

# Challenges in TAIMH management: Current data

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**70th ESCVS**

International congress of the European Society  
for Cardiovascular and Endovascular Surgery



**7<sup>th</sup> IMAD meeting**

# Introduction

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**Acute aortic disease, characterized by presence of hematoma developed in media, depicted as circular or crescent-shaped thickening & absence of blood flow**

- ✓ 10-30% incidence among acute aortic syndromes (Eastern Asia)
- ✓ Related to PAU (20-60%)
- ✓ Stanford's classification → A, B and non-A-non-B
- ✓ Dynamic event
  - Resolution or regression
  - Progression
  - Conversion to dissection or rupture



# Introduction

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## Underlying Mechanism

- ✓ Vasa vasorum rupture
- ✓ Subtype of dissection, without communication between true and false lumen
- Intra-operative findings: 34-73% small intimal tear at proximal aorta in TAIMH, despite negative imaging
- Identified with more sensitive imaging, as ECG-gated CTA (90%)



# Natural course

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## During follow-up after TAIMH presentation:

- ✓ Stabilize or regress in 50% of cases
- ✓ Typical dissection in 5-25% of cases
- ✓ Aneurysm formation in 20-35% (in medically treated patients)
- ✓ Risk of rupture in 5-25% of cases
  - Less likely acute aortic insufficiency, coronary artery involvement or aortic root dilation

### Factors related to progression:

- Initial aortic diameter
- IMH thickness
- Concomitant PAU
- Detectable intimal tear

# Clinical presentation & diagnostic work-up

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- High level of clinical suspicion
  - Laboratory tests
  - Imaging
- } Diagnosis

**Typical  
patient's  
profile**

Males and older than typical type A dissection

Medical history of hypertension (>80%)

- Poorly controlled (40%) or untreated (30%)

Any type of pain, mainly chest or back pain (90%)

Syncope or hemodynamic instability (4%)

# Clinical presentation & diagnostic work-up

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## Findings

- ✓ ECG signs of myocardial infarction or arrhythmia (60%)
- ✓ Standard blood markers (RBC, WBC, CRP, Creat deteriorated)
- ✓ Plasma D-dimer (>95% negative predictive value)

## Imaging

- ✓ TTE
- ✓ TOE
- ✓ MRI
- ✓ CTA → Gold standard (> 95% of cases)

# Clinical presentation & diagnostic work-up

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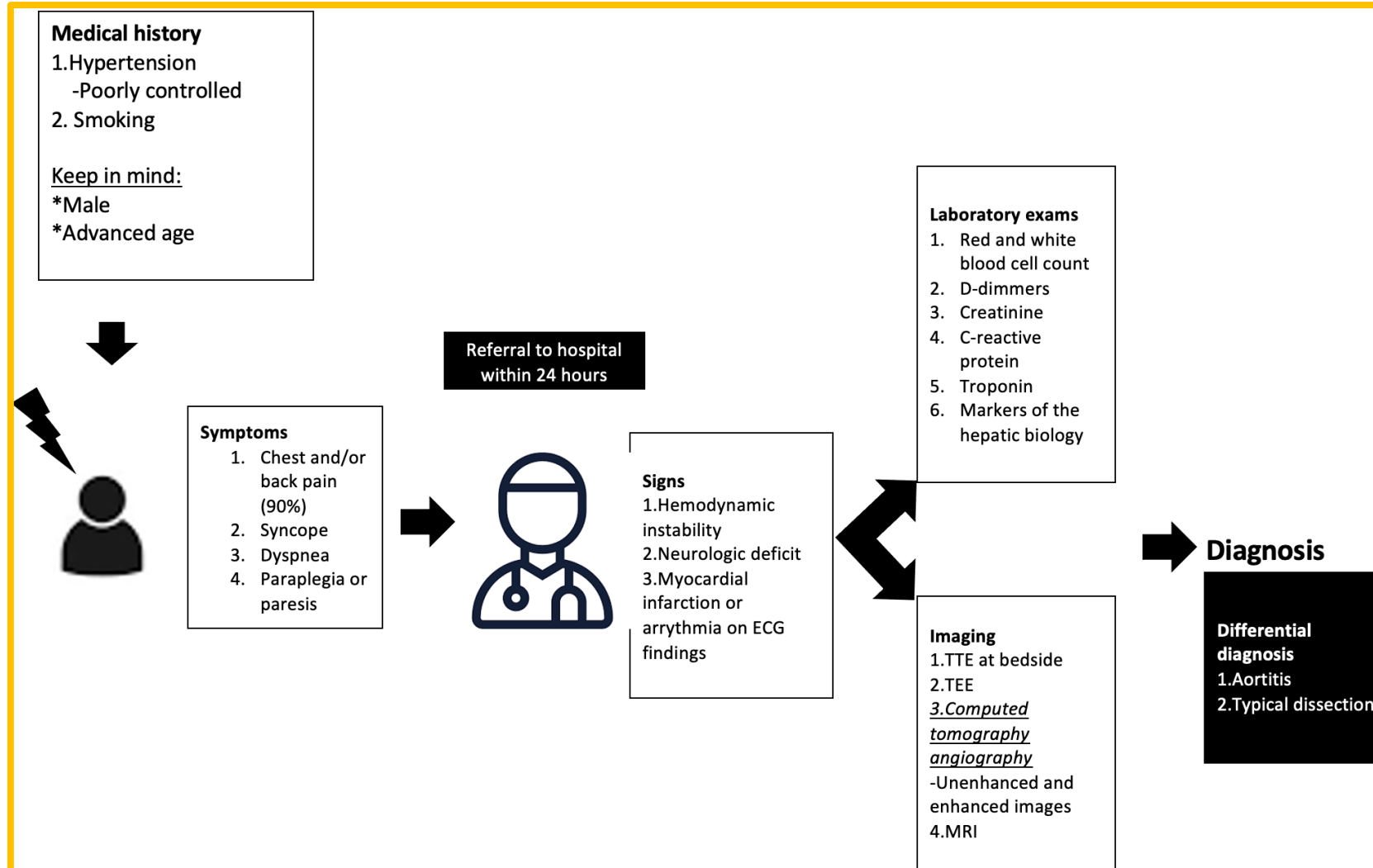
## Indication for urgent repair

- Hemodynamic instability
- Organ malperfusion
- Refractory pain

## Imaging findings on computed tomography angiography representing high-risk cases

- Ulcer-like lesions (ULP) >10mm in depth
- Hematoma thickness >11mm
- Concomitant dissection in any aortic segment
- Aortic diameter >50mm
- Pericardial effusion

# Clinical presentation & diagnostic work-up





# Indications and risk stratification

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Western recommendations support the immediate surgical management

vs.

Eastern guidelines support conservative management, except if hemodynamic instability or malperfusion

- Higher surgical risk patients → Old and multimorbid
- Only 30% managed initially conservatively will develop early adverse events
- Patients under BMT presented lower early mortality compared to urgent surgery (4.5% vs 11.1%)

# Indications and risk stratification

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## Conservative management-Wait and watch strategy

- ✓ Strict imaging protocol with serial CT angiography at days 1, 3, 7, and 14
  - Imaging findings (ulcer like lesions, aortic diameter or pericardial effusion)
- ✓ Safe & effective in long-term in uncomplicated cases
  - <50mm maximum aortic diameter
  - Low pain score
  - Absent ulcer-like lesions

## Keep in mind that

- Despite lower mortality than dissection, high potential complications (<40%, 7 days-12 months)
  - Risk stratification of patients with TAIMH seem to be of major importance
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# Open repair

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- Gold standard of treatment (European Society of Cardiology Guidelines)
  - Low level of evidence
- Patient selection (indication to OR)
- Options:
  - Bentall operation
  - Total or hemiarch replacement
  - Frozen elephant trunk
  - Tube graft interposition
  - External aortic wrapping (high risk cases)

Technical considerations regarding cannulation and need for cardiopulmonary bypass may be related to rupture, high morbidity, including cerebrovascular events, and need for re-operation (bleeding)

# Open repair

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## Early Mortality

- 10-14.5%
- 17% for elder patients
- Null in external wrapping (aortic wall degeneration/graft migration)

## Survival

- >90%% at 5 years
- Comparable to BMT and endovascular

*Patient selection and surgeon bias*

# Endovascular repair

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- Not the first line treatment for TAIMH
- TEVAR
  - ✓ Endovascular repair, even in zone 0 for landing
  - ✓ Retrograde TAIMH

## Considered when:

- Calcification ingression
- Ulcer progression
- Pericardial effusion (lamella stabilization)

### Additional criteria

- ✓ Ascending aortic diameter <50mm
- ✓ IMH thickness <10mm

should be taken into consideration

# Endovascular repair

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## Technical success

Up to 100%

## Early Mortality

10-15%

*Less morbidity (34 vs. 7%), shorter duration of operation, LOS and ICU*

## Long-term survival

82-98% in well selected cases

## Long-term reintervention

7-18%

Type I endoleak  
Evolution to  
typical type A  
dissection  
Stent-induced new  
entry tear (SINE)

# Future perspectives

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- ✓ Specific clinical and anatomic criteria to assist decision making
- ✓ Potentially future risk score development
- ✓ Complex endovascular procedures (F/BTEVAR)
- ✓ Endo-Bentall procedure with transapical and transfemoral access, with SM FTEVAR and subsequent TAVR



# Key message

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- ✓ **TAIMH is an acute aortic syndrome occurring in elder patients with more comorbidities**
- ✓ **Identifying the risk factors for urgent repair, endovascular or open, may permit a more effective decision making**
- ✓ **Conservative management in uncomplicated cases performs equally to open and**



