A Rare Cause of Cardiac Tamponade

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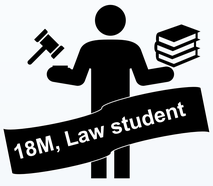
The Presentation

Past medical history:
- Subarachnoid haemorrhage 2022
- NKDA, NSND, no illicit drug use

Family history:
- Maternal grandmother – myasthenia gravis
- Paternal grandfather – thyroiditis



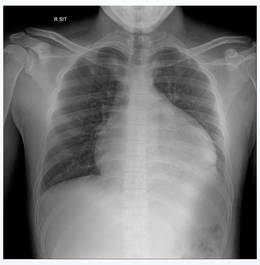
- 1/52 of progressive epigastric discomfort, shortness of breath, abdominal distention
- Travelled to Vietnam 2 weeks prior admission, had minor abrasion on right ankle, required 3 days of antibiotics

Observations:

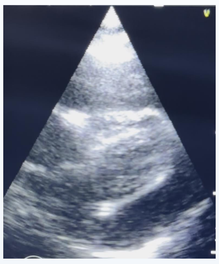
BP 150/50 P116bpm
96% on room air
Afebrile on admission
then 37.8C

Examination:

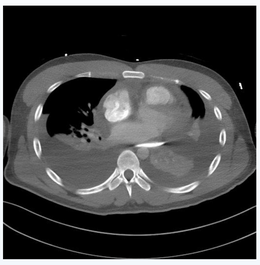
GCS full
JVP elevated
Muffled heart sounds
Distended abdomen
Sweaty and clammy
No pedal oedema
No palpable lymph nodes



CXR: Gross cardiomegaly



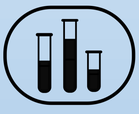
POCUS: 4cm pericardial effusion with tamponade features



CT Thorax, Abdomen and Pelvis: pericardial effusion (drain inserted here), bilateral pleural effusion, mild ascites

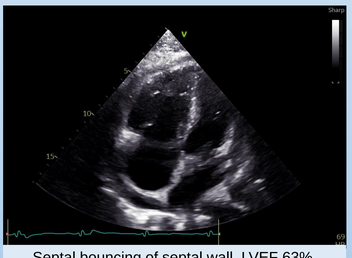
Proceeded to urgent pericardiocentesis, then for bilateral pleural effusion drainage.

The story continues…

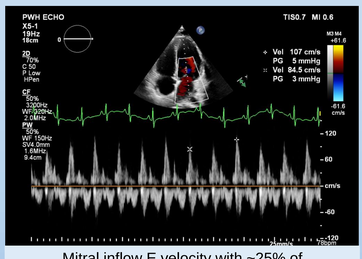


CRP 24 →47mm/hr
CRP 105.9mg/L
Ferritin 1688pmol/l
Trop <14 ng/l
CK 88U/l

NEGATIVE results for:
Microbiology [1]
Autoimmune diseases[2]
Malignancy[3]

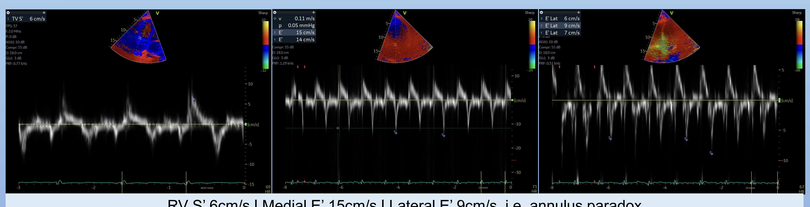


Septal bouncing of septal wall, LVEF 63%, small pericardial effusion



Mitral inflow E velocity with ~25% of respiratory variation

- 2L of blood stained pericardial fluid drained
- Post-drainage on the same day, concerned for septal bouncing and right ventricular enlargement
- Proceeded to formal echo →



RV S' 6cm/s | Medial E' 15cm/s | Lateral E' 9cm/s, i.e. annulus paradox

Diagnoses:
1. Effusive constrictive pericarditis
2. Idiopathic serositis with pericardial, pleural and peritoneal involvement

Effusive constrictive pericarditis

- 2.4% to 14.8% in literature
- Features consistent with constrictive pericarditis persisting after drainage of pericardial fluid

Echo features:
- ↑ right atrial pressure of >10mmHg or decline by <50% after pericardiocentesis
- Respiration-related ventricular septal shift
- Preserved or increased medial mitral e' velocity (>lateral e' velocity), pulsus paradoxus
- +/- Pericardial thickening
- E/A >1.5
- For 'constriction', >25% respiratory variation in mitral inflow

Idiopathic Serositis

- Inflammation of serous membranes – pleural, pericardial, peritoneal fluid
- Ruled out infective, autoimmune causes
- Autoinflammatory, from a dysregulated immune response
- Raised CRP and ESR

Treatment options:
1. NSAIDs and colchicine
2. Immunosuppressive therapy
3. Surgical intervention, e.g. pericardiectomy

* Use of steroids is associated with a high rate of relapse when steroids were stopped or tapered

How the story goes…

COLCHICINE + IBUPROFEN

Tapering regime x 3 months

Repeated echo 1 month later:
- No further septal bouncing
- Medial E' 13.1, lateral E' 17.4
- No respiratory variation with mitral of tricuspid inflow
- Resolved pericardial effusion

Back to university!

Take home message

- POCUS may be extremely helpful in monitoring the progress of pericardial effusion, and subsequent sequaele after drainage
- Although less common, effusive constrictive pericarditis is an important differential diagnosis for worsening clinical condition despite pericardiocentesis
- Anti-inflammatory medications are very useful in the treatment of both effusive constrictive pericarditis, and serositis

References:

1. Welch T, Ling L, Espinosa R et al. Echocardiographic diagnosis of constrictive pericarditis. Circulation. 2014;7:526 – 534
2. Al-Saiegh Y, Spears J, Barry T et al. Diagnosis and treatment of effusive-constrictive pericarditis: a case report. European Heart Journal – Case Reports. 2021; Vol 5, Issue 5
3. Massaro MG, Rigante D, Sicignano LL et al. Therapeutic management of idiopathic recurrent serositis: a retrospective study. European Review for Medical and Pharmacological Sciences. 2020;24:3352 – 3359
4. Roy MTHM, Loh CH, Siranganthan M et al. Idiopathic recurrent serositis – Off the beaten track. Respiratology Case Reports 2021; 9(11):e0809

Footnotes:

[1]Negative or unremarkable microbiology investigations include:
Bacteria/AFB/fungal culture, enterovirus, rhinovirus, influenza A/B/C, smear AFB, AFB culture, human metapneumovirus RCA, parainfluenza virus 1/2/3/4 RCA , nCOV, coxackievirus, proteus OX, HIV, treponema pallidum Ab, EIA chlamydia sp Ab, mycoplasma Ab, HbsAg, Anti-HCV, monospot
[2] Negative or unremarkable autoimmune investigations include:
ANA, ANCA, Anti-ENAE, Anti-dsDNA, Anti-cytoplasmic antibody, rheumatoid factor, Anti-B2GP1, Anti-cardiolipin, TSH 4.61mIU/L, T4 16.6 pmol/l, paraprotein, Ig pattern, G6PD normal, paraprotein, Ig pattern
[3] Negative or unremarkable malignancy investigations include:
AFP, Beta-HCG, CEA, PSA – all normal range
PET-CT unremarkable for malignancy