CASE REPORT

R1吳冠蓉/V.S王瑞芳

102.10.02

Case 1-Basic data

- Gender: 28-yo male
- Date: DAY1 00:41 am
- C/C: 呼吸短促, 昏倒, 發燒
- TPR: 39/123/24 BP:106/58
  SpO2: 96% GCS: E4V5M6
- Triage: 2

Present illness

- 大約7:00 pm不知為何昏倒在廁所又自己醒來, 在ER之前有燒
- Cough(-), RN(-), dysuria(+), flank pain(-)
- Right side inguinal area pain
- SOB(+)/ hyperventilation

History

- Medical hx: seizure, carbamazepine use,
  自訴以前都是小發作和這次不同
- Allergy: NKA

Physical Examination

- Consciousness: clear
- HEENT: neck supple, no throat erythema, no throat pus
- Chest: clear breathing sound
- Abdomen: Soft, no tender
- Extremities: warm

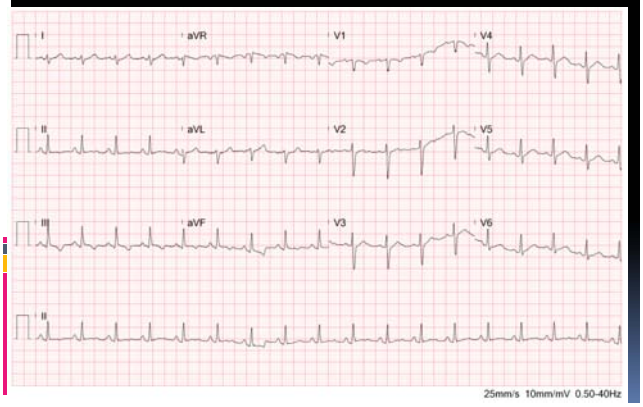
Impression

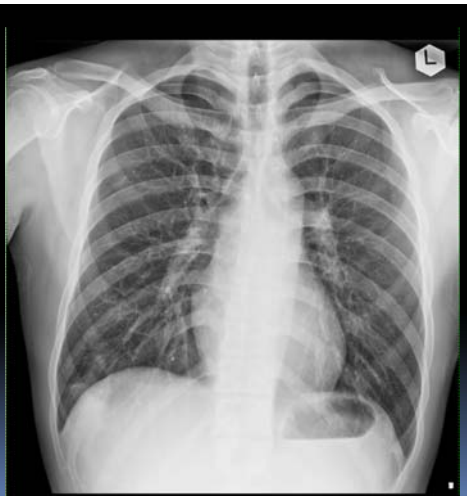
- Fever, syncope cause?
- Epilepsy history

Order DAY1 05:49am

- KTP 1amp IM ST
- N/S run 120ml/hr
- Ammonia
- ABG4
- B/C x II
- WBC/DC/Hb/PLT
- Panel I, CRP
- Carbamazepine level
- U/A
- CXR
- EKG

pH	7.512
pCO_2	32.7
pO_2	51
BE	3
HCO_3	26.2
TCO_2	27
SO_2	89%
Lactate	13.9





lab

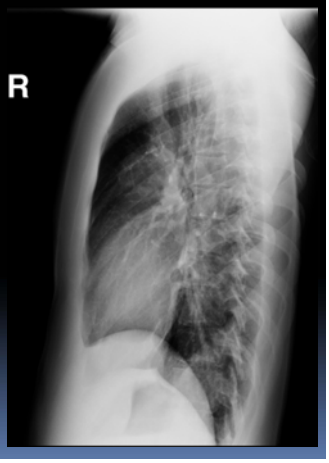
檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
Hb	13.8	gm/dl	13.000	18.000	
WBC	9.0	x1000/ul	3.800	10.000	
Differential count	**********				
Segmented Neutro.	77.6	%	37.000	75.000	*H
Lymphocyte	13.9	%	20.000	55.000	*L
Monocyte	8.0	%	4.000	10.000	
Eosinophil	0.3	%	0.000	5.000	
Basophil	0.2	%	0.000	2.000	
Platelet	228	x1000/ul	140.000	450.000	

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
Glucose	182	mg/dL	70.000	110.000	*H
GOT(AST)	69	U/L	5.000	35.000	*H
BUN	14	mg/dL	8.000	20.000	
Creatinine	0.9	mg/dL	0.500	1.300	
Na	134	meq/L	133.000	145.000	
K	4.7	meq/L	3.300	5.100	
eGFR	100.48				
CRP	4.320	mg/dL	0.000	0.500	*H
Ammonia	80	ug/dL	19.000	94.000	

檢驗項目名稱	檢驗值
Sediment	**********
RBC	1-2
WBC	0-1
Epithelial cell	1-2
Cast	Not Found
.cast-amount	-
Crystal	Not Found
.Cry-amount	-
Bacteria	+
Others	Not Found

order

- 01:25 O2 mask 6L/min
- 02:08 R't lateral view CXR



Bed-site echo 02:45

- RLL shred sign(+), c/w pneumonia
- Minimal pericardial effusion, nature?
- LV>RV, good contractivity
- No CBD dilate, no ascites
- No hydronephrosis, no obvious mass

Order 02:48

- Influenza test
- Avelox 400mg IV QD and ST
- 補 troponin-I
- 排Chest 床
- 待轉EC

Chest tightness

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
Troponin I	0.713	ug/L	0.000	0.500	HH

Influenza A antigen Negative
Influenza B antigen Negative

Order

03:59
- Consult 總值
- On monitor
- PCT(negative)

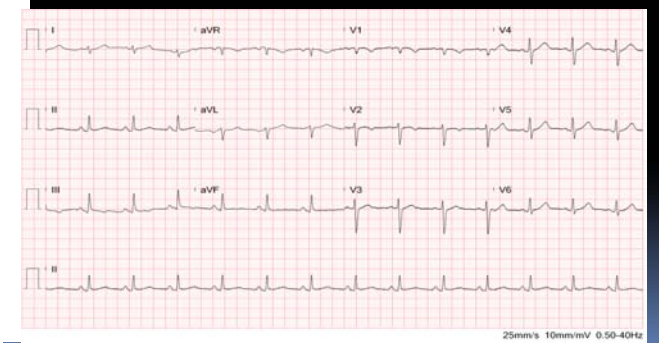
Syndrome X? Myocarditis
TPR:36.5/83/18 BP:96/54, SpO2:96%

04:13
- IV on lock
- Troponin-I, EKG at 05:00

04:30
- Idofen 20ml TID PO and ST

r/o pericarditis or Myocarditis, pt 現在不太痛>NSAID use

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
Troponin I	0.803	ug/L	0.000	0.500	HH



Order 06:20

- Troponin-I , CRP at 08:00
- 改CV admission

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
Troponin I	0.713	ug/L	0.000	0.500	HH

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Troponin I	0.803	ug/L	0.000	0.500	HH

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
Troponin I	0.702	ug/L	0.000	0.500	HH
CRP	3.680	mg/dL	0.000	0.500	*H

order

09:19
- Heart echo

09:55
- Hold Avelox(Allergy)

10:05
- DC monitor
- 排一般病房
- DC O2 use

11:10
- DC Avelox

15:55
- Curam 1tab BID PO x3days

16:50
- Admitted to ward

Heart echo

1. Dilated RA, RV
2. Mild MR
3. LV septal diastolic D shaped with preserved LV systolic function
4. Dilated RV, with relative poor RV systolic function
5. Moderate TR with PG 35mmHg
6. IVC size: 1.0cm
7. No obvious intracardia shunt was noted

Dilated RV, cause ARVD pul HTN

Admission CV

- Tentative diagnosis:
  - Syncope, dilated RV
  - r/o myocarditis and pericarditis.
  - r/o pulmonary hypertension
  - r/o arrhythmogenic right ventricular dysplasia

Present illness

- medical history of epilepsy (absence type) under Tegretol treatment and never attack for about 10 years.
- He was 2周前踢沙包跟跑步10km,隔天後右腳開始腫,腫了一個禮拜後admitted in 中國附設醫院 on 1-3 due to fever and right calf swelling
- CRP:7.5 mg/dL was told and antibiotic was prescribed.
- His right calf swelling was subsided in 3 and discharged.

Present illness

- Still intermittent fever
- syncope for 30 second during stool passage(Valsava maneuver)
- After the episode, he had general weakness, nausea, chest tightness and dyspnea

Admission course

- Consult neurologist
- Impression: syncope, r/o cardiogenic, VBI, vasovagal syncope; less likely seizure attack
- Plan:
  - Arrange ECD to r/o VBI
  - Arrange EEG, consider 24hr Holter
  - Keep Tegretal 1tab bid due to no obvious seizure attack for more than 6+months

Admission course DAY2

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
C3	126.0	mg/dL	79.000	152.000	
C4	24.80	mg/dL	16.000	38.000	

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
HDL-C	**********		99999.999	99999.999	
HDL-c	41	mg/dL	29.000	67.000	
T-chol/HDL-C	2.5	%	0.000	5.000	
T-Cholesterol	103	mg/dL	0.000	0.000	
Triglyceride	62	mg/dL	50.000	130.000	

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值	前次檢驗值
CPK	89	U/L	39.000	308.000		
Troponin I	0.139	ug/L	0.000	0.500		0.702
CK-MB	10	U/L	7.000	25.000		

DAY 5

- F/u heart echo showed RV diameter improved and no more D shaped interventricular septum
- Since pt had right calf painful swelling one week ago, now subsided, the clinical picture favor acute pulmonary embolism with self recanalization
- Troponin I improved

- Myocarditis: reversible
- Pulmonary hypertension→10mmHg→less like
- Transient leg swelling→Pulmonary embolism→C_3, C_4 normal, FiO_2:OK→less like
- ARVD→irreversible→ not lileky
- ASD, VSD, PDA→heart echo沒看到,heart murmur(-), irreversible→not likely

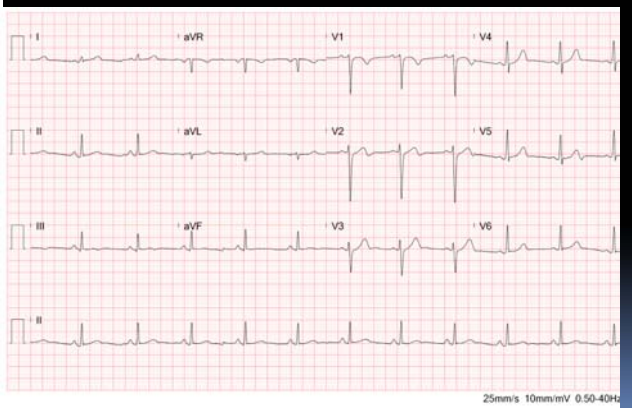
Discharge DAY 5

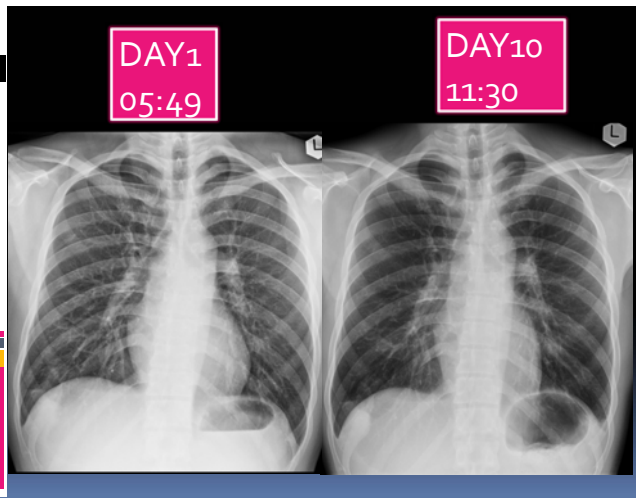
- Syncope, suspect pulmonary emboli and recanalization or myocarditis

DAY10 10:47 CV OPD

B/C X2: NO GROWTH AT DAY8

- S: marked DOE, 如果之前有十分, 現在只有一分體力, hemoptysis this morning, right leg swelling occasionally, esp after motion, No SOB now
- O: BP:130/84; HR:76; Heart: systolic heart murmur, grade III/IV, Lung: clear BS, no rales; Limb: no edema
- A: DVT
- P: Hb; PT/aPTT; D-dimer; EKG; CXR; Dopplex vein





DAY10 ER

- Date: DAY10 13:41 am
- C/C: 右腳肢體熱, CV doctor建議來ER
- TPR: 37.5/80/18 BP:114/56
  SpO_2: 99% GCS: E4V5M6
- Triage: 2

Present illness

- Right leg pain for 1 month
- Now no SOB
- Fever(?)
- No chest pain
- Allergy: NKA
- Hx: just discharged from CV ward

Physical Examination

- Consciousness: clear, E4V5M6
- Chest: clear breathing sound, no pain
- Abdomen: Soft, no tender, no pain
- Extremities: warm, right calf tenderness

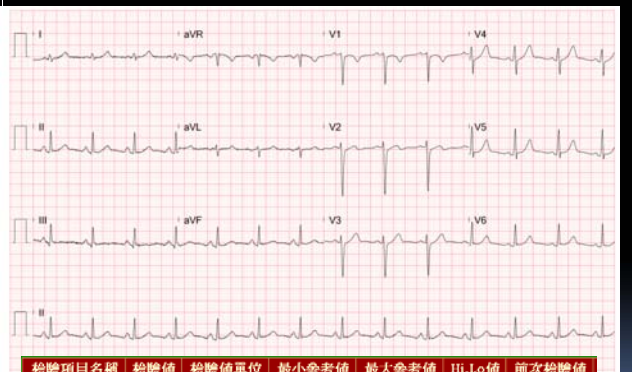
Impression

- r/o pulmonary embolism

Order

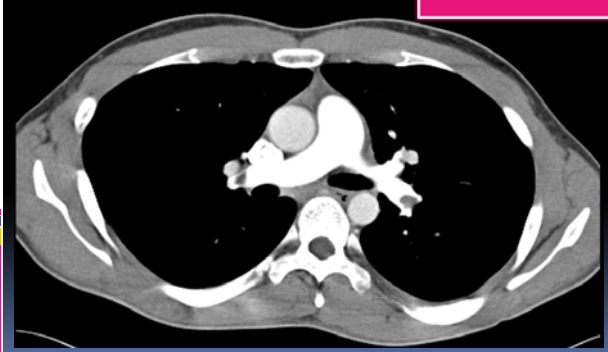
DAY10 13:42

- NPO(12:40)
- N/S run 60ml/hr
- Troponin-I, CK, CK-MB
- ECG
- B/C x II
- Chest CT with/without contrast
- Consult CV



檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值	前次檢驗值
CPK	71	U/L	30.000	223.000		89
Troponin I	0.01	ug/L	0.000	0.500		0.139
CK-MB	0.9	ng/mL	0.600	6.300		10

Chest CT



Chest CT: bilateral pulmonary embolism, bilateral pulmonary infarction

DAY10 Order 14:50

- Clexane 60mg SC Stand Q12H
- arrange CV admission
- Duplex of leg
- 轉EC

16:00 EC order

- On lock
- Clexane 60mg SC Stand Q12H
- Warfarin 3mg 1tab PO QD
- 排CV 床

EC course

- DAY10 23:50 左後背有點痛
- DAY11 00:00 呼吸仍會痛
- DAY11 05:30 會痛到躺不了, SpO2:100%; TPR:36.8/89/19; BP:115/69

CV admission

- Impression
  - 1.Bilateral pulmonary emboli
  - 2.Suspected deep vein thrombosis over right leg
  - 3.Epilepsy

06/17 CV ward

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值	前次檢驗值
CBC/Platelet/DC	**********					
WBC	9.7	X1000/ul	3.800	10.000		9.0
RBC	4.12	million	4.500	5.700	*L	
Hb	12.2	gm/dl	13.000	18.000	*L	13.6
Ht	36.1	%	40.000	54.000	*L	
MCV	87.6	fl	81.000	98.000		
MCH	29.6	pg	27.000	32.000		
MCHC	33.8	%	32.000	36.000		
RDW	11.8	%	11.500	14.500		
Platelet	301	x1000/ul	140.000	450.000		228
Differential count	**********					**********
Segmented Neutro.	69.5	%	37.000	75.000		77.6
Lymphocyte	16.9	%	20.000	55.000	*L	13.9
Monocyte	8.7	%	4.000	10.000		8.0
Eosinophil	4.6	%	0.000	5.000		0.3
Basophil	0.3	%	0.000	2.000		0.2

DAY11 fever, B/Cx1,

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值	前次檢驗值
GOT(AST)	26	U/L	5.000	35.000		69
BUN	10	mg/dL	7.000	25.000		14
Creatinine	0.73	mg/dL	0.500	1.300		0.9
eGFR	127.94					100.48
Na	133	meq/L	133.000	145.000		134
K	4.0	meq/L	3.300	5.100		4.7

- DAY12 leg duplex: Complete venous thrombus in the right SFV, PV; partial venous thrombus in the right CFV, DFV.
- DAY17 discharge

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值	前次檢驗值
PT	21.7	second	9.400	12.500	*H	14.6
Normal control	10.2	second				10.2
INR	2.11	Ratio	0.800	1.200	*H	1.43

B/C x2; DAY10→DAY13, 其中一套S.A
B/CX1; DAY12→DAY194 NO GROWTH

Case 2

Case 1-Basic data

- Gender: 60-yo male
- Date: DAY1 05:12 am
- C/C: 呼吸短促
- TPR: 35.7/114/36 BP:92/63
  SpO2: 94% GCS: E4V5M6
- Triage: 2

Present illness

- SOB since 04:30am
- No previous before
- U/O decrease recently
- No fever, no chest pain

- Allergy: NKA
- History: DM

Physical Examination

- Consciousness: E4V5M6
- HEENT: not pale
- Chest: clear breathing sound
- Abdomen: Soft
- Extremities: no edema, MP:all 5

Impression

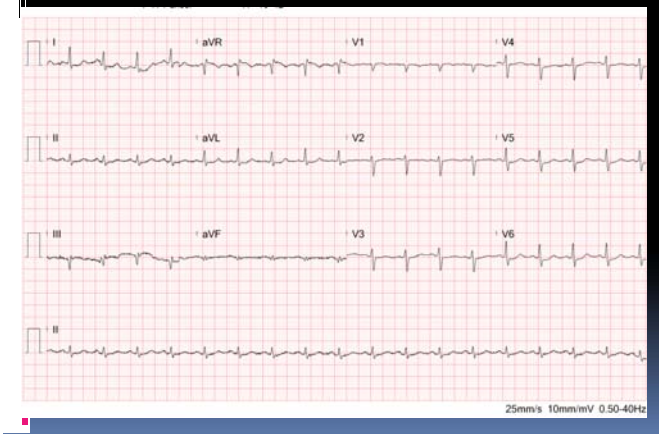
- SOB, cause?
- r/o CHF
- r/o DKA (F/S:452)

Order 05:15

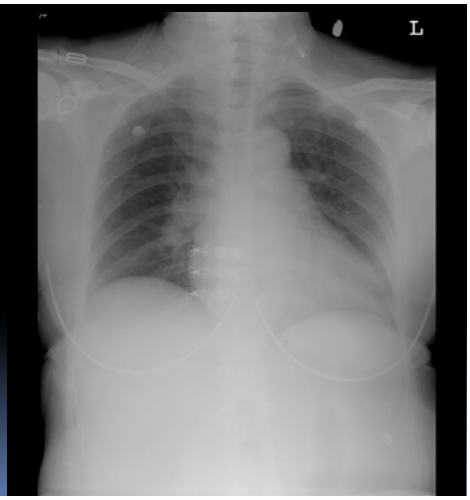
- BNP
- F/S(452)
- CBC/WBC/DC
- PT/aPTT
- EKG
- CXR
- B/Cx2
- Lactate

- ABG(6)
- BUN, Cr, GOT, Osm, enzyme
- IV lock
- O2 mask 6~10L/min

pH	7.363
pCO_2	24.0
pO_2	103
BE	-12
HCO_3	13.6
TCO_2	14
SO_2	98%
Na	135
K	3.9
Hct	32%
Hb	10.9



DAY1



檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
Hb	12.4	gm/dl	11.000	16.000	
WBC	19.2	x1000/ul	3.800	10.000	*H
Differential count	**********				
Segmented Neutro.	59.8	%	37.000	75.000	
Lymphocyte	34.3	%	20.000	55.000	
Monocyte	5.2	%	4.000	10.000	
Eosinophil	0.5	%	0.000	5.000	
Basophil	0.2	%	0.000	2.000	
Platelet	193	x1000/ul	140.000	450.000	

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
PT	11.0	second	9.400	12.500	
Normal control	10.5	second			
INR	1.05	Ratio	0.800	1.200	
APTT	25.2	second	28.600	38.600	*L
Normal control	32.8	second			

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
GOT(AST)	28	U/L	5.000	35.000	
CPK	26	U/L	26.000	192.000	
BUN	30	mg/dL	8.000	20.000	*H
BUN	***	mg/dL	8.000	20.000	
Creatinine	1.2	mg/dL	0.500	1.300	
eGFR	45.82				
Osmolarity	308	mOsm/kg	278.000	305.000	*H
Troponin I	0.018	ug/L	0.000	0.500	
CK-MB	18	U/L	7.000	25.000	
Myoglobin	26	ng/mL	14.300	65.800	

BNP:432 pg/ml

ORDER 05:30

- Ketone
- RI 10u IV ST
- N/S 500ml challenge ST
- N/S 80ml/hr

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
Lactate	57.2	mg/dL	4.500	19.800	*H

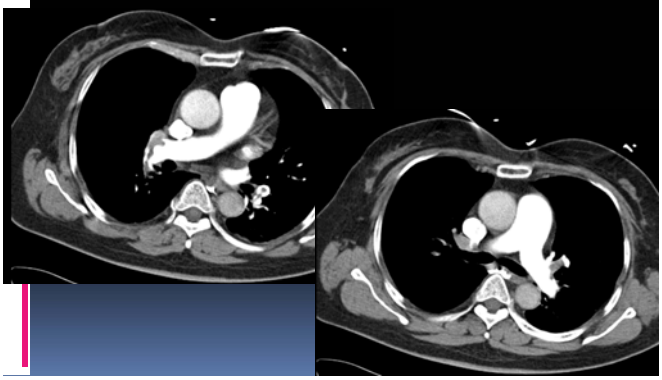
檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值
Blood Ketone	0.1	mmol/L	0.000	0.600

Order

- 06:20 F/S TIDAC+HS
- 06:40 U/A, U/C
- 07:10 Dyspnea
- Bedside echo 07:05 RV/LV reverse; Empty LV
- On critical
- Heparin 4000u IV ST
- Chest+abdomen CT with/without contrast

檢驗項目名稱	檢驗值	檢驗值單位
Sediment	**********	
RBC	1-2	/HPF
WBC	0-1	/HPF
Epithelial cell	1-2	/HPF
Cast	Not Found	/LPF
.cast-amount	-	
Crystal	Ca.oxalate	/HPF
.Cry-amount	+	
Bacteria	-	
Others	Not Found	

DAY1 Chest/Abdomen CT



Order

CT: main trunk thrombosis
EKG: RV strain
Echo: Empty LV
→on tPA

07:47
- tPA 10mg IV ST

07:50
- Consult CS
- Consult CVS
- On ETT
- On NG/Foley
- Etomidate 0.5 amp IV ST
- Succinylcholine 60mg IV ST
- tPA 70mg in 70ml N/S run 70ml/hr in 1 hour
- tPA 20mg in 40ml N/S in 30min
- Heparin 25000u in D5W 250ml run 10ml/hr
- Etomidate 0.5amp ST
- Nimbex 1amp ST IV
- CXR (P)

08:22 consult CV

Plan:
- Keep vital signs and thrombolytic therapy(prefer catheter directed therapy)
- If hemodynamic stable but desaturation, please contact us for VV ECMO
- If hemodynamic unstable, surgical intervention was suggested, however, please inform her family about poor prognosis

08:24

P-N
- Impression: acute pulmonary embolism
- SpO2:80%(08:08)→100% now
- No malignancy or recent trauma

Admission course

08:55
- Admitted to MICU
- Impression:
  - 1.Bilateral pulmonary embolism, submassive s/p ETT
  - 2.Suspect right leg DVT
  - 3.DM
  - 4.HTN

12:50

Lactate	14.6	mg/dL	4.500	19.800

Admission course

- This 60-year-old female with DM, HTN had myoma s/p ATH + LSO 17 years ago .
- she has suffered from post-menopausal syndrome since then.
- So she went to GYN LMD and had estrogen injection about once every 2-3 months.
- For the past 2-3 year, symptoms such as flush or palpitation aggravated so she had estrogen injection around once a month.

DAY1 ADMISSION

- ** Pulmonary embolism
- No obvious PA flow with PG=2.56mmHg.
- Normal chamber size and concentric LVH.
- Normal LV systolic function.
- Mitral flow E/A reversed.
- Trivial MR.
- Trivial TR.

DAY5

- PERIPHERAL DUPLEX REPORT
- CLINICAL DIAGNOSIS:
- DVT
- CONCLUSION:
- Normal study for venous system in the bilateral lower limbs.

- DAY6

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值
**AM Cortisol	22.1	ug/dL	6.200	19.400	*H
**PM Cortisol	22.1	ug/dL	2.300	11.900	*H
**UR Cortisol	***				
TSH	2.2065	uIU/mL	0.350	4.940	
T4,Free	1.16	ng/dL	0.700	1.480	

- DAY9 Discharge

Discussion

- **AHA PE Guidelines**

Circulation

JOURNAL OF THE AMERICAN HEART ASSOCIATION

American Heart Association.

Management of Massive and Submassive Pulmonary Embolism, Iliofemoral Deep Vein Thrombosis, and Chronic Thromboembolic Pulmonary Hypertension: A Scientific Statement From the American Heart Association

Circulation. 2011;123:1788-1830

Applying Classification of Recommendations and Level of Evidence

 Jaff M et al. Circulation 2011;123:1788-1830

Definition of Massive PE

- Acute PE with sustained hypotension (systolic blood pressure <90 mm Hg for at least 15 minutes or requiring inotropic support, not due to a cause other than PE, such as arrhythmia, hypovolemia, sepsis, or left ventricular [LV] dysfunction), pulselessness, or persistent profound bradycardia (heart rate <40 bpm with signs or symptoms of shock).

Definition of Submassive PE

- Acute PE without systemic hypotension (systolic blood pressure >90 mm Hg) but with either RV dysfunction or myocardial necrosis.

Definition of Submassive PE

- RV dysfunction means the presence of at least 1 of the following:
  - —RV dilation (apical 4-chamber RV diameter divided by LV diameter >0.9) or RV systolic dysfunction on echocardiography
  - —RV dilation (4-chamber RV diameter divided by LV diameter >0.9) on CT
  - —Elevation of BNP (>90 pg/mL)
  - —Elevation of N-terminal pro-BNP (>500 pg/mL); or
  - —Electrocardiographic changes (new complete or incomplete right bundle-branch block, anteroseptal ST elevation or depression, or anteroseptal T-wave inversion)

Definition of Submassive PE

- Myocardial necrosis is defined as either of the following:
  - —Elevation of troponin I (>0.4 ng/mL) or
  - —Elevation of troponin T (>0.1 ng/mL)

Recommend

- Fibrinolysis is reasonable for pts with massive PE and acceptable risk of bleeding complications (IIa/B)
- Fibrinolysis may be considered for pts with submassive PE judged to have clinical evidence of adverse prognosis (hemodynamic instability, worsening resp. insufficiency, severe RV dysfunction, or major myocardial necrosis) and low risk of bleeding complications (IIb/C)

Recommend

- Fibrinolysis is not recommended for patients with submassive PE with only mild dysfunction, i.e. low risk PEs (III/B)
- Fibrinolysis is not recommended for undifferentiated cardiac arrest (III/B)

Interventional and Surgical Options

- Either catheter embolectomy or surgical embolectomy can be considered depending on institutional and operator preference (IIa/C)
- Either of these are reasonable if the pt is still unstable in massive PE after fibrinolysis (IIa/C)

Interventional and Surgical Options

- Also reasonable in massive PE, if the pt has a contra-indication to lysis (IIa/C)
- May be considered in lieu of fibrinolysis in patients with submassive PE and evidence of adverse prognosis (IIb/C)
- Not recommended for pts with PE at low risk (III/C)

Contraindications to Fibrinolysis

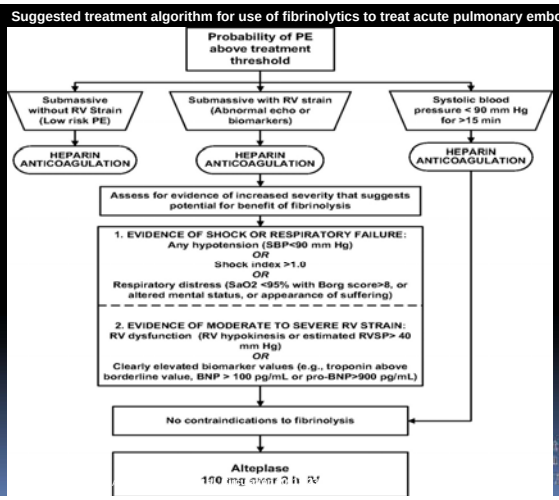
Absolute contraindications

- any prior intracranial hemorrhage,
- known structural intracranial cerebrovascular disease (eg, arteriovenous malformation),
- known malignant intracranial neoplasm,
- ischemic stroke within 3 months,
- suspected aortic dissection,
- active bleeding or bleeding diathesis,
- recent surgery encroaching on the spinal canal or brain, and
- recent significant closed-head or facial trauma with radiographic evidence of bony fracture or brain injury.

Relative contraindications

- age >75 years;
- current use of anticoagulation;
- pregnancy;
- noncompressible vascular punctures;
- traumatic or prolonged cardiopulmonary resuscitation (>10 minutes);
- recent internal bleeding (within 2 to 4 weeks);
- history of chronic, severe, and poorly controlled hypertension;
- severe uncontrolled hypertension on presentation (systolic blood pressure >180 mm Hg or diastolic blood pressure >110 mm Hg);
- dementia;
- remote (>3 months) ischemic stroke; and
- major surgery within 3 weeks.

Suggested treatment algorithm for use of fibrinolytics to treat acute pulmonary embolism.



Circulation

American Heart Association.

Management of Submassive Pulmonary Embolism
Gregory Piazza and Samuel Z. Goldhaber

Circulation. 2010;122:1124-1129

Table 2. How to Administer Fibrinolytic Therapy for Submassive PE

- Initiate anticoagulation with intravenous unfractionated heparin bolus and continuous infusion with a target aPTT of 60–80 seconds as soon as submassive PE is suspected
- Stop heparin infusion when issuing the order to administer fibrinolysis
- Infuse recombinant tPA 100 mg over a 2-hour period with careful monitoring for bleeding complications, including neurological checks every 15 minutes during the infusion
- Obtain immediate post–fibrinolytic infusion aPTT
- After the fibrinolytic infusion has concluded, do not restart heparin until the aPTT is <80 seconds