YLLSoM Seniors Teaching Initiative
M3 Programmes AY14/15

CASE-BASED SESSION 5

Case 1: 70 year-old gentleman who presents with lower limb swelling

A 70 year old man, Mr Lim, presents with lower limb swelling. The swelling started 2 weeks ago and has been bothering him since.

Q1) What are the etiologies of lower limb swelling?

Q2) What will you ask on history taking?

He reveals that he has this leg swelling for the last 2 months, and they got progressively worse. Currently, it is up to the level of his knee bilaterally. It is not painful, nor erythematous.

Upon review of systems, he has frothy urine, polyuria and polydipsia. There is no chest pain, exertional dyspnea, orthopnea, paroxysmal nocturnal dyspnea, jaundice, bruising and abdominal distension.

He is unclear about his past medical history, but vaguely remembering having diabetes mellitus type 2, hypertension and hyperlipidemia for the last 10 years. His last appointment with the doctor was 2 years ago and he defaulted the other appointments (citing the high costs of each consultation).

He has no known drug allergies. He is on various oral medications and is uncompliant to them. He cannot remember what medications he is on.

He smokes approximately 10 cigarettes a day for the last 30 years. He stays with his friend in a rental apartment.

Q2) Which features would you look out for on physical examination?

His vitals signs are:

BP	160/110mmHg	PR	80bpm	RR	518
SpO2	100% (room air)	Temp	Afebrile		

Physical examination

- *General appearance: Obese gentleman who is comfortable and alert; conjunctiva pallor present, no asterixis or pronator drift*
- *Cardiovascular: Normal heart sounds heard with no deviated apex beat, no murmur/gallops/rubs heard, jugular venous pressure not raised*
- *Lungs: Equal breath sounds heard with no adventitia breath sounds*
- *Abdomen: Soft and nontender with no organomegaly; normal bowel sounds heard; no shifting dullness; no renal bruit heard*

- *Neurological: Peripheral neuropathy (gloves and stocking distribution)*
- *Extremities: Pedal edema up to the knee, diabetic dermopathy seen over the shins*

Q3) What is your diagnosis? Explain your answer.

Q4) What investigations would you like to order?

His laboratory results read:

Hb	*10.3*	*Na*	*142*	*LDL*	*5.2*	*Ca*	*1.6*
WBC	*7*	*K*	*5.2*	*HDL*	*0.8*	*PO4*	*3.2*
Plt	*280*	*Cl^-*	*99*	*TG*	*2*	*PTH*	*↑*
MCV	*75*	*HCO_3^-*	*20*	*HbA1c*	*8.3 %*	*Vit D*	*low*
		Cr	*300*				
		Urea	*8*				

His baseline Cr (2 years ago): 150.

Q5) Interpret the laboratory findings.

Q6) What is the definition of CKD?

Q7) What is the aetiology of CKD in this patient? What other aetiologies can you think of? Name 4 more.

Q8) What are the complications of renal failure? For each complication, explain the pathophysiological basis of these complications.

	Primary Hyperparathyroidism	Secondary Hyperparathyroidism	Tertiary Hyperparathyroidism
Calcium	↑	↓/N	↑
PTH	↑	↑	↑↑
Phosphate	↓	↑/N	↑

Q9) How would you manage Mr Lim's chronic kidney disease? Outline the key management principles. Name 5.

Q10) What are the types of dialysis?

Q11) What are the complications associated with transplantation?

Case 2: 35-year old Indian with Fever and Rash

Mr Ravi is a 35-year old construction worker from India with no significant past medical history. He presents with a 3-day history of high fever (Tmax = 39.5), polyarthritis, and a confluent erythematous rash with islands of sparing.

Q1) State the most likely diagnosis

Q2) What confirmatory tests would you like to do

Four days later, his fever subsides. However he now complains of abdominal pain and his BP is 92/50. He was transferred to ICU and aggressively resuscitated. 12h later, the nurse calls you for 'poor urine output' – 30ml in 12 hours via catheter.

Q3) What would you do at the bedside, and what investigations would you order?

You order some preliminary blood tests and the results are:

Hb	*13.5*	*Na*	*125*	
WBC	*10*	*K*	*6.5*	
Plt	*70*	*HCO3-*	*18*	
Hct	*55 %*	*Cl-*	*95*	
Urea	*12*	*Cr*	*240*	*(baseline Cr 70)*

Q4) Interpret the blood tests and formulate a problem list.

You note that the on-call MO had ordered some NSAIDs PRN as he was complaining of myalgia. His catheter appears to have zero output now.

Q5) Suggest three possible causes for the rise in creatinine and your approach to differentiate them.

Q6) How would you manage this patient?

Q7) What are the indications for emergent dialysis in this patient?

Case 3: 56 year-old woman with acute onset of chest pain

A 56 year-old woman presents to the emergency department complaining of severe pain in her chest over the last 1 hour.

Q1) What are the differential diagnoses for her chest pain that you would have in mind?

Q2) Take a history of her chest pain. What are the questions that you would like to ask?

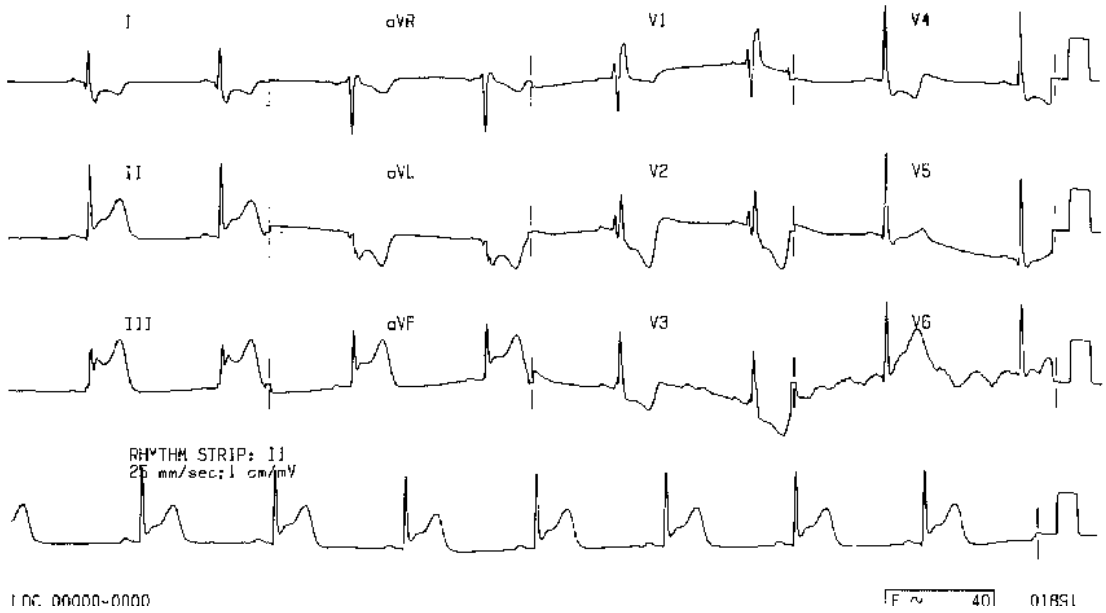
She describes the pain as a pressure that is not relieved by rest or by changes in position. She took ibuprofen at home without relief. She also complains of nausea that began shortly before the onset of jaw and neck pain. On further questioning, she admits to a heavy feeling in her chest, which she describes as a squeezing or crushing sensation. She had previous episodes before, but each resolved spontaneously. Pain this time is significantly worse.

Q3) Perform a relevant physical examination. What would you like to look out for?

On Physical Examination

- *General inspection*
  - *Patient is conscious, but slightly lethargic*
  - *Vitals: BP 100/60, PR 120, RR 30*
- *Peripheries*
  - *Sweaty palms, slight trembling*
  - *Cold peripheries*
  - *Pulses are weak and irregular*
  - *JVP is elevated*
- *Auscultation*
  - *Holosystolic murmur heard*
  - *Bibasal crepitations heard*

Q4) How would you investigate this patient?



Q5) Interpret this ECG. What are the abnormalities?

You have diagnosed STEMI. A PCI was subsequently done for this patient. On POD4, while in the coronary care unit, the patient develops chest pain worse on inspiration, associated with coughing. The pain was localised. She also complains of difficulty breathing. The Sp02 is now 88% on RA. Her BP is 140/80 mmHg, HR 120 beats per minute. RR was 25.

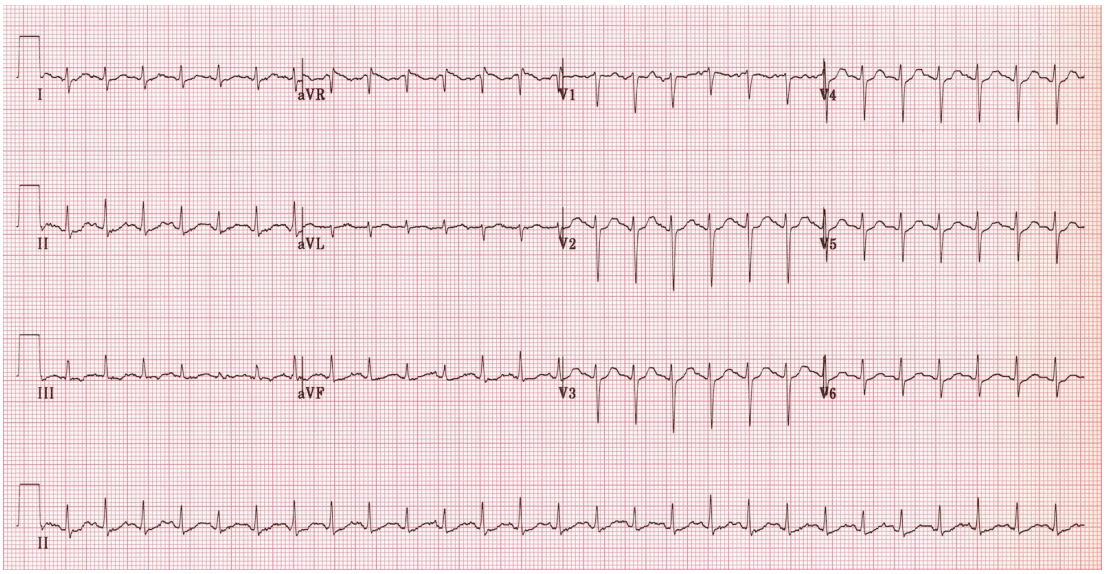
Q7) What differential diagnosis do you think of now?

Q8) What would you look out for in your physical examination?

Physical examination revealed: normal heart sounds heard with no murmur, gallops or rubs. There were no radial-radial or radial-femoral delay. There was equal breath sounds heard with no adventitial breath sounds. There was no pedal edema or tenderness of the lower extremities.

Q9) What investigations would you order?

ECG was performed.



Troponins 0.09 (< 0.01 ng/mL)

Q10) What is the most likely diagnosis? What are other ECG findings in patients with this condition?

Q11) Why are troponins raised?

Emergency CT Pulmonary Angiogram confirmed the diagnosis of Pulmonary Embolism.

Q12) What are the treatment options for Pulmonary embolism?

Your medical student wonders if there are antidotes to heparin and warfarin.

Q13) How would you treat a heparin overdose? A warfarin overdose? How do these therapies work?

Case 4: 13 year-old girl with bruises and pallor

A 13 year old girl presents to the clinic with symptoms of fatigue, exertional dyspnea, and palpitations. Her symptoms have been getting worse over the past 6 months. You notice that she has many bruises on her body and that she is very pale.

Q1) What are some possible differential diagnoses?

You wonder whether she has a bleeding disorder.

Q2) What types of bleeding disorder are there? What questions would you ask to distinguish between the different types of disorder?

Q3) What other relevant history would you ask for?

You find out that her onset of menarche was 9 months ago. Her periods have come every 28 days for the past 6 months and have been very heavy, lasting for over 1 week and overflowing her sanitary pads. She has experienced easy bruising since a young age. Sometimes, when she knocks herself hard there develop painful hard masses in her muscles. There are no other bleeding manifestations. The fancy new POCT you have in your clinic gives her Hb as 7.5g/dL.

Her mother tells you that her mother(the child's grandmother) also had easy bruising. She passed away at 40 years old from 'brain bleeding' after an apple falling from a tree knocked her head. Her mother mentions that out of the 8 children she has (4 boys and 4 girls), only this child and one of her brothers have experienced easy bruising. No other members of the extended family have been similarly afflicted (Her husband, husband's parents, and husband's sister are well. Her brother and sister are both well).

Q4) What are some possible differential diagnoses?

Q5) Draw a family tree. What mode of inheritance is this?

Your MO tells you that this patient might have von Willebrand disease type 2N. He says that the main differential is Hemophilia A but that 'it does not affect girls'.

Q6) What is von Willebrand disease? What is Hemophilia A? What is the difference between the two? Can Hemophilia A affect girls?