



# Pericardial Disease in Pregnancy

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# Pericardial Disease in Pregnancy

Acute Pericarditis

Pericardial Effusion

Cardiac Tamponade

Pericardial Constriction

Absence of pericardium

Pericardial Cyst

# Acute, then chronic pericarditis during pregnancy

## Illustrative Case

- A 27 year old G5 P2 presented at 10 weeks with chest pain and a history of pericarditis 10 years ago. She was found to have a small pericardial effusion with a normal ECG. Her ESR was negative. At 22 weeks her pain increased in the supine position and the ESR was elevated. She was treated with steroids with no improvement in her pain. At 36 weeks the effusion had increased on echo with evidence of late RV diastolic collapse. The steroids were increased.
- There was a vaginal delivery at 38 weeks. After delivery it was recommended to treat her with colchicine. Post partum she had recurrent chest pain and was found to have a PE.

# Evaluation in Pregnancy

History of chest pain

Differential diagnosis during pregnancy:

pulmonary embolism

myocardial infarction

aortic dissection

Physical examination

Laboratories

Sedimentation rate

C-reactive protein

ANA/RF

Blood cultures

Electrocardiogram

Echocardiography

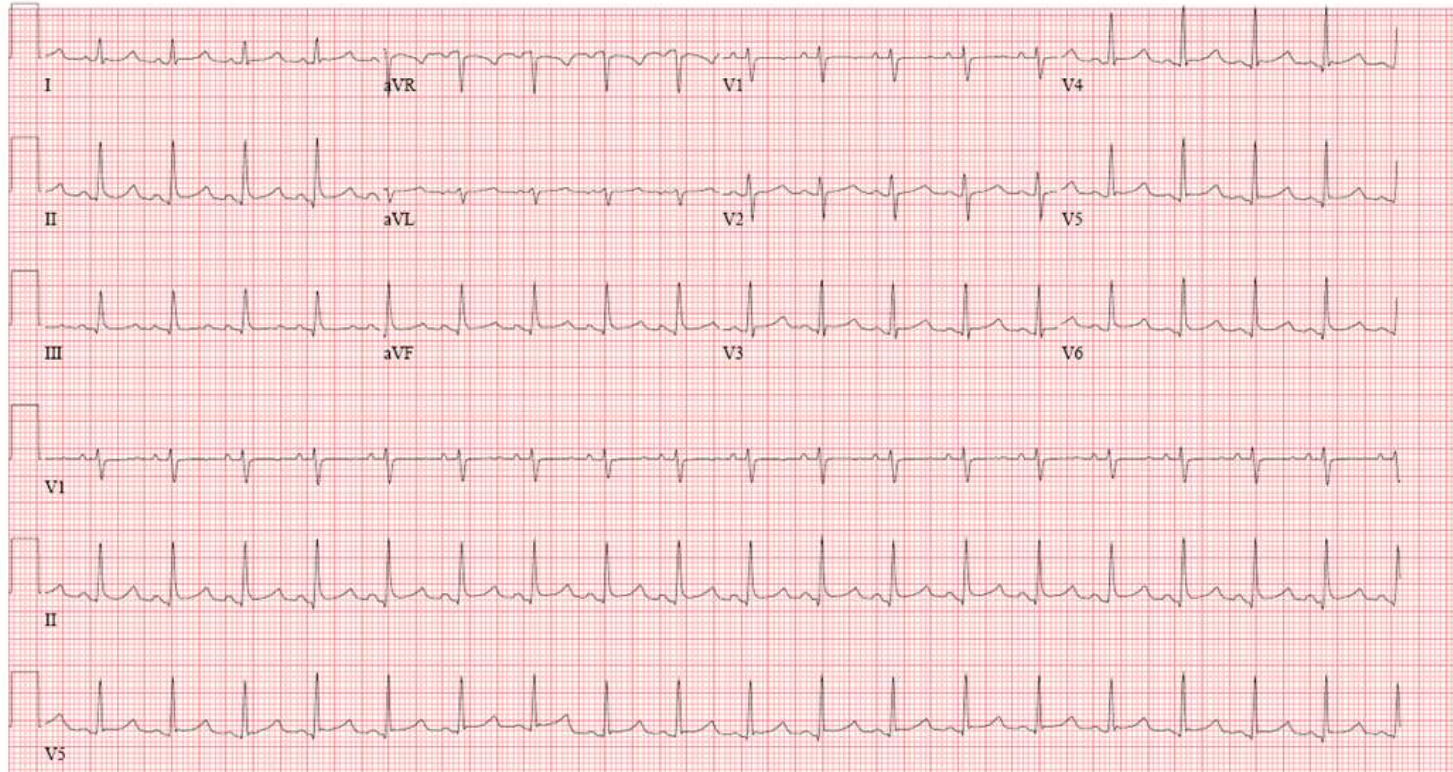
# Diagnostic Criteria for Pericarditis

Identify 2/4 criteria

- Characteristic chest pain
- Pericardial friction rub
- Diagnostic ECG findings
- New or worsening pericardial effusion

# Electrocardiographic Changes of Pericarditis

Hill, T. in ACC Cardiosource, 2015



# The Etiology of Pericarditis

Etiology	Estimated Incidence in Literature*
<b>Idiopathic</b>	85-90%
<b>Infections</b>	
Viral	1-2%
Coxsackie A or B	
Echovirus	
Endovirus	
Herpes (Ebstein-Barr)	
Adenovirus	
Mump	
Mononucleosis	
Varicella	
Hepatitis B	
HIV	
Bacterial	1-2%
Pneumococcal	
Staph	
Strept	
Gram-negative septicemia	
Neisseria	
Listeria	
Legionella	

# The Etiology of Pericarditis

## Infectious Etiology

## Estimated Incidence in Literature\*

Tuberculosis

4%

Fungal (Immune compromised patient)

Rare

Histoplasmosis

Coccidiomycosis

Candida

Blastomycosis

Toxoplasmosis

Amebiasis

Parasitic

Rare



# The Etiology of Pericarditis

Etiology	Estimated Incidence in Literature
Neoplasm	7%
Systemic autoimmune disease (SLE, RA, Scleroderma)	3-5%
After cardiothoracic surgery	Rare
Aortic dissection	Rare
Chest wall trauma	Rare
Adverse drug reaction	Rare
Chest wall irradiation	Rare
Acute myocardial infarction	
Myocarditis	
Uremia- before dialysis	5%
after dialysis	13%
Amyloidosis	
Sarcoidosis	

# Pericarditis: high risk features

Khandaker,MH, et al. Pericardial Disease: Diagnosis and Management. *Mayo Clin Proc* 85(2010): 572-593

- Fever
- Leukocytosis
- Large pericardial effusion
- Cardiac tamponade
- Related to recent/acute trauma
- Oral anticoagulation
- Failure to respond to NSAIDs
- Elevated troponin (myocarditis)
- Relapsing

# Treatment of Pericarditis During Pregnancy

Drug (FDA class)	Crosses Placenta	Adverse Effects	Dose	Breast Feeding
Aspirin (C/D)	Yes	Premature ductal closure Reduced renal blood flow	500-1000 mg every 8 hours before 20 weeks	With caution
NSAIDS	Yes	Premature ductal closure	Before 30 weeks	Yes
Ibuprofen			600 mg every 8 hours	Yes
Indomethacin (C)			25-50 mg every 8 hours	Yes
Naproxen			500-1000 mg every 12 hours	Yes
Prednisone (B)	Limited	Cleft palate, still birth, adrenal insufficiency	10-25 mg daily	Yes
Immunosuppressive Agents				
Azathioprine (D)	Yes	Congenital abnormalities		No
Intravenous immunoglobulin (C)	Yes	None known		Unknown
Cyclosporine (C)	No			
Colchicine (C)	Yes	Fetal: None reported Maternal: gastrointestinal	0.5-0.6 mg twice daily	
Methotrexate (X)	Yes	Fetal death or congenital anomalies		No

# Pericardial Effusion During Pregnancy

Imazio, M, et al Management of Pericardial diseases during pregnancy. *J Cardiovascular Med.*2010, 11: 557

- Incidence: ~40% usually in the third trimester
- Asymptomatic, incidental echo finding
- Often resolves by 2 months post partum

# Etiology of Pericardial Effusion During Pregnancy

Idiopathic

Acute Pericarditis

Collagen Vascular Disease

Autoimmune Disease

Neoplastic

Post irradiation

Post traumatic

Post pericardiectomy

HIV

Pharmacologic

Chronic Myxedema

# Pericardial Tamponade

- Association with pre-eclampsia
- Clinical signs may be subtle
- Treatment should proceed as in the nonpregnant patient

# Etiology of Cardiac Tamponade During Pregnancy

## Acute

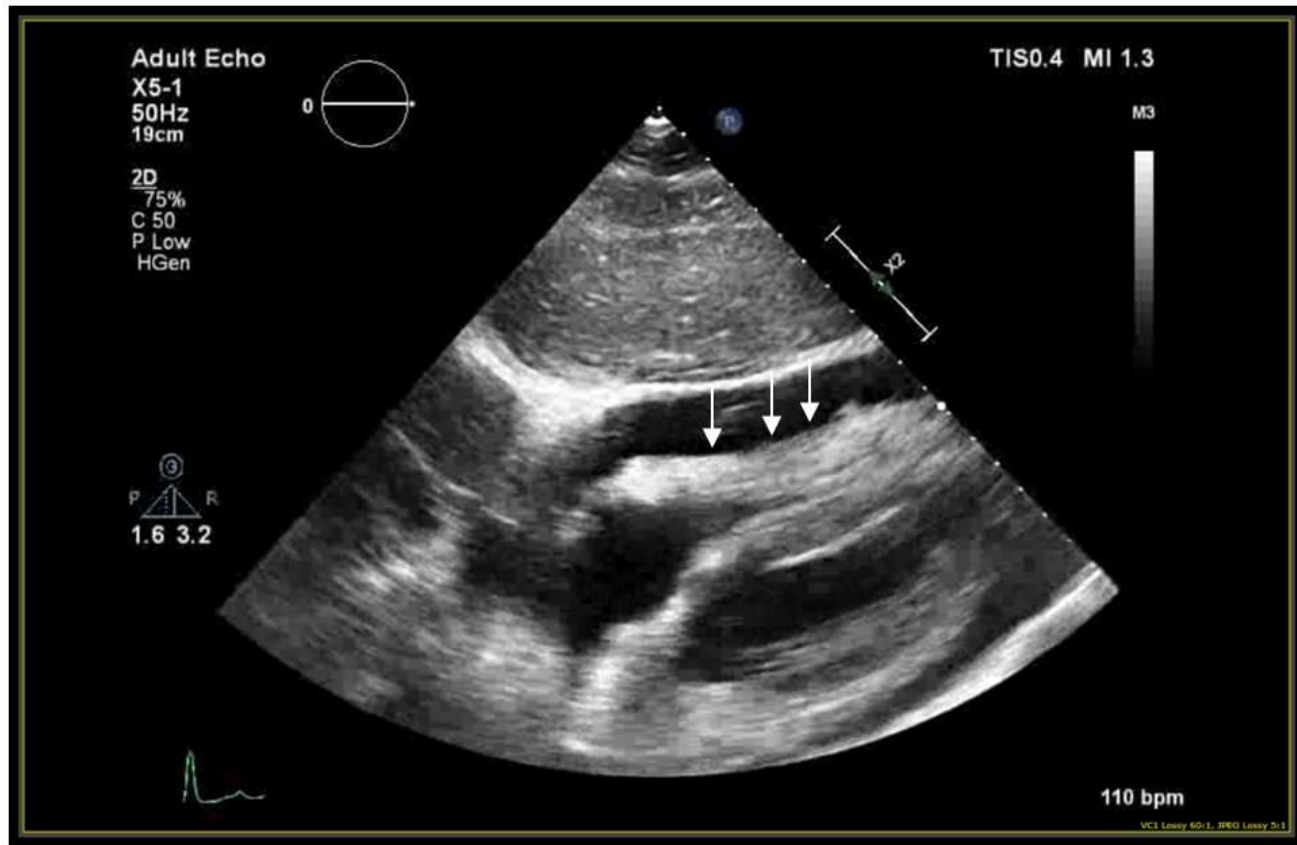
- Trauma
- Aortic dissection
- Cardiovascular rupture

## Subacute

- Iatrogenic
- Pericarditis
- Tuberculosis
- Trauma
- Neoplasm
- Prior irradiation
- Collagen vascular disease
- Post myocardial infarction
- Anticoagulation
- Uremia
- Bacterial infection

# Pericardial Effusion with Right Ventricular Collapse

Hill, T. in ACC CardioSource, 2015





# Constrictive Pericarditis During Pregnancy

- Constrictive Pericarditis v Restrictive physiology associated with a systemic illness
- Manifest in later pregnancy due to volume changes
- Symptoms:
  - severe dyspnea
  - marked lower extremity edema
  - ascites
- Signs:
  - distended neck veins
  - hepatomegaly
- Treatment:
  - diuretics
  - steroids
  - pericardiectomy

# Etiology of Constrictive Pericarditis in a Woman of Childbearing Age

Idiopathic

Pericarditis

Prior cardiothoracic surgery

Neoplasm

Post mediastinal irradiation

Tuberculosis

Collagen vascular disease

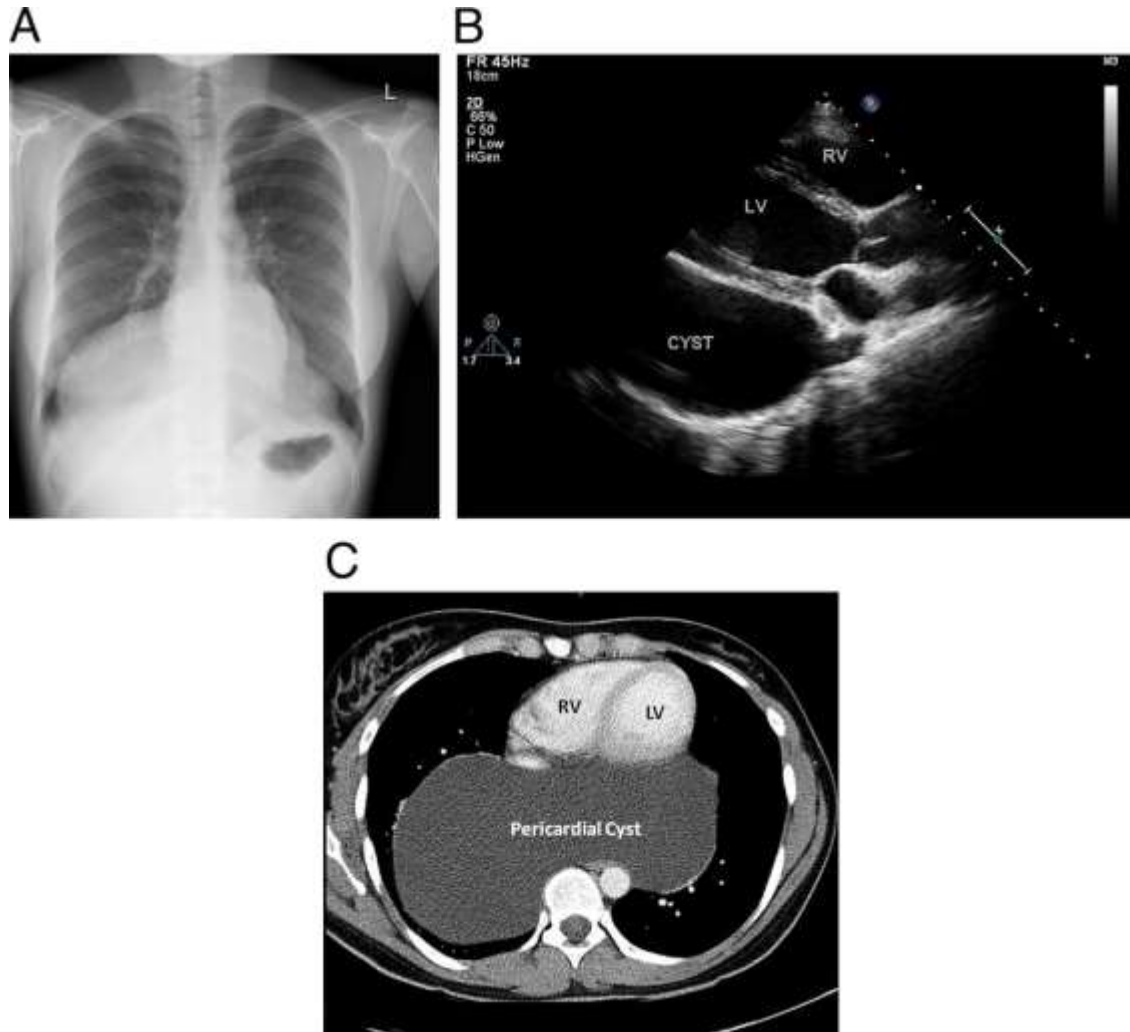
## Features of Constriction v. Cardiac Tamponade

Clinical Features	Pericardial Constriction	Cardiac Tamponade
Timing of Symptoms	Weeks-Years	Hours-Days
Chest pain	Remote history	Common presentation
Pulsus Paradoxus	Often present	Marked
Kassmaul sign	Present	Absent
Neck Veins	Prominent 'y' descent	Absent 'y' descent
Atrial fibrillation	Often present	Absent
Pericardial calcification	Present	Absent
Pericardial effusion	Variable	Present
Intracardiac filling pressure	Equalization, Abnormal septal motion	Cardiac chamber collapse
Echo	IVC and hepatic vein dilation	IVC dilated

# Rare pericardial disease

- Absence of Pericardium
  - Congenital, rare
  - Echo- RA and RV enlarged
  - Closure if symptomatic
- Pericardial cyst
  - Congenital, rare
  - Symptoms from local compression or torsion
  - Risk of rupture

# Pericardial Cyst



Latha Thanneer et al. JACC 2011;57:1784

# Thank You