Case Conference

R3周光緯
Supervisor VS許璨文

2012/07/25

Patient Profile

- 79 y/o F
- Sent by 119
- T/P/R: 37.1/119/25　BP: 測不到
  SpO2: 測不到
- E4V1M5
- 檢傷主訴: 病人來診為呼吸短促、血氧低、意識改變
- Triage I

History

- SOB today
- Then con's change was noted by family
- 晚上八點多還正常
- EMT：SpO2 70 %, irritable

Past history

- Hypertension without regular control
- No smoking or drinking habit
- Occupation : housewife

- Allergy : nil

Physical examination

- Conscious：E4V2M5
- Head & Neck: Cyanotic
- Chest: coarse breathing sounds
  RHB
- Abdomen : soft, no guarding
- Extremities: cold limbs

Impression

- Hypoxia
- Con's change, cause ?

Initial order

- O2 NRM 15 L/min
- On monitor
- ABG (6)
- F/S (221)
- CBC
- PT/PTT
- Ammonia
- BCS, enzyme, CRP, iCa
- B/C x 2
- N/S 500 cc iv st
- N/S 80 cc/hr
- On 2nd line
- Dopamine 40 cc/hr
- EKG
- CXR (P)

Order

- On ETT + MV
- Lidocaine 100 mg iv
- Succinylcholine 60 mg iv
- On NG decompression
- On Foley
- U/A
- U/C
- On critical
- Consult 總值
- 四肢約束
- Bedside echo
- Check四肢BP

EKG

ABG

- PH = 6.890
- PCO2 = 80.4 mmHg
- PO2 = 26 mmHg
- BE = -18 mmol/L
- HCO3 = 15.4 mmol/L
- TCO2 = 18 mmol/L
- SO2 = 19 %
- NA = 142 mmol/L
- K = 4.0 mmol/L
- HCT = 36 %PCV
- HB = 12.2 g/Dl

Bedside Echo

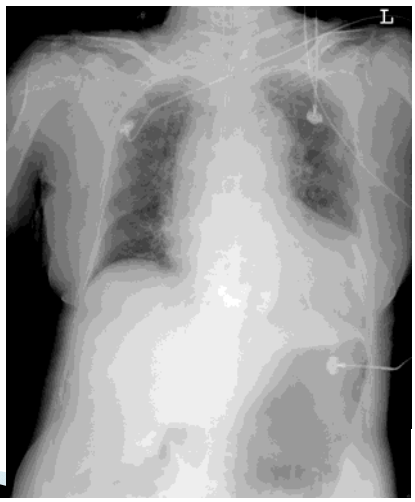
- Moderate pericardial effusion
- No pleural effusion
- Liver cyst
- No ascites

四肢BP	
159/113	134/79
132/109	115/105

- → Do aorta CT

22:38

- Con's alert E4VtM6
- SpO2 100%
- CXR



22:41

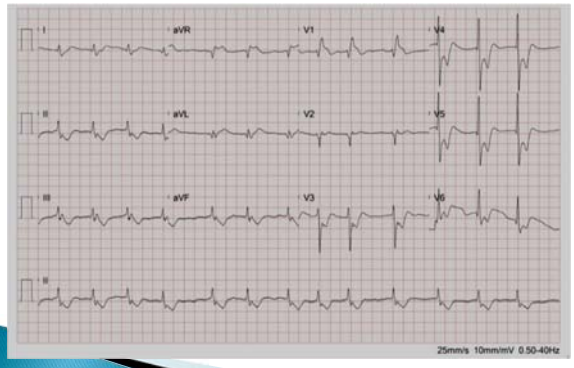
- Sudden con's change → PEA
- CPCR
- VT/Vf s/p DC shock 200J x 3
- Amiodarone iv use 300mg → 150 mg

- 22:59 ROSC
- HR 72 BP 102/54 mmHg
- Levophed 8mg in 250 cc D5W, run 40 cc/hr

ABG (CPR中)

- PH = 7.176
- PCO2 = 73.7 mmHg
- PO2 = 18 mmHg
- BE = -1 mmol/L
- HCO3 = 27.3 mmol/L
- TCO2 = 29 mmol/L
- SO2 = 17 %
- NA = 148 mmol/L
- K = 3.9 mmol/L
- HCT = 31 %PCV
- HB = 10.5 g/dL

EKG (ROSC)



Lab

CBC/Platelet/DC		
WBC	13.4	X1000/ul
RBC	4.44	million
Hb	13.3	gm/dl
Ht	43.1	%
MCV	97.1	fl
MCH	30.0	pg
MCHC	30.9	%
RDW	14.4	%
Platelet	93	x1000/ul
Differential count		
Segmented Neutro.	76.3	%
Lymphocyte	16.9	%
Monocyte	6.6	%
Eosinophil	0.1	%
Basophil	0.1	%

PT	14.9	second
Normal control	10.5	second
INR	1.43	Ratio
APTT	49.8	second
Normal control	32.8	second

GOT(AST)	73	U/L
CPK	120	U/L
BUN	23	mg/dL
Creatinine	1.6	mg/dL
eGFR	31.09	
iCa	4.88	mg/dL
Troponin I	0.039	ug/L
CRP	0.135	mg/dL
CK-MB	47	U/L

Ammonia	121	ug/dL

Lactate	122.7	mg/dL

Whole body CT

CT interpretation

- SDH at left partietal region. Cerebral atrophy and small infarcts present.
- Suspect acute aortic dissection with rupture at ascending aorta.
- Hemomediastinum, hemopericardium, and left hemothorax present; small amount fluid collection in upper abdomen.
- The cervical and abdominal branches are involved

Then

- Emergent consult CVS
- Sign DNR due to poor prognosis
- ICU admission

ICU course

- After discussion with family → DNR
- Supportive care at ICU
- Soon she expired at that night, 01:31

Discussion

Aortic Dissection

Pathophysiology

- Aortic intimal tear
- Degeneration of the aortic media, or cystic medial necrosis

Epidemiology

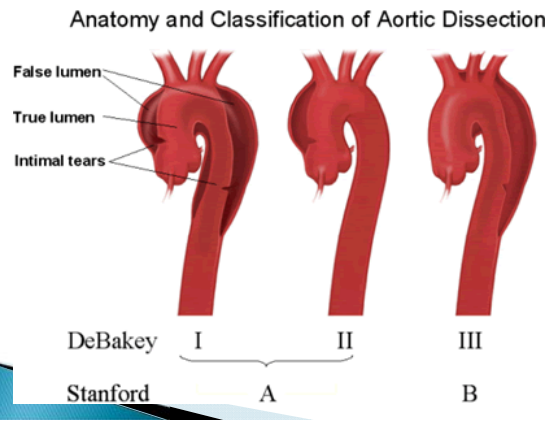
- 2.6 to 3.5 per 100,000 person-years
- 60- to 80-year-old men
- 女性發生年齡比男性高

Risk Factors

- Systemic hypertension – 72 %
- Atherosclerosis – 31 %
- Preexisting aortic aneurysm – 13 %
- Vasculitis
- Disorders of collagen (Marfan syndrome)
- Cardiac catheterization (Iatrogenic)

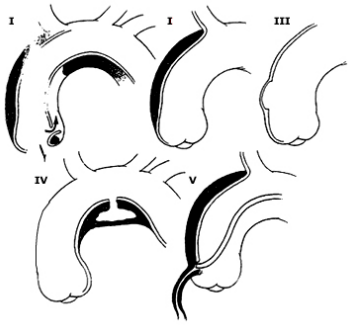
Type

- Stanford system
  - Type A
  - Type B
- DeBakey system
  - Type 1
  - Type 2
  - Type 3



Variation

- Class I- classic dissection
- Class II- intramural hematoma with separation of intima/media
- Class III - limited intimal tear without hematoma
- Class IV- atherosclerotic ulcer penetrating to adventitia
- Class V- iatrogenic or traumatic dissection



Clinical manifestation

- Severe, sharp or "tearing" posterior chest or back pain
- Radiate anywhere in the thorax or abdomen
- Painless dissection - few
- A considerable variation (>20 mmHg) in systolic blood pressure between the arms

Clinical findings	Artery or structure involved
Aortic insufficiency or heart failure	Aortic valve
Myocardial infarction	Coronary artery (often right)
Cardiac tamponade	Pericardium
Hemothorax	Thorax
Stroke or syncope	Brachiocephalic, common carotid, or left subclavian arteries
Upper extremity pulselessness, hypotension pain	Subclavian artery
Paraplegia	Intercostal arteries (give off spinal and vertebral arteries)
Lower extremity pain, pulselessness, weakness	Common iliac artery
Abdominal pain; mesenteric ischemia	Celiac or mesenteric arteries
Back or flank pain; renal failure	Renal artery
Horner syndrome (ptosis, miosis, anhidrosis)	Superior cervical sympathetic ganglion

S/S of type B dissection

- Chest or back pain – 86 %
- Abdominal pain – 43 %
- Abrupt onset of pain – 89 %
- Migrating pain – 25 %
- Hypertension – 69 %
- Hypotension/shock – 3 %
- Pulse deficit – 21 %
- Spinal cord ischemia – 3 %
- Ischemic peripheral neuropathy – 2 %

Diagnosis

- History
- D-Dimer (excluding dissection)
- CXR
  - Mediastinum widening
    - 63 % in type A
    - 56 % in type B
- Other imaging

Imaging

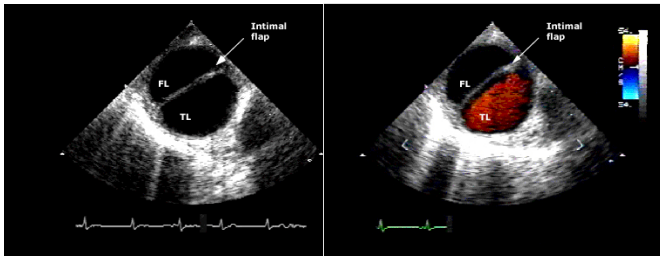
- Multiplane TEE
- Chest CT
- Chest MRI
- Transthoracic echocardiography
- Aortography
- CXR

Transthoracic Echography

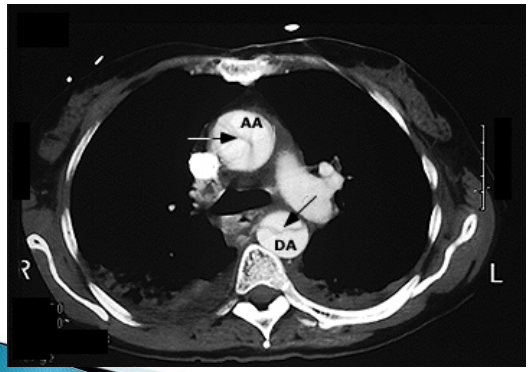
- Poor visulization of aorta
- Assessment of cardiac complications of dissection
  - Aortic insufficiency
  - Pericardial effusion/tamponade
  - Regional left ventricular systolic function

TEE

- Portable procedure
- Requires procedural sedation
- Experienced operators

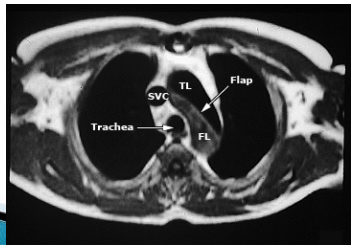


CT scan



MRI

- Suitable for chronic dissection
- Safer contrast medium
- It takes time
- More contraindication



Initial management

Recommendation	Class
1. Detailed medical history and complete physical examination	I
2. Intravenous line, blood sample (CK, troponin I, myoglobin, WBC, D-dimer, hematocrit, LDH)	I
3. ECG: documentation of ischemia	I
4. Heart rate and blood pressure (BP) monitoring	I
5. Pain relief (morphine sulphate)	I
6. Reduction of systolic blood pressure using beta blockers	I
7. Transfer to intensive care unit	I
8. In patients with severe hypertension additional vasodilator (IV sodium nitroprusside to titrate BP to 100-120 mmHg)	I
9. In patients with obstructive pulmonary disease, blood pressure lowering with calcium channel blockers	II
10. Chest x-ray	III

Surgical therapy of acute type A aortic dissection

Recommendation	Class
1. Emergency surgery to avoid tamponade/aortic rupture.	I
2. Valve-preserving surgery; tubular graft if normal sized aortic root and no pathological changes of valve cusps.	I
3. Replacement of aorta and aortic valve (composite graft) if ectatic proximal aorta and/or pathological changes of valve/aortic wall.	I
4. Valve-sparing operations with aortic root remodelling for abnormal valves.	IIa
5. Valve preservation and aortic root remodelling in Marfan patients.	IIa

Therapy of acute type B aortic dissection

Recommendation	Class
1. Medical therapy	I
2. Surgical aortic replacement if signs of persistent or recurrent pain, early expansion, peripheral ischemic complications, rupture	I
3. Surgical or endovascular fenestration and stenting if persisting mesenteric, renal or limb ischemia or neurologic deficits	IIa

Differential diagnosis

- Myocardial ischemia
- Pericarditis
- Pulmonary embolus
- Aortic regurgitation without dissection
- Aortic aneurysm without dissection
- Musculoskeletal pain
- Mediastinal tumors
- Pleuritis
- Cholecystitis
- Atherosclerotic or cholesterol embolism
- Peptic ulcer disease or perforating ulcer
- Acute pancreatitis
- Esophageal perforation/rupture