ACUTE AORTIC SYNDROME: when it is missed

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AAS

- In 1760, Dr Nicholls first described on necropsy
- AAS includes aortic dissection, (IMH), and symptomatic aortic ulcer.
- Both acquired and genetic.
- All mechanisms that weaken the media layers of the aorta will eventually lead to higher wall stress, which can induce aortic dilatation and aneurysm formation, eventually resulting in intramural hemorrhage, aortic dissection, or rupture.
Etiology and pathophysiology:

- HTN (most common)
- Extracellular matrix accelerated degradation, apoptosis, and elastolysis, intimal disruption
- Marfan’s syndrome, vascular Ehlers-Danlos syndrome, annuloaortic ectasia, bicuspid aortic valve, and familial aortic dissection
dedifferentiation of vascular SMCs, enhanced elastolysis of aortic wall components
Figure 1. The most common classification systems of thoracic aortic dissection: Stanford and DeBakey.

Thomas T. Tsai et al. Circulation. 2005;112:3802-3813

Figure 3. Fourteen-day mortality in 645 patients from the IRAD registry stratified by medical and surgical treatment in both type A and B aortic dissection.

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Case 1

- 48 years old male
- HTN, smoker
- Severe chest pain referred to back and neck!

Clinically:
- Conscious
- BP: 150/100 mmHg
- HR: 100 bpm regular with intact peripheral and carotid pulsation
- Cardiac: S4, no Murmurs
- No remarkable finding on other system examination
Laboratory workup

- Cardiac markers: -ve
- D-Dimer: -ve
- Cr: 1.0 mg
- ALT 32 U/L
- HB: 12 mg
- INR: 1
- Hb: 11 g/dl

ER: what is your plan sir?

Plze load him with DAP
Give Enoxparin
Prepare him for early invasive strategy if no response (coronary angiogram & PCI)

Ok sir done
1 hour later

Pain is refractory, No dynamic ECG changes

OK:
Send him to cath lab dear I'll come now

BUT

- The patient deteriorated with intractable chest pain
- Haemodynamics started to be compromised

Sir: can we evaluate him quickly by echo?

Of course but inside cath lab please Don't waste time
The echocardiography is fortunately done before needling the patient

Sir: a flap of dissection is suspected by echo

Echo!!
Suspected
Flap of dissection!!

DAP, ENOXPARIN
What can be happened?
What can be happened?

- Nothing, Just may
Sir, a true flap of dissection is documented by TEE

OHH
Call for Urgent surgery please.

BUT:
What about preoperative coronary angiography??

Definitive Therapy

**Surgical**
- Treatment of choice for acute proximal dissection
- Treatment for acute distal dissection complicated by the following:
  - Progression with vital organ compromise
  - Rupture or impending rupture (e.g., saccular aneurysm formation)
  - Retrograde extension into the ascending aorta
  - Dissection in Marfan syndrome

**Medical**
- Treatment of choice for uncomplicated distal dissection
- Treatment for stable, isolated arch dissection
- Treatment of choice for stable chronic dissection (uncomplicated dissection manifesting 2 weeks or later after onset)
Case 2

- 43 years old hypertensive male
- Admitted to ICU with chest infection and bronchospasm
- Some back pain, claudication
- A H/O of acute severe back pain while he was doing a heavy muscular activities 10 years ago.
- Diagnosed as a muscular pain and some analgesics were given

- Conscious
- BP: 140/85 mmHg, HR: 80 bpm, sinus
- Good carotid pulsation, Weak LL pulsation
- Chest: expiratory wheezes.
- Cardiac examination: no murmurs
- Labs:
  - Creatinin: 1.2 mg/dl
  - ALT: 20 U/L
  - TLC: 14000
Echocardiography

- Routine echocardiography is requested
CT aortography
To be remember:

- Not all chest pain is a coronary problem until prove otherwise, the otherwise may be rapidly fatal.

- On the other hand, back pain could be a major problem, it is not always superficial

- Chest pain workup should be fulfilled without underestimation of any tool (eg: chest X ray…)

- Rapid diagnosis and treatment of AAS is very crucial and affect short and long term outcome

- Don’t give a potentially harmful drugs without a strong indicative evidence

Finally

"learn from yesterday, life for today, hope for tomorrow
The important thing is not to stop questioning"