28th Annual Scientific Congress of the Hong Kong College of Cardiology

Interesting Cases Sharing and Discussion

- the cardiologist's perspective

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TSY, F/18y

Referred for management of heart failure in Oct 2012

History of AML

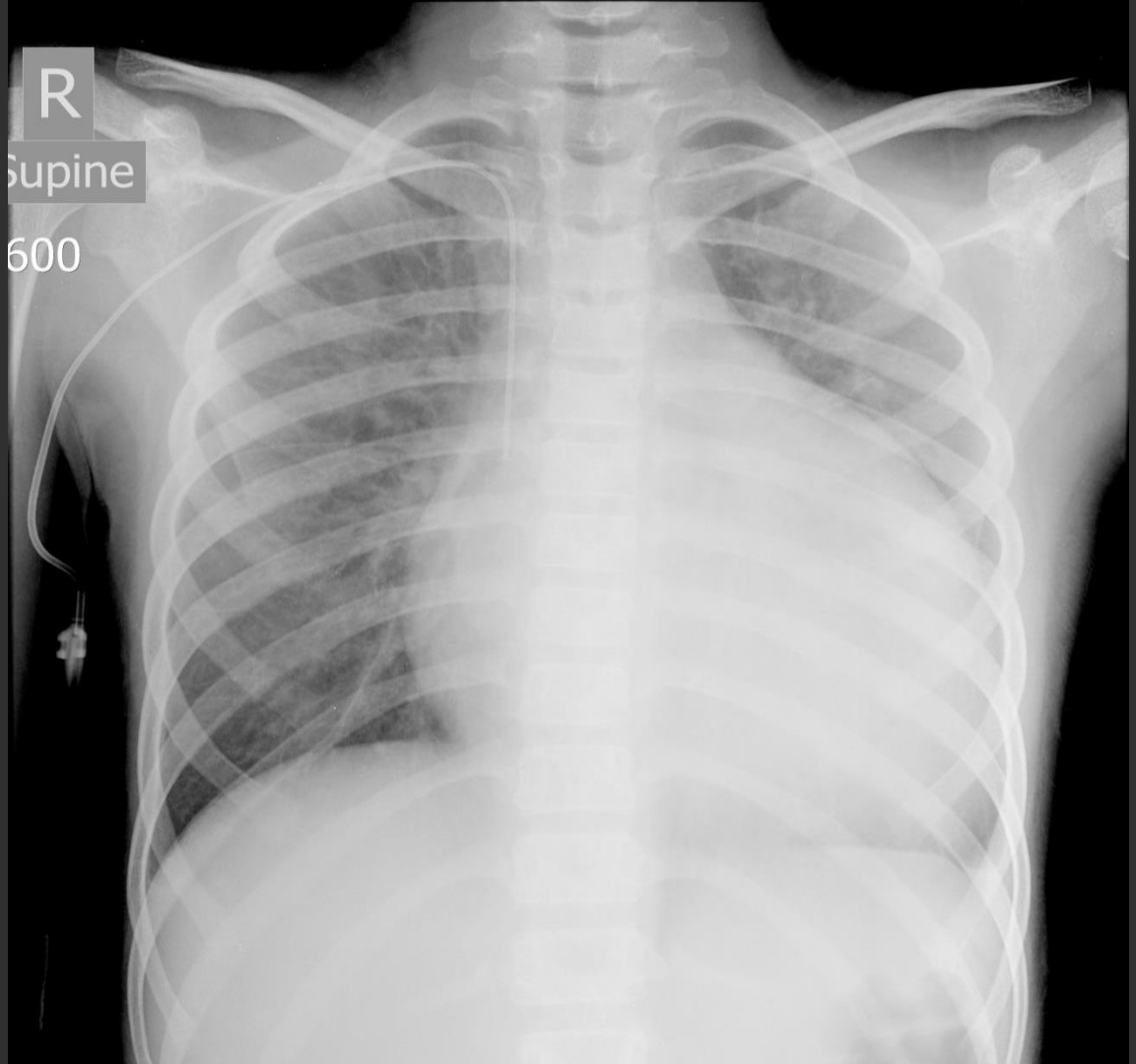
July 2003 (13 months old)

- Myelomonocytic AML diagnosed in July 2003 (13 months old)
- UK AML chemotherapy protocol (Hospital A)
- Pre-chemo echo: normal, FS 27.4%, LVIDd 2.65cm
- Cardiotoxic medications received:
  - Daunorubicin
  - Amsacrine
  - Mitozantrine
- Equivalent doxorubicin 260mg/m^2
- In clinical remission since November 2003 (almost 9 years)
- Otherwise good past health, no family history of cardiomyopathy

Decompensated Heart Failure

Sep 2012 (10 years old)

- Admitted to Hospital B (Regional hospital)
  - Vomiting and diarrhoea x 2 days
  - On & off abdominal pain x 1 month
  - Decrease appetite
  - Puffiness of eyelids
  - Displaced cardiac apex
  - Gallop rhythm, 2/6 PSM at apex radiating to axilla
  - Hepatomegaly
- CXR – CT ratio 0.65


R
Supine
600

Investigations for Cause of HF

- Slight ↑Troponin I (0.16ng/ml)
  (normal up to 0.04ng/ml)
- Normal CK
- Echo : LVEF 30%, moderate MR

Δ ? Acute myocarditis

Δ? Chronic heart disease with decompensation

Initial Management

- Inotropes : Dobutamine (10mcg/kg/min) & Milrinone (1mcg/kg/min)
- Captopril, diuretics
- Transferred to Hospital A PICU after 12 days

Initial Management

Hospital A

- Viral study –ve, metabolic screening –ve
- Tn I 0.2-0.3 ng/ml
- Echo : LVEF 36% , severe MR
- Developed hypotension, nausea and vomiting upon weaning of inotropes

Could not wean off inotrope

Transferred to us after 4 weeks

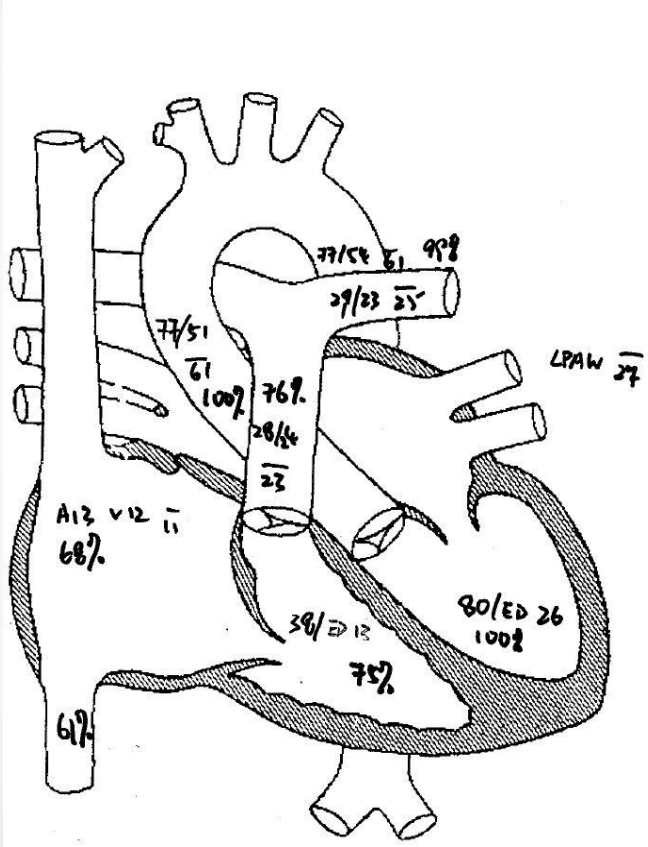
Further Investigations

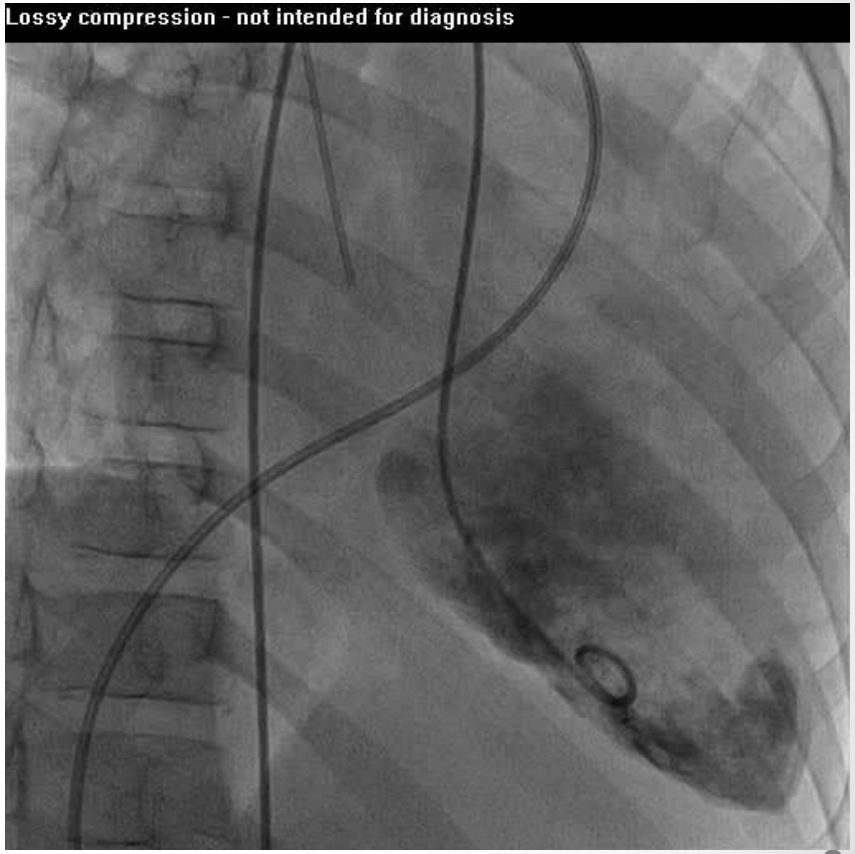
- Echo : dilated LV (LVIDd 5.2cm)

  LVEF ~ 24%, pericardial effusion 4-6mm

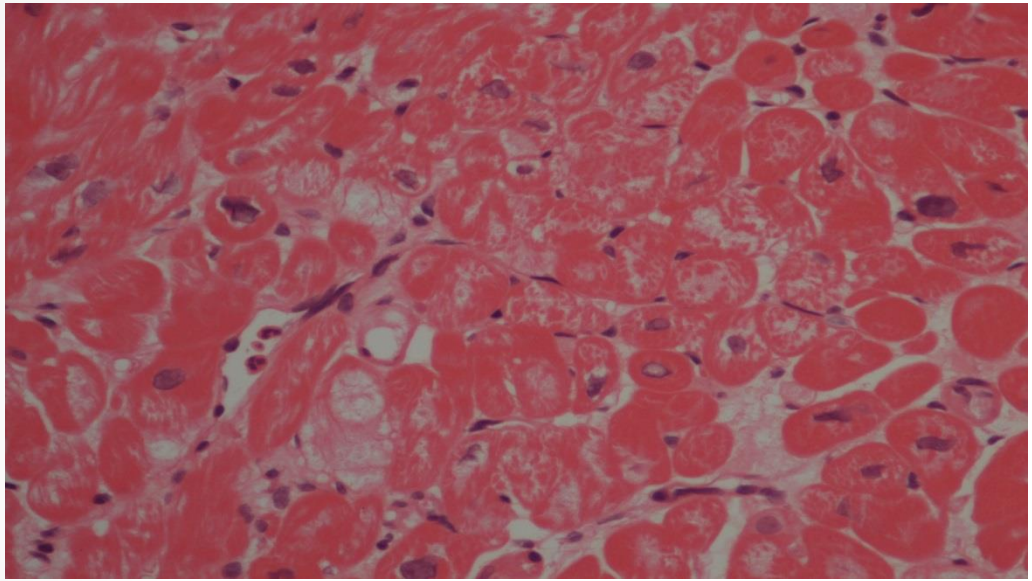
- Borderline BP

Cardiac catheterization





- Endomyocardial biopsy



Courtesy of Dr. WH Shek

Interstitial fibrosis, cytoplasmic clearing suggestive of myofibrillar loss ,vacuolated cells
No significant lymphocytic infiltration

EM : Nonspecific changes

Diagnosis

- No feature of myocarditis
- Although nonspecific, features can be seen in anthracycline cardiotoxicity

∆ Late-onset anthracycline cardiomyopathy

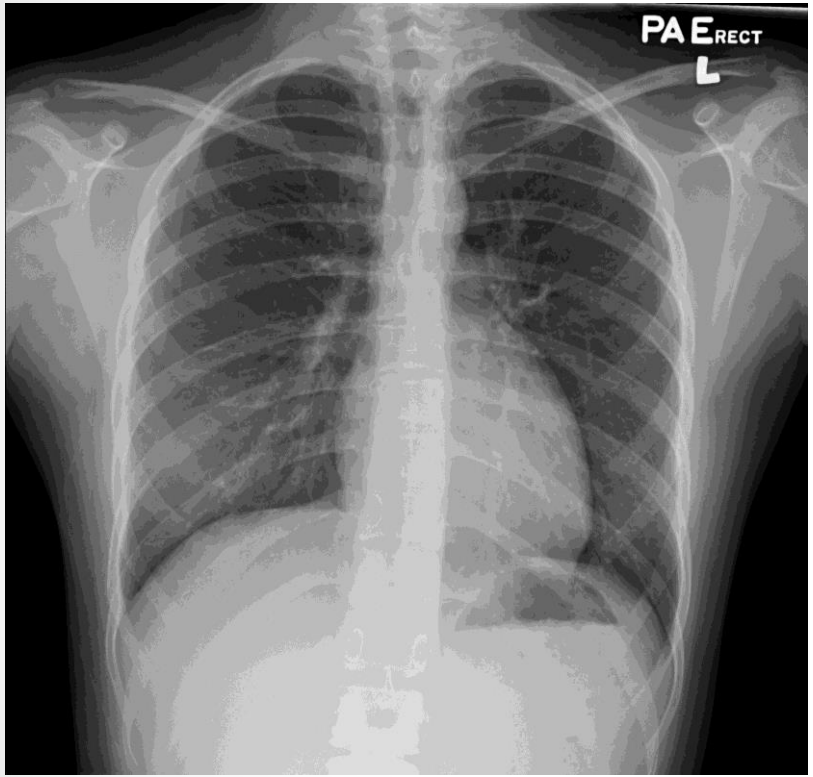
Treatment

- Levosimendan infusion x 24 hours
- Gradually weaned off inotropic infusions
- Discharged 2 weeks after admission
- Medications : Enalapril, Carvedilol, Digoxin, Frusemide, Spironolactone

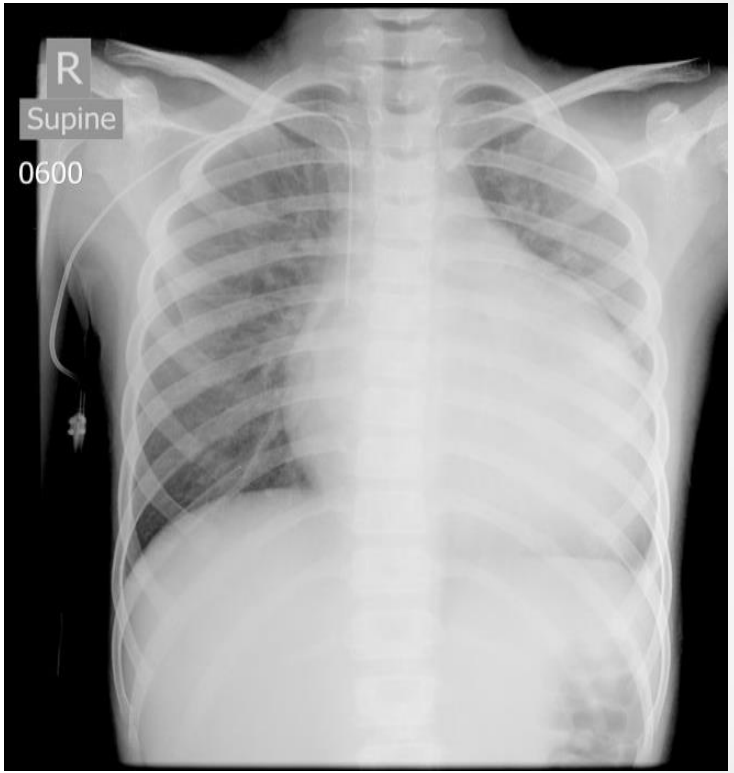
- Functional class I-II on last follow-up
- Can join PE lesson, slowly walk up 5FOS

Date	LVIDd (cm)	LVEF %	MR
18/4/2013	4.3	45	Mild to mod
26/3/2015	4.4	52	Mild
27/12/2018	4.3	54	No
8/8/2019	4.3	56-60	Trace

CXRs



Aug 2019



Oct 2012

Summary

- Late-onset anthracycline-induced dilated cardiomyopathy
- Favorable response to medications
- Functional class IV → I-II
- LV reverse remodeling

WCH, 13y/M

Referred from Macau for post-chemotherapy dilated cardiomyopathy in Jan 2014

History of AML . Post-chemo DCM

- Known AML post chemotherapy complicated with dilated cardiomyopathy
- On multiple antifailure treatment for 10 years (since 2004)
  - Digoxin
  - Captopril
  - Carvedilol
  - Diuretics
- AML in remission, no oncology FU now

Complicated with Stroke

- Severe headache and left sided hemiplegia including left facial palsy in Jan 2014, admitted to hospital in Macau
- MRI brain showed ischemia change in Rt basal ganglion region
- Intensive physiotherapy was given with neurological improvement, regained almost full limb power
- Aspirin was started

Clinically Worsened HF

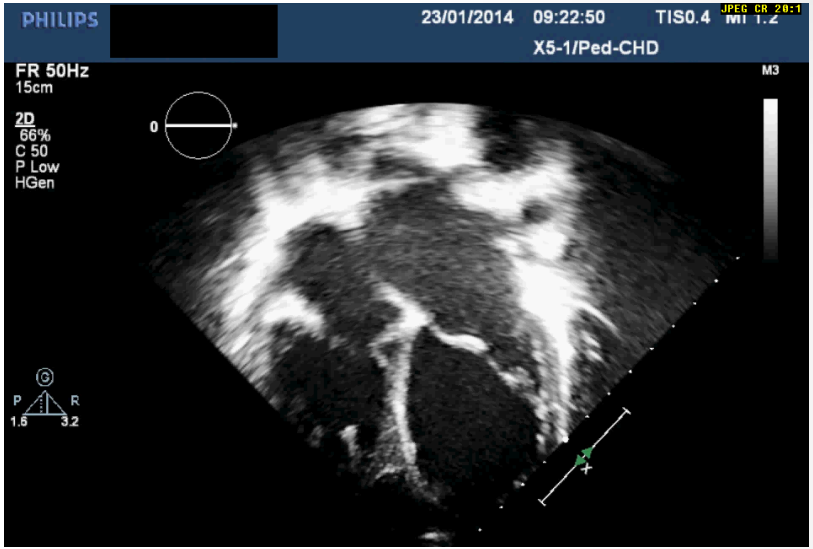
Functional class I-II → III

Physical Findings on admission to our unit

- Displaced apex
- Hepatomegaly 4cm
- Left facial palsy - UMN lesion, other CNs NAD
- Left upper and lower limbs – hyperreflexia, power 5-/5

Investigations

- Echo:



  - Systolic dysfunction: LVEF 30-35%
  - Features of diastolic dysfunction, MV E/A 3.0, E/e' 7.1
- Holter: frequent premature ventricular beats, up to 11% of total, no runs of ventricular tachycardia

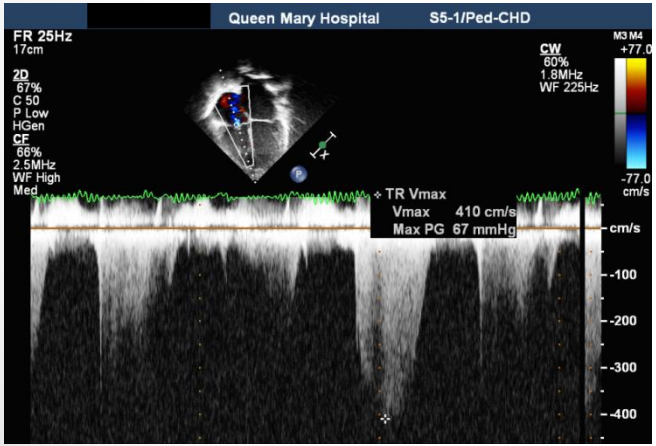
Initial Management

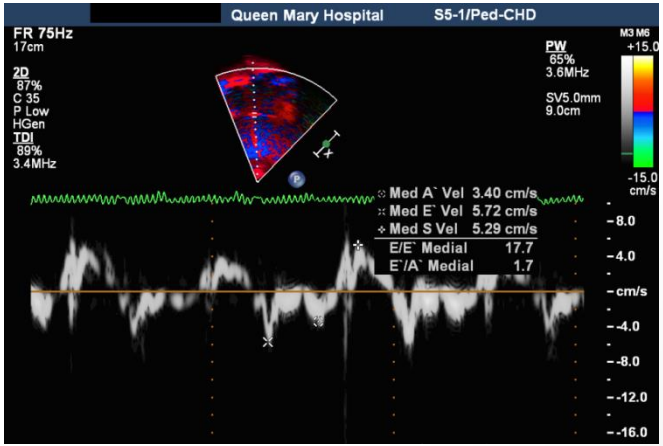
- Inotropic infusion: Dopamine 5mcg/kg/min
- Levosimendan x 48 hours
- Optimized carvedilol, digoxin, enalapril and diuretics doses
- Ventricular ectopics controlled with amiodarone
- Weaned off dobutamine after 2 days
- Discharged after 2 weeks
- Echo upon discharge: LVEF ~43%

Follow-up Echo

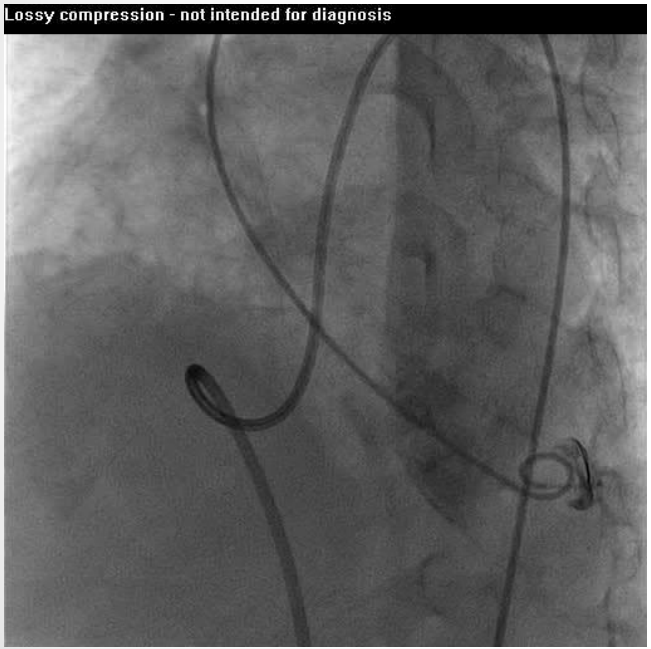
Nov 2015

- Dilated left atrium
- Mildly dilated left ventricle, LVIDd 4.3cm
- Mildly impaired LV and RV systolic function, LVEF~50%, TAPSE 16mm
- Evidence of diastolic dysfunction, mitral E/A 2.6, E/e' 13
- Evidence of pulmonary hypertension, TR gradient 67 mmHg





Cardiac Catheterization



LV Function	LVEF 45.5% LVEDp 26-30mmHg
RV function	Impaired systolic motion RVEDp 13-14mmHg RVSWI 667mmHg/mL/m2
CI	1.8L/min/m2
PASP	70-75% systemic
mPAP	45-48mmHg
PVR/PVRI	7.8-10/ 10.6-13.7

*Unable to tolerate nitroprusside test due to hypotension

Outcome

- Added Sildenafil and Bosentan
- Clinically progressive heart failure symptoms, NYHA class III-IV, SBP lowish at 90-100mmHg
- Received transplantation in mainland China (details unclear), and passed away during early post-operative period

Summary

- Post-chemotherapy cardiomyopathy with prominent diastolic dysfunction
- Poor outcome with progression to pulmonary hypertension
- May require heart or heart-lung transplantation for refractory cases

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- chemotherapy-induced cardiomyopathy

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