

# MANEGEMENT OF ACUTE AORTIC SYNDROME

**Dr. Said Abdelaziz MD**

**Professor of cardiothoracic surgery**

**Cairo University**



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## Management of Acute Aortic Syndrome

Acute aortic syndrome (AAS) describes the acute presentation of patients with one of several life threatening thoracic aortic pathologies. These include:

1. Aortic dissection (AD).
2. Intramural haematoma (IMH).
3. Penetrating atherosclerotic ulcer (PAU).
4. Aneurysmal leak.
5. Traumatic transection.

## Management of Acute Aortic Syndrome

- Thoracic aortic diseases (TADs) are usually asymptomatic and not easily detectable until an acute and often catastrophic complication occurs.
- The identification and treatment of stable patients at risk for acute and catastrophic disease presentations (eg, thoracic aortic dissection (AoD) and thoracic aneurysm rupture) prior to such an occurrence are very important to eliminating the high morbidity and mortality associated with acute presentations.

## High-risk conditions and historical features associated with acute aortic syndrome

- Marfan syndrome and other genetic disorders .
- Bicuspid aortic valve.
- Family history of thoracic aortic aneurysm or dissection.
- known thoracic aortic aneurysm.
- recent aortic manipulation (surgical or catheter based).

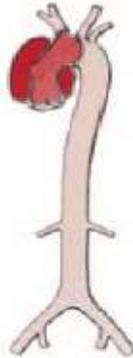
## Classification of aortic dissection

De Bakey Type I



Stanford

Type II



Type A

Type III

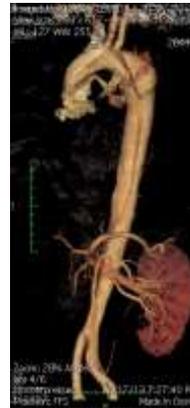


Type B

## Acute type A aortic dissection



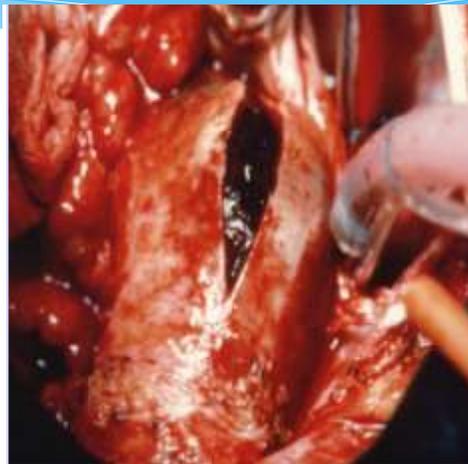
## Acute leaking type B aortic dissection



## Intamural Hematoma (IMH)



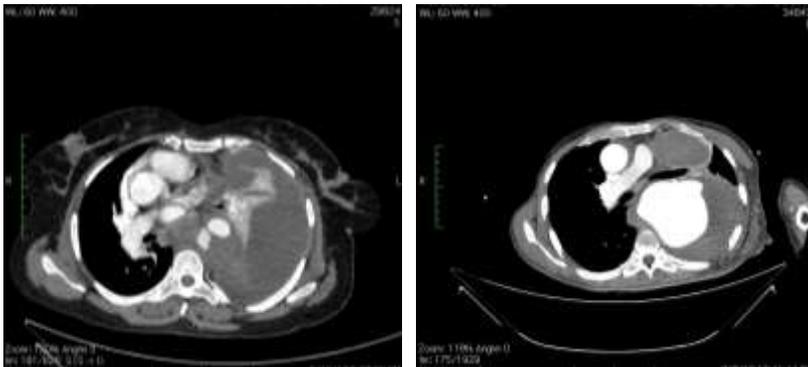
**Intramural Hematoma**



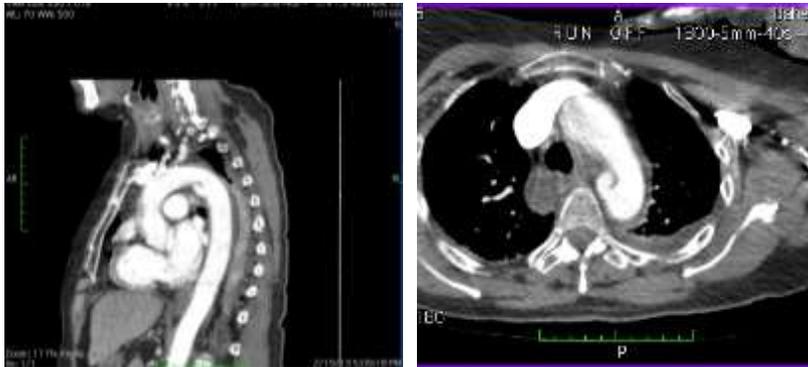
## Penetrating aortic ulcer(PAU)



## Leaking Aortic Aneurysm



# Traumatic Aortic Injury



## DEFINITIVE IMAGING STUDIES

- CT SCAN
- TEE
- MRI
- The choice of imaging study often depends on the availability of these studies, with CT and TEE being the most commonly performed initial studies.

## Acute Type (A) Aortic Dissection

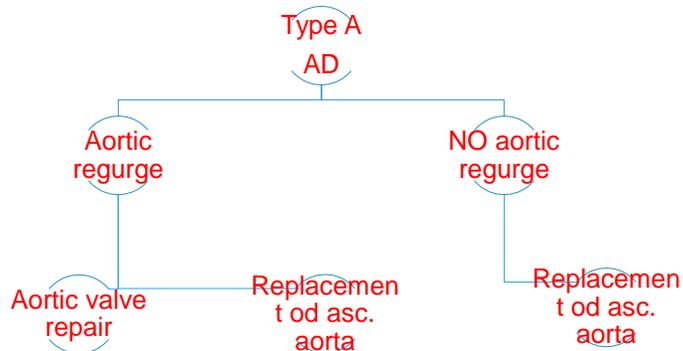
- When acute aortic dissection is diagnosed, multidisciplinary evaluation and treatment are necessary. Time is of great importance, as the death rate in acute dissection may be as high as 1-2% per hour during the first 24 hours.
- All patients with acute aortic dissection, whether type A or type B, should be transferred to a tertiary care center with a staff experienced in managing aortic dissection and its complications.

## Acute Type (A) Aortic Dissection

### **The goals of surgical treatment are :**

- To excise the intimal tear
- Obliterate the false channel by oversewing the aortic edges
- And reconstitute the aorta, usually by placing a Dacron interposition graft.

## Acute Type (A) Aortic Dissection



## Acute Type (A) Aortic Dissection

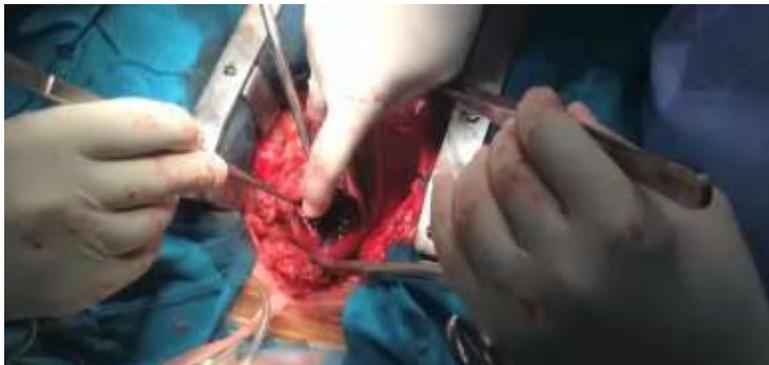
**Patients with acute type A dissection require **emergency surgery****

- As they are at risk for life-threatening complications including:
- cardiac tamponade from hemopericardium
- aortic rupture
- stroke
- visceral ischemia
- heart failure due to severe aortic regurgitation.

## Recommendation for Surgical Intervention for Acute Aortic Dissection

- All of the aneurysmal aorta and the proximal extent of the dissection should be resected.
- A partially dissected aortic root may be repaired with aortic valve resuspension.
- Extensive dissection of the aortic root should be treated with aortic root replacement with a composite graft or with a valve sparing root replacement.

## Acute Type (A) Aortic Dissection



## Acute Type (A) Aortic Dissection

- Surgical therapy is associated with a survival benefit compared with medical therapy in acute type A dissection.
- The 14-day mortality rate for acute type A dissection treated surgically is about 25% (compared to about 95% mortality in medically treated cases)
- Patients with high-risk features such as heart failure, shock, tamponade, and mesenteric ischemia have a worse prognosis compared with those without these features

## Acute Type (B) Aortic Dissection

- Acute type B aortic dissection carries a lower rate of death than type A dissection.
- The early mortality rate in those with type B dissection treated medically is about 10%.
- However, when complications such as malperfusion, shock, or requirement for surgery occur in type B dissection, the mortality rate is much higher, with rates of 25% to 50% reported.



## Acute Type (B) Aortic Dissection

- Thus, initial medical therapy is the preferred approach to acute type B dissection, and surgery or endovascular therapy is reserved for patients with acute complications.

## Acute Type (B) Aortic Dissection

Typical indications for surgery or endovascular therapy in type B dissection include:

- visceral or limb ischemia
- aortic rupture
- refractory pain
- aneurysmal dilation

## Acute Type (B) Aortic Dissection

- Endovascular grafts may cover the area of a primary intimal tear and thus eliminate the flow into the false channel and promote false-lumen thrombosis.

## Acute Type (B) Aortic Dissection



## Acute Type (B) Aortic Dissection



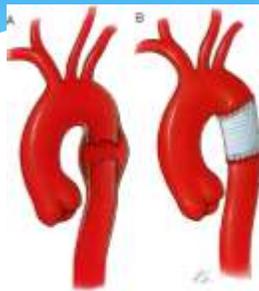
## Leaking descending thoracic aneurysm



## Surgical replacement of the Descending Thoracic Aorta

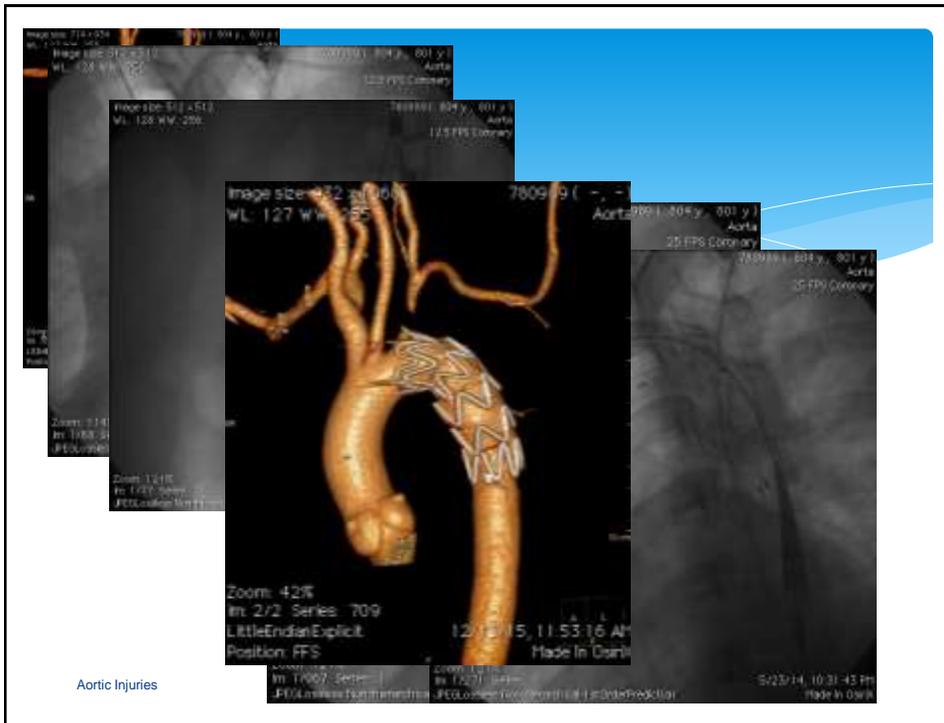


## Traumatic rupture



Left Thoracotomy  
 Single-lung ventilation  
 Systemic heparinization  
 Aortic cross-clamping  
 Left heart bypass or CPB

Interposition tube graft



## Points to remember

- Aortic dissection can be easily missed. A high index of suspicion is important in patients who have predisposing risk factors.
- Stanford type A dissections require urgent surgery; type B dissections may be managed non-surgically under most conditions.
- Multiple diagnostic imaging modalities can be used to complement each other depending upon the availability of facilities and patient condition.
- Chances of survival are improved with prompt diagnosis, blood pressure and heart rate control, and early surgical or endovascular repair if indicated.

