THIS WEEK
Case of the Week – Pericardial effusion with tamponade
Sialoadenitis
Next week’s case
Joke of the week

Case of the Week – Pericardial effusion with tamponade

A 68-year-old man with a history of previous melanoma presents with progressive lethargy and dyspnoea.

On examination he is tachycardic and hypotensive. His chest is clear to auscultation, heart sounds are dual with no murmurs and soft.

CXR shows small bilateral effusions with otherwise clear lung fields, and the heart size is the upper limit of normal.

A parasternal view of his echo is seen below.

Question 1 – What does the Echo show.
The echo shows a large pericardial effusion.

Question 2 – What are the causes of a pericardial effusion.

- Idiopathic (majority of patients fit into this category)
- Neoplastic (Metastatic – Lung & Breast, Hodgkin’s Lymphoma, leukaemia, melanoma)
- Trauma
- Cardiac (Myopericarditis, Dressler’s Syndrome, Aortic Dissection)
- Metabolic (Hypothyroidism, Uraemia, Ovarian Hyperstimulation Syndrome)
- Autoimmune (Lupus, RA, Vasculitides, Scleroderma, Connective Tissue Disease, Wegener’s Granuloma, PAN, Sarcoidosis, IBD, GCA, Behcet’s Disease, RF)
- **Infections** (coxsackie virus, echovirus, adenovirus, EBV, CMV, influenza, varicella, rubella, HIV, hepatitis B, mumps, parvovirus, staphylococcus, streptococcus, pneumococcus, haemophilus, neisseria, chlamydia, legionella, tuberculosis, salmonella, mycoplasma)
- **Radiation** (post radiotherapy)
- **Drug’s** (procainamide, isoniazid, hydralazine, anticoagulants, thrombolytics, phenytoin, penicillin, phenylbutazone, doxorubicin, methysergide)

**Question 3 - How does it present?**

The presentation of patients with pericardial effusion largely depends upon the size of the effusion, the length of time over which pericardial fluid accumulates and the clinical situation:

- **Acute Presentation** (examples — trauma, aortic dissection) shock, chest pain, dyspnoea, tachypnoea, elevated JVP, muffled heart sounds.
- **Subacute Presentation** (examples - neoplastic, uraemia, idiopathic pericarditis) – present with heart failure, SOB, peripheral oedema, fatigue. These tend to be larger as they gradually increase in size and the pericardium has time to compensate.
- Tachycardia is often seen. Can be bradycardic with hypothyroidism. Normal HR if – absent if small size or early presentation.
- JVP is almost always elevated if large effusion with tamponade.
- Pulsus paradoxus – a decrease in systolic blood pressure (>10 mmHg) on inspiration is a common finding in effusions with tamponade.

**Question 4 – What Investigations are useful?**

**CXR** (cardiomegaly may only be seen if there is greater than 200 mL)

**ECG**

- Sinus tachycardia
- Low voltage
- Pulsus alternans
- Pericarditis

**Echo**

- Start with transthoracic, consider TOE if inadequate study.
- Some effusions can be complex and loculated, and can be difficult to visualise.
- Not all effusions are abnormal; in fact small effusions may be normal in elderly females.
- Left pleural effusion can be confused with a pericardial effusion.

**Diagnosis of Cardiac Tamponade**

- Pericardium can tolerate up to 100 mL, before pressures start to increase exponentially. This volume may be indicated by circumferential pericardial fluid width of > 10 mm.
- RV and RA collapse
- Dilated IVC with no collapse on inspiration (raised RAP)
CT
- Often first diagnosed on this modality.
- Distension of SVC, IVC & hepatic veins
- Deformity and compression of cardiac chambers, bowing of septum.
- Reflux of contrast into azygos vein and IVC

Question 5 – How do you treat it?
- Treat underlying condition
- Small to moderate effusions may not need any treatment
- Decision to drain should be based on clinical assessment, echo findings and complications of procedure
- Tamponade with haemodynamic compromise requires urgent pericardiocentesis.
- Pericardiocentesis is not advised in effusions less than 1 cm in depth. Consider surgical pericardiectomy in traumatic injury.
- Volume expansion can be used as a temporising measure (500 mL NS fluid challenge)
- Value of inotropic support is unclear.
- Avoid positive pressure ventilation as it can reduce preload.

Sialoadenitis
This section and case is from the website: www.auntminnie.com

It’s an American Radiology website – it’s title is based on the Americanism for “Aunt Minnie Could See That”. It’s free to register and regular cases with questions are sent to you. Check it Out!

32-year-old male patient presents with 2 days of progressive submandibular pain, swelling and fevers. He has no significant medical history, is on no regular medication and is a non-smoker.

On examination, he has a temperature of 37.8 C. There is erythema and a tender swelling in the submandibular region especially on the right. His tongue is elevated with what you suspect is an abscess on the right. On palpation of the sublingual region you feel a hard, round well demarcated swelling anteriorly which is not attached to the mandible.

What are your differentials? Investigations? Treatment?

The patient had a FBC, BC and BSL taken. A CT of the floor of the mouth was also performed – note the asymmetry of the floor of the mouth secondary to the right sided masses. The anterior calcified
mass is a calculus, the low density area behind that is an abscess, and the high density area pointed out by the most posterior arrow, is a swollen right submandibular gland.

He was admitted for excision of the abscess and calculus, IV antibiotics and analgesia.

- A sialolith is a calcification within a salivary duct.
- Nearly 85% of sialoliths will be found in the submandibular duct as the duct is long and tortuous, also known as Wharton’s duct. A sialolith can also involve the parotid duct (10%) and sublingual duct (5%).
- These can be complicated by infection and abscess formation with purulent discharge seen at the meatus.
- The patient can experience severe pain, swelling, erythema, and fever. These symptoms are often worse after eating.
- The parotid meatus is situated at the level of the 2\textsuperscript{nd} upper molar tooth and the submandibular meatus enters under the tongue anteriorly.
- Treatment consists of stone removal and supportive care for pain and infection.
- Uncomplicated sialolithiasis is treated symptomatically – some texts suggest tart lozenges to encourage salivation. Most stones pass spontaneously.
- Stone removal can be performed by manual expression – milk the stone with your index finger and thumb. The meatus may need to be enlarged with the use of a needle. Failing this, endoscopy or surgical excision can be performed.
Photograph’s above show a calculus in the parotid duct with purulents discharge at the meatus (left), and swelling of the parotid gland (right).

**Radiologic Testing:**

**Radiographs**

- 80-90% of submandibular and 50% of parotid sialoliths are radio-opaque

**Ultrasound**

- Limited utility in stones less than 2-3 mm in size

**CT Scan**

- Identifies small stones
- Good evaluation of duct and gland for signs of infection
- Identification of complications (abscess formation)

**Sialography**

- Evaluation of obstruction aetiology (stricture, obstructing mass, or sialolith)
- Digital subtraction technique is optimal.
- Sialography is contraindicated in cases where the duct or gland is thought to be infected, as there is a risk of dissemination of bacteria.

**Key points:**

- Patient usually presents with pain and swelling, often worse after eating.
- Sialolith causes obstruction and often infection.
- Sialography is contraindicated with infection.

**NEXT WEEKS CASE**

The resident comes to you and says “the d-dimer is positive on the man in bed 1. What do you want to do?”

What does the d-dimer results mean?
Tiger had reached that age when you just never know.