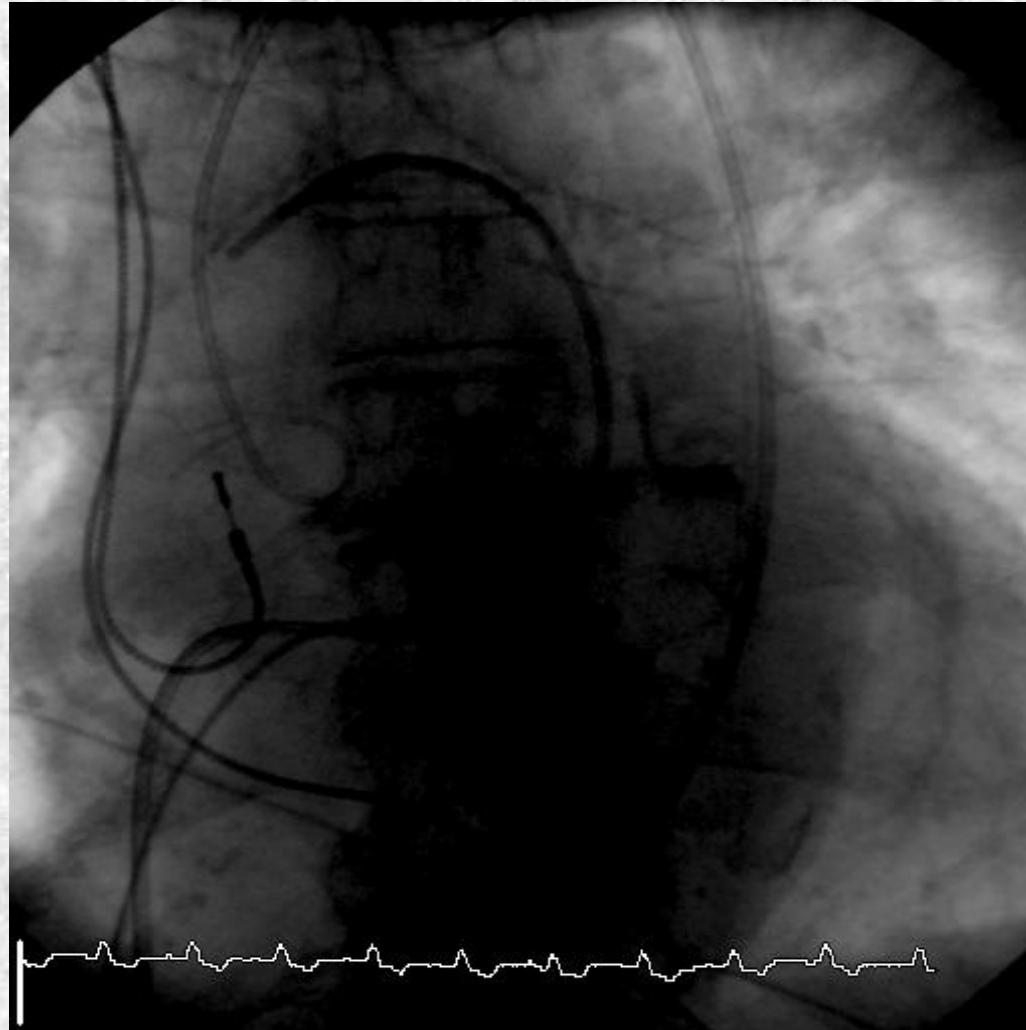
Aortic valvuloplasty





Acute valvular regurgitation

Aortic valvuloplasty





Acute valvular regurgitation

Mitral regurgitation: organic or functionnal

Mitral

Organic

Endocarditis
Chordal rupture
Papillary muscle
rupture
Prosthetic
dysfunction

Surgery

Functionnal

Papillary muscle
dysfunction du
to ischemia
Cardiomyopathy
(acute)

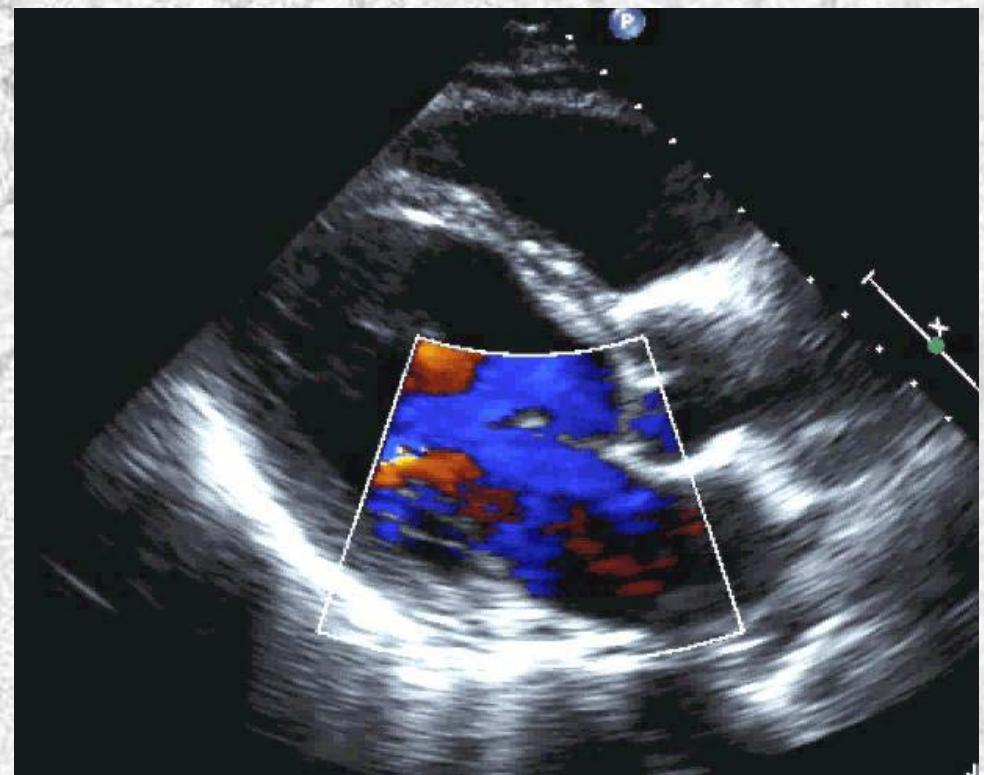
Surgery
or

R/ heart failure



Acute valvular regurgitation

Mitral regurgitation: rupture papillary muscle rupture



60 yo man with history of chest pain a few day ago, progressive dyspnea and hypotension



Acute valvular regurgitation

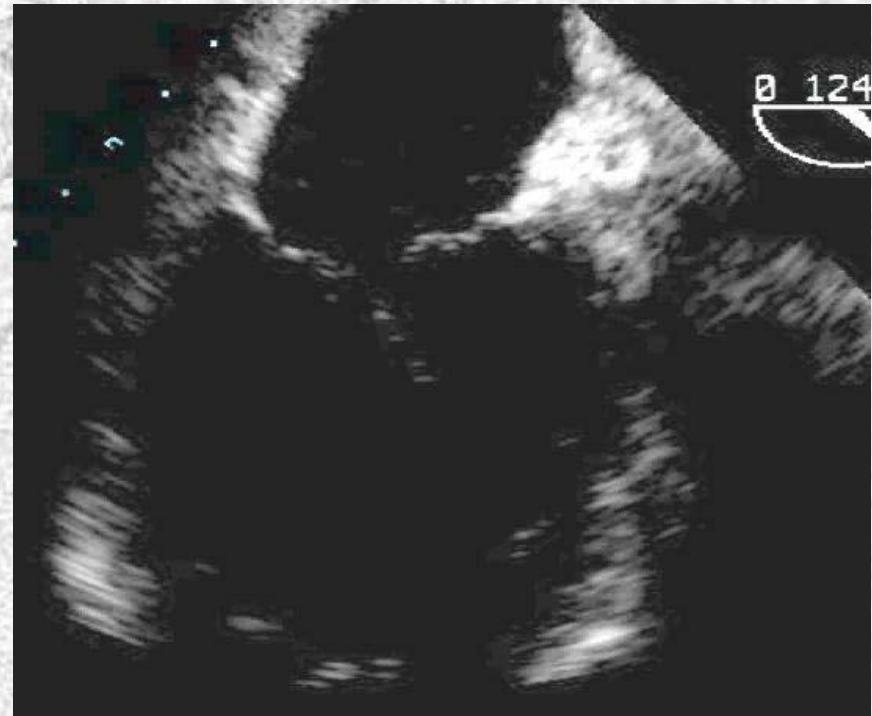
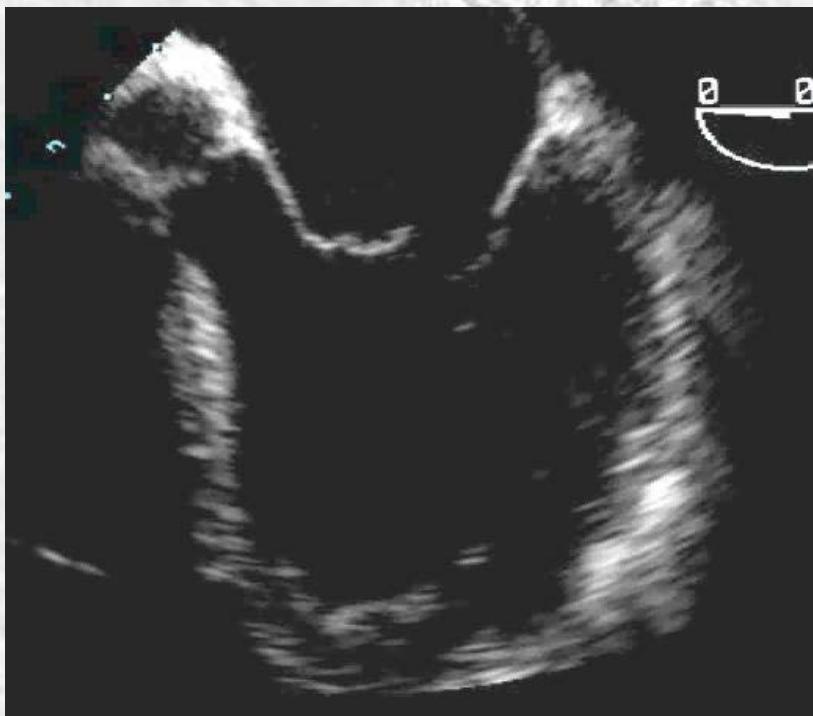
Mitral regurgitation: rupture papillary muscle rupture





Acute valvular regurgitation

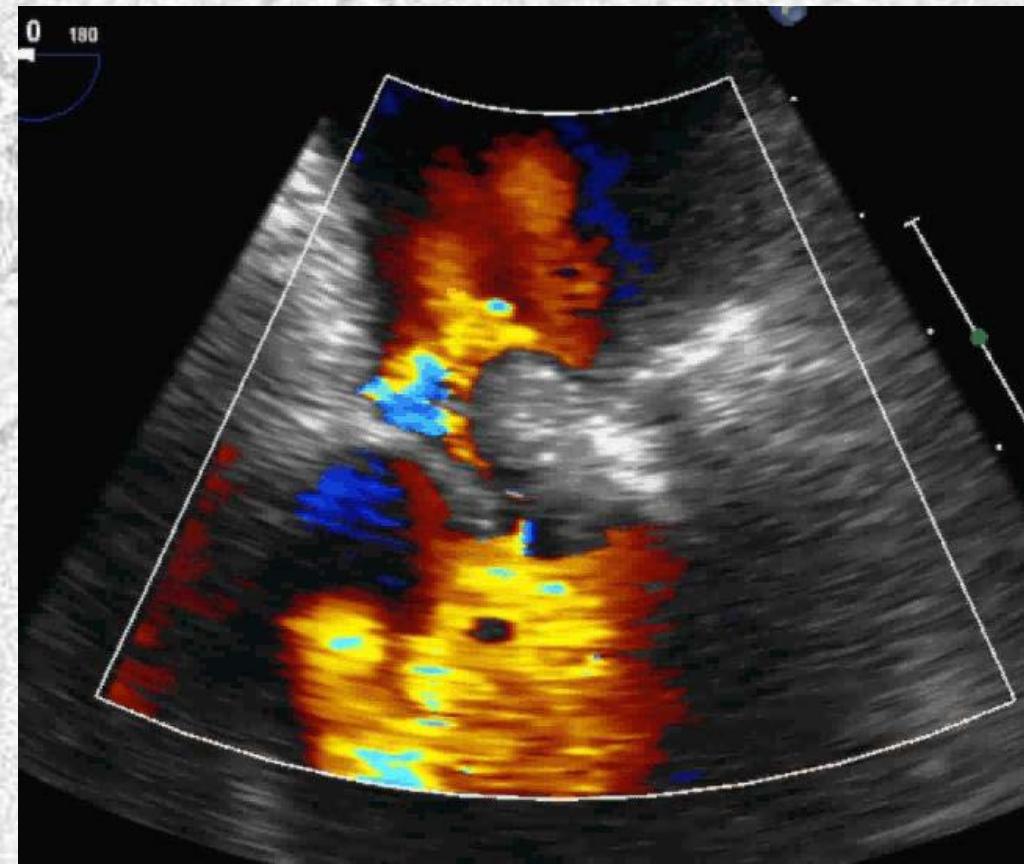
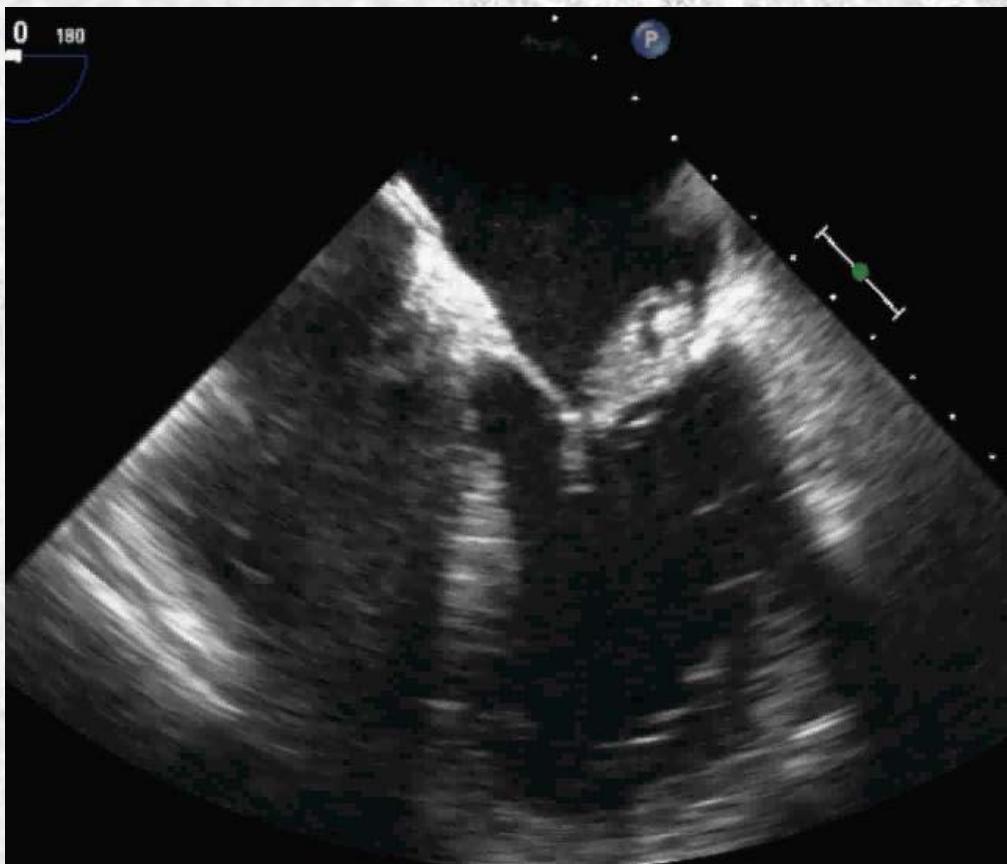
Mitral regurgitation: rupture papillary muscle rupture





Acute valvular regurgitation

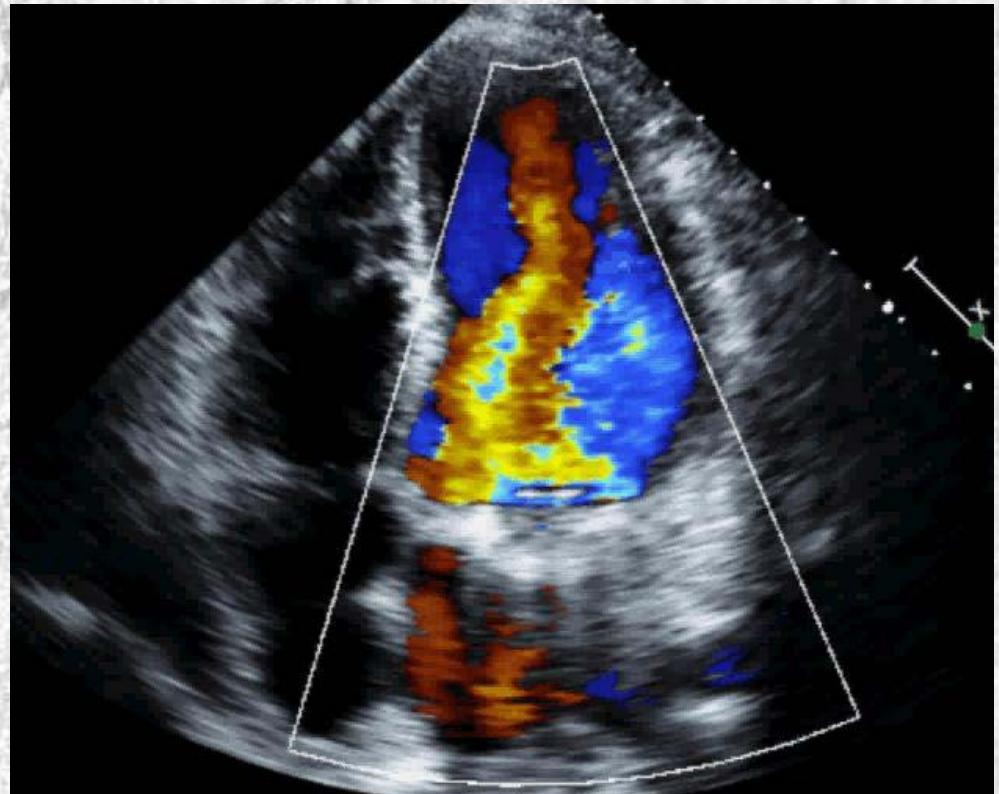
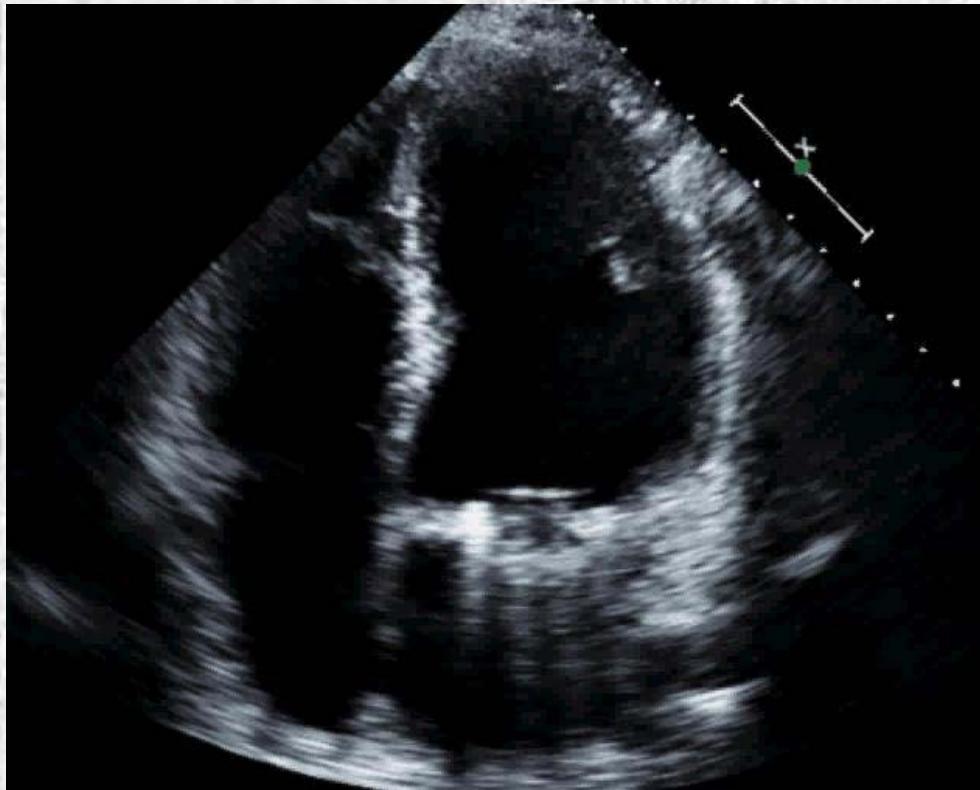
Mitral regurgitation: endocarditis



50 yo man with fever and progression alteration of general status, fever, cough, dyspnea



Acute valvular regurgitation Mitral Valve dysfonction

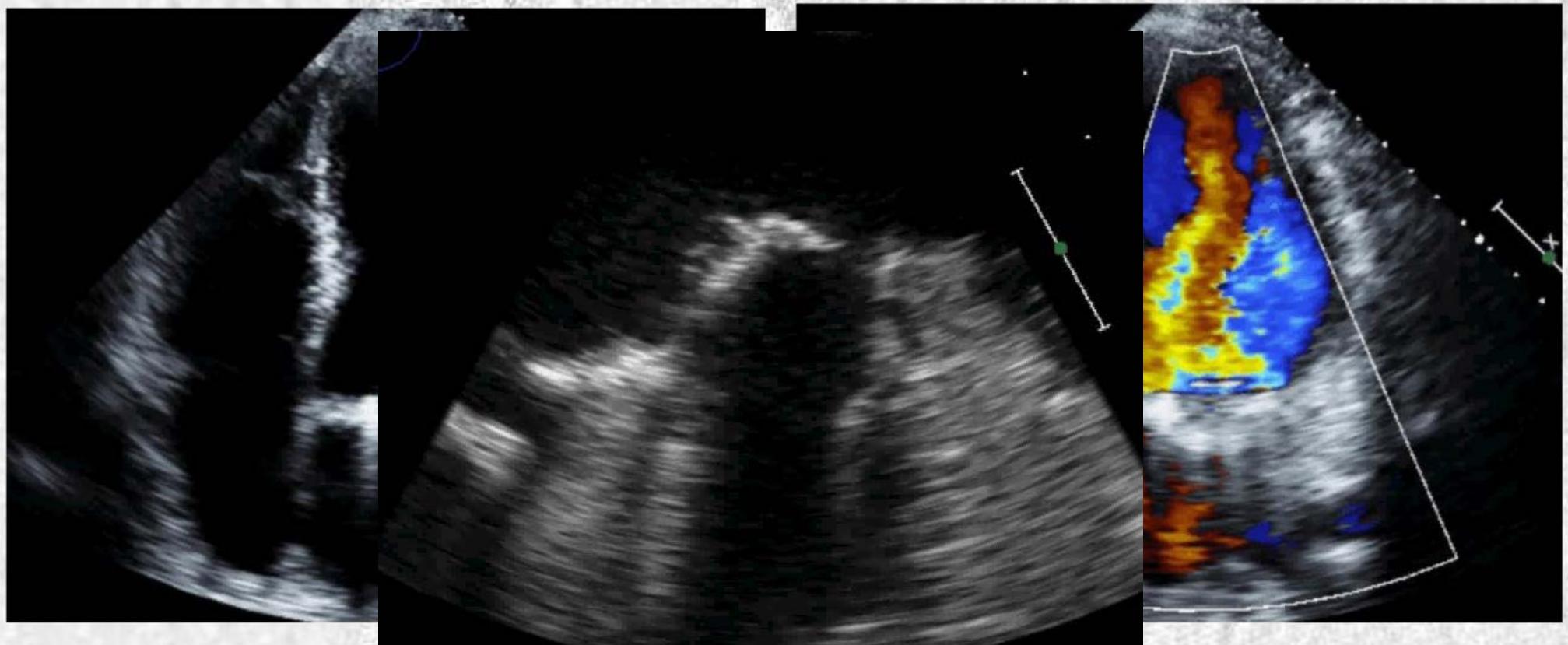


65 yo man with previous mitral valve replacement by mechanical prosthesis, dyspnea



Acute valvular regurgitation

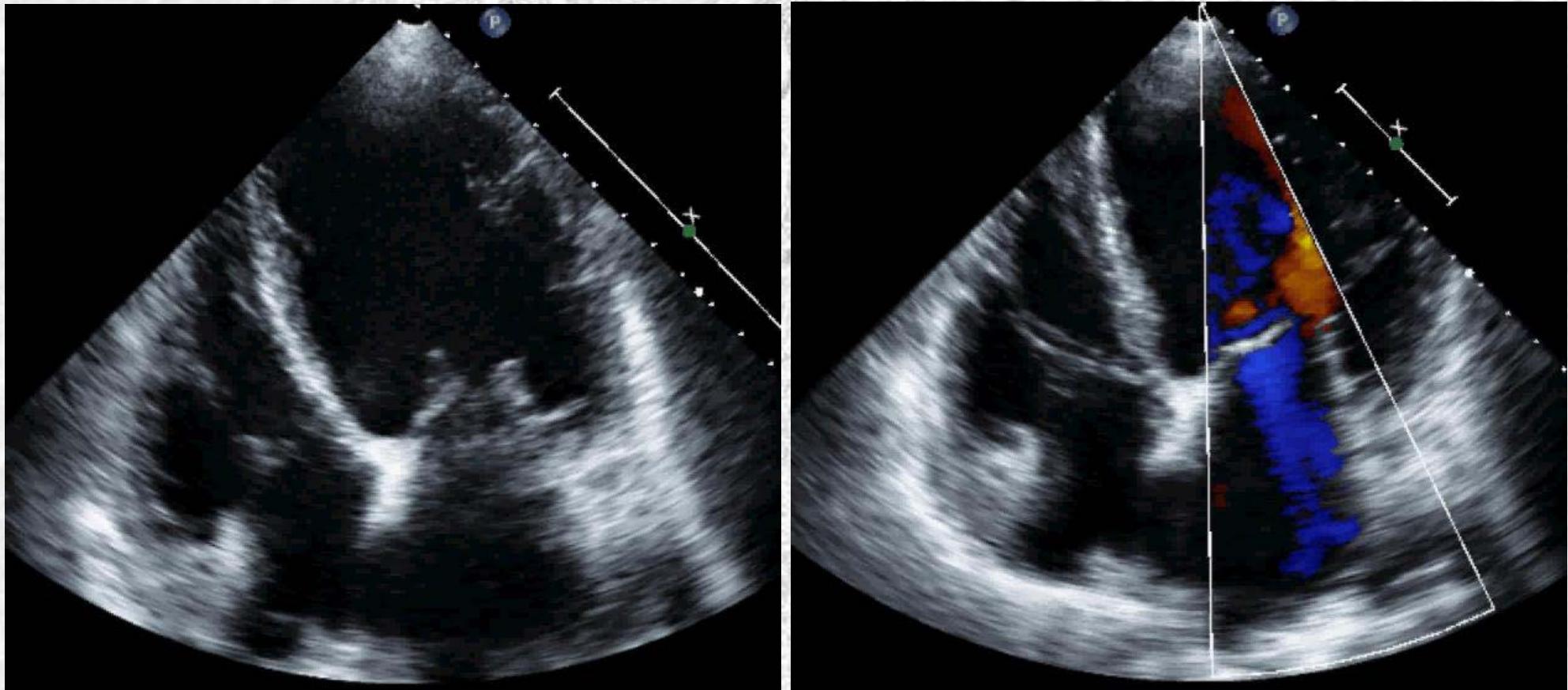
Mitral Valve dysfonction





Acute valvular regurgitation

Mitral regurgitation: worsening of ischemic MR

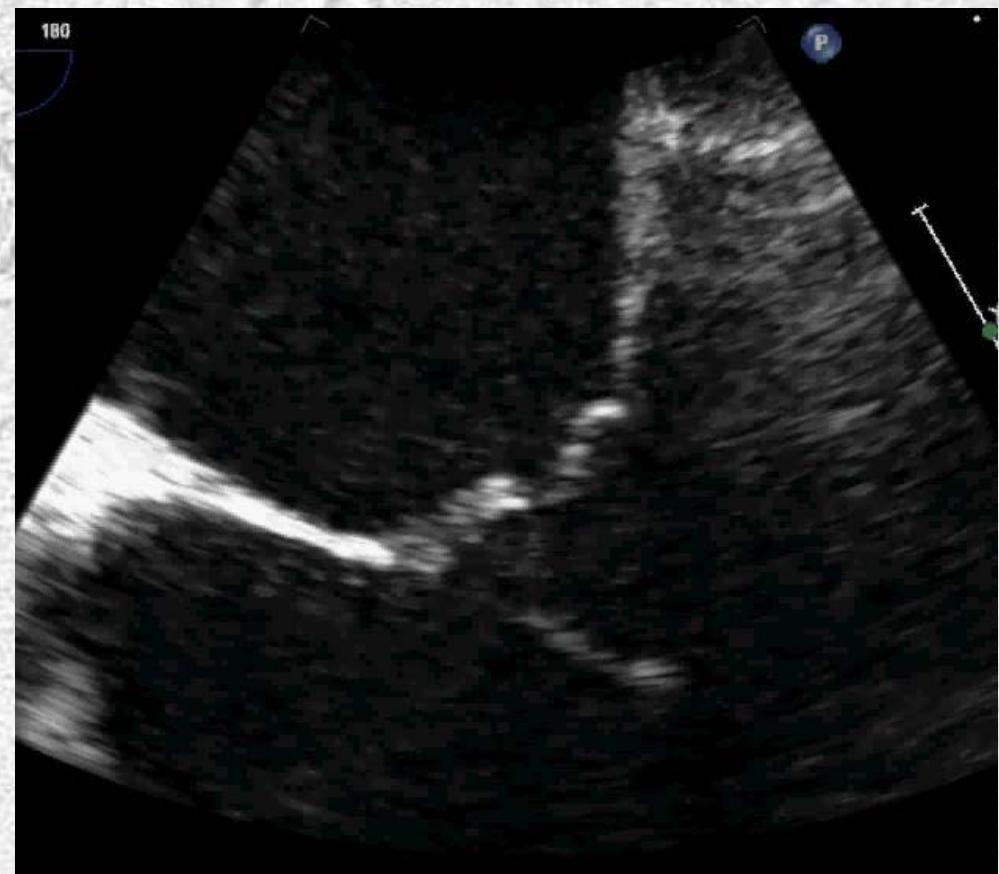
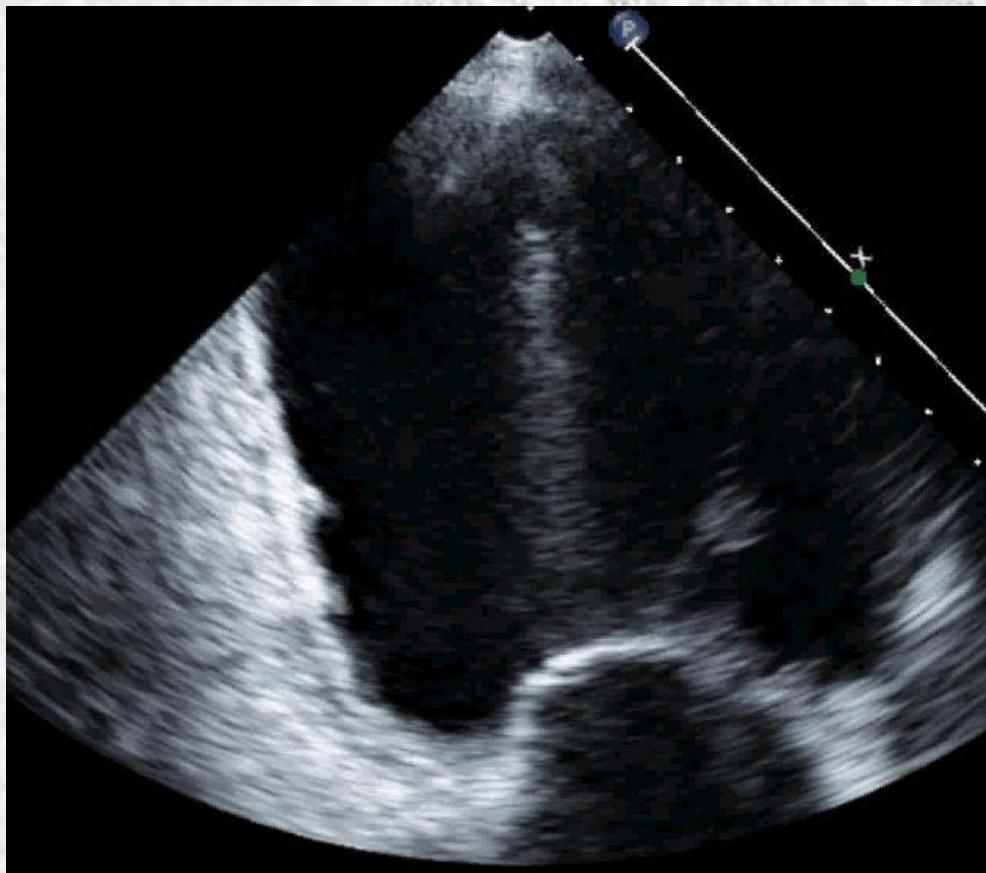


72 yo woman with previous history of MI, 3 vessels disease, and MR, new onset of chest pain, dyspnea



Acute valvular regurgitation

Mitral regurgitation: worsening of ischemic MR





Acute valvular regurgitation

Quantification of severity

Color doppler, regurgitant jet area

Difficult, hemodynamic reasons
(unstable patient), excentric jet

PISA, ERO, VR

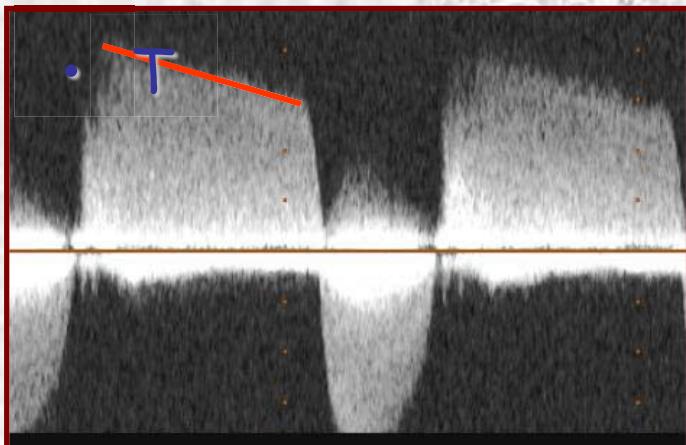
Less reliable : tachycardia, low blood pressure

So in contrast to chronic regurgitation, quantitative measurement will not contribute to management decision

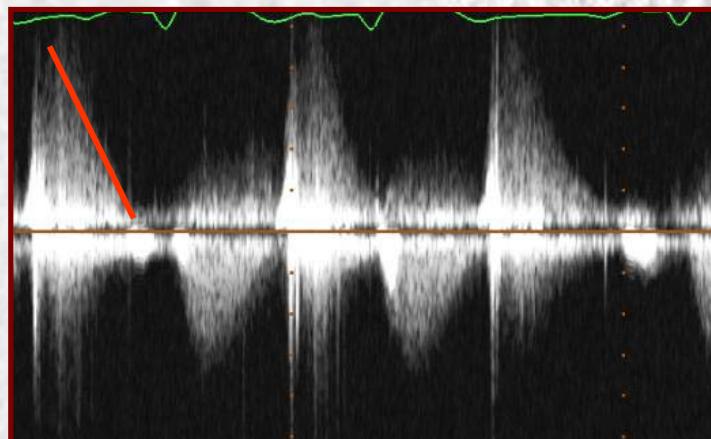


Acute valvular regurgitation

Echo findings in acute aortic regurgitation

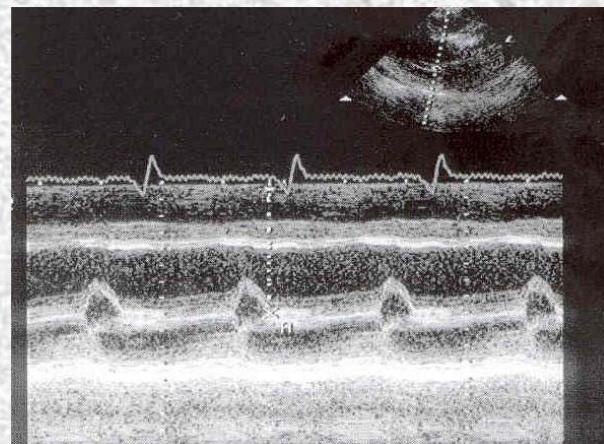


Chronic AR



Acute AR

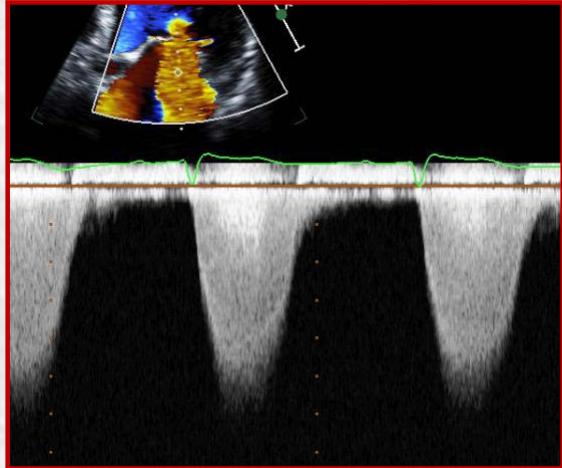
- Vena contracta >6mm
- PHT < 200 msec
- Holodiastolic flow reversal in abdominal aorta
- Premature mitral valve closure
- Normal LV size and fonction



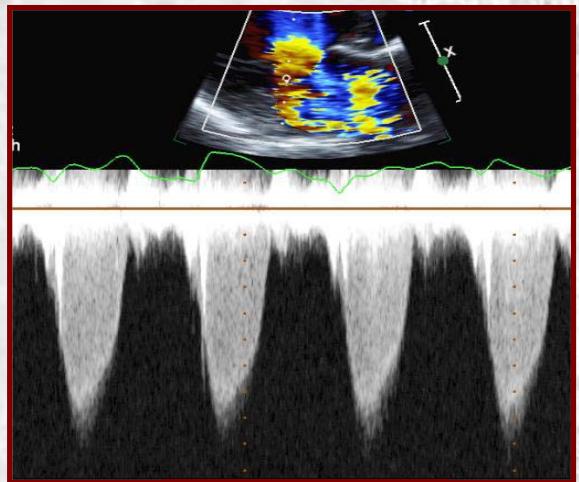
Premature MV clos



Acute valvular regurgitation Echo finding in acute mitral regurgitation



Chronic MR



Acute MR

Vena contracta >7 mm
Reversed pulmonary V flow
Decreased aortic valve opening
Disrupted MV apparatus
Normal LV function ?



Acute valvular regurgitation

In clinical practice.

- Severity of valvular regurgitation will be assessed....

Lactic Ac



Acute valvular regurgitation

Conclusion

- The first step in diagnosis is to suspect valvular regurgitation.
- The second step is to perform echo, to confirm diagnosis, assess mechanism and "severity" to assure a prompt surgical treatment.
- Never forget that a moderate acute regurgitation is poorly tolerated by a "untrained" left ventricle who is not able to compensate abruptly to a volume overload or change