Constrictive pericarditis

Etiologies
- TB earlier in the century, most common cause
- Now, most often idiopathic, presumed 2 to idiopathic or viral pericarditis
- Stanford review of 95 pts who underwent pericardectomy ‘70-85:
  Idiopathic 42%, S/p radiation 31% (majority from Hodgkins), S/p CT surgery (mean time 35 months), Post infectious 6%, CTD (RA, Lupus) 4%, Neoplasm 3%, Uremic 2%, Sarcoid 1%

Physical Findings
- Kussmaul’s sign: absence of expected fall in JVP with inspiration. Seen due to failure of intrathoracic pressure changes during respiration to be transmitted to the pericardial space and intracardiac chambers. NOT sensitive for CP, can be see with many kinds of RHF (restrictive, chronic RHF, etc). However, NOT seen with tamponade.
  (Pulsus paradoxicus NOT seen usually, unless pericardial fluid present )
- Signs of RHF - edema, ascites, pulsatile hepatomegaly, effusions
- Knock 3rd heart sound, reportedly higher pitch and earlier than S3, caused by abrupt cessation in diastolic filling. Coincides with rapid Y descent.

Evaluation
EKG: Nonspecific. Low volts sometimes. Afib occasionally
CXR: Shows calcs 50% of the time. One study of 135 pts showed only 27% with calcs. Also, calcified pericardium is not necessarily restrictive.
Echo: Thickening of pericardium. TEE better for measuring thickness of pericardium. Also abrupt post j motion of ventricular septum in early diastole, due to rapid filling of compliant RV. Increased TV velocity due to rapid early diastolic filling.
CT/MR: Both used to evaluate calcifications/ thickness. MRI considered most sensitive for measuring thickness

Hemodynamics
Systolic function is normal
Diastole normal until size limit reached by ventricles -> filling abruptly stops (accounts for dip/plateau) - in contrast to tamponade where pressure are elevated throughout filling cycle

CATH findings:
1) elevation and equalization of diastolic pressures (RVEDP increased (usually 1/3 of RV systolic pressure). LVEDP often higher than RVEDP in restriction. If equal, can try fluid bolus or exercise to attempt separation (LVEDP will rise above RVEDP in restriction but not constriction with this maneu

ver). Not considered sens or spec
2) dip and plateau (“square root sign”)
3) RA with prominent Y descent- appears prom b/c initial atrial pressures are higher, due to constriction. Initial atrial emptying (beginning of Y descent) is unimpaired so Y descent
appears steeper (Y descent BLUNTED in tamponade b/c of external compression throughout the cycle). Sometimes called an “M” or “W” sign

4) Discordance between RV and LV peak systolic ventricular pressures during inspiration (sign of increased ventricular interdependence). At peak inspiration, RV pressure increases when LV pressure is the lowest

**Treatment:**

*Pericardectomy:* Stanford series- 12% mortality. Mayo clinic series- 83% free of clinical sx in “long term”