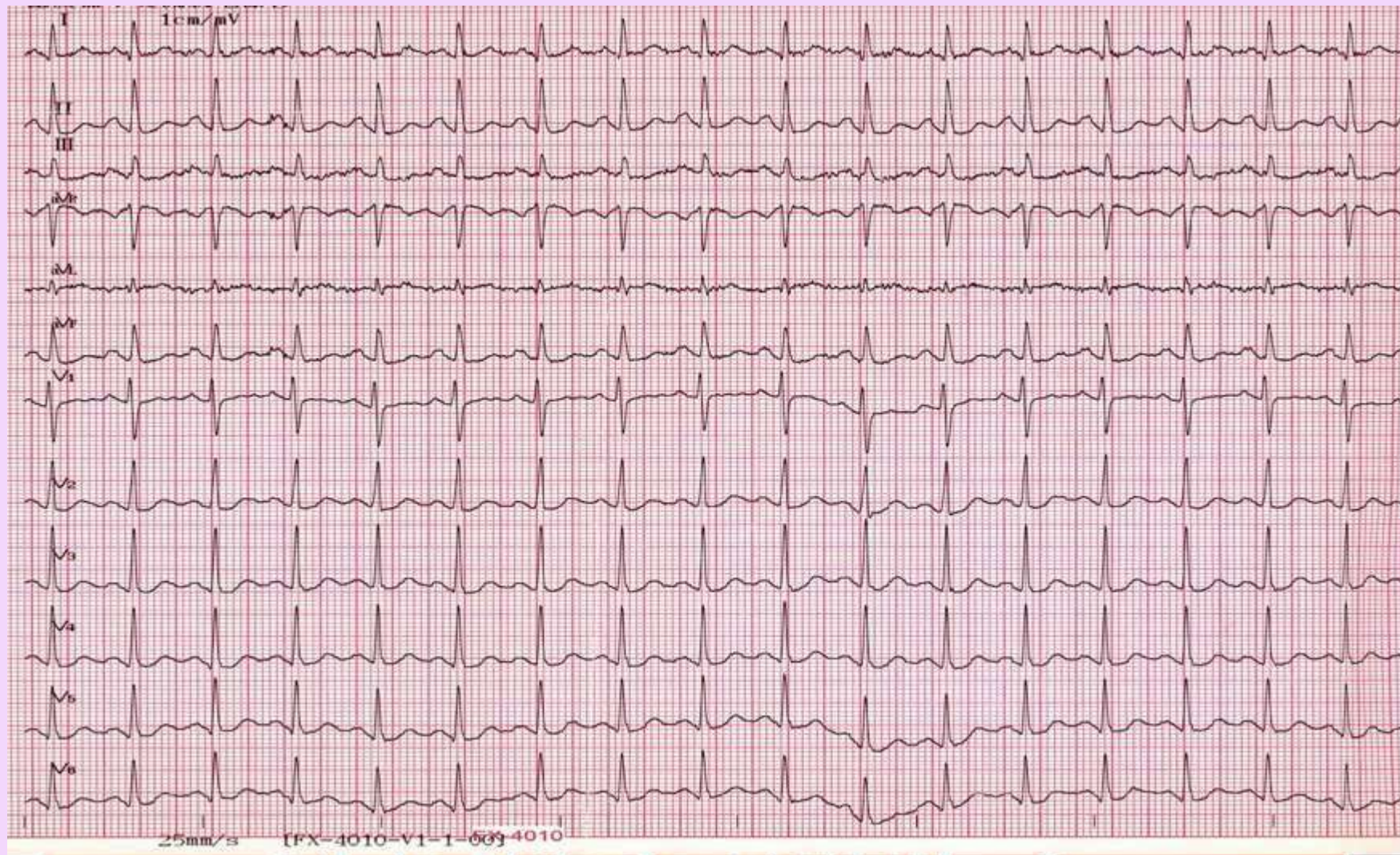
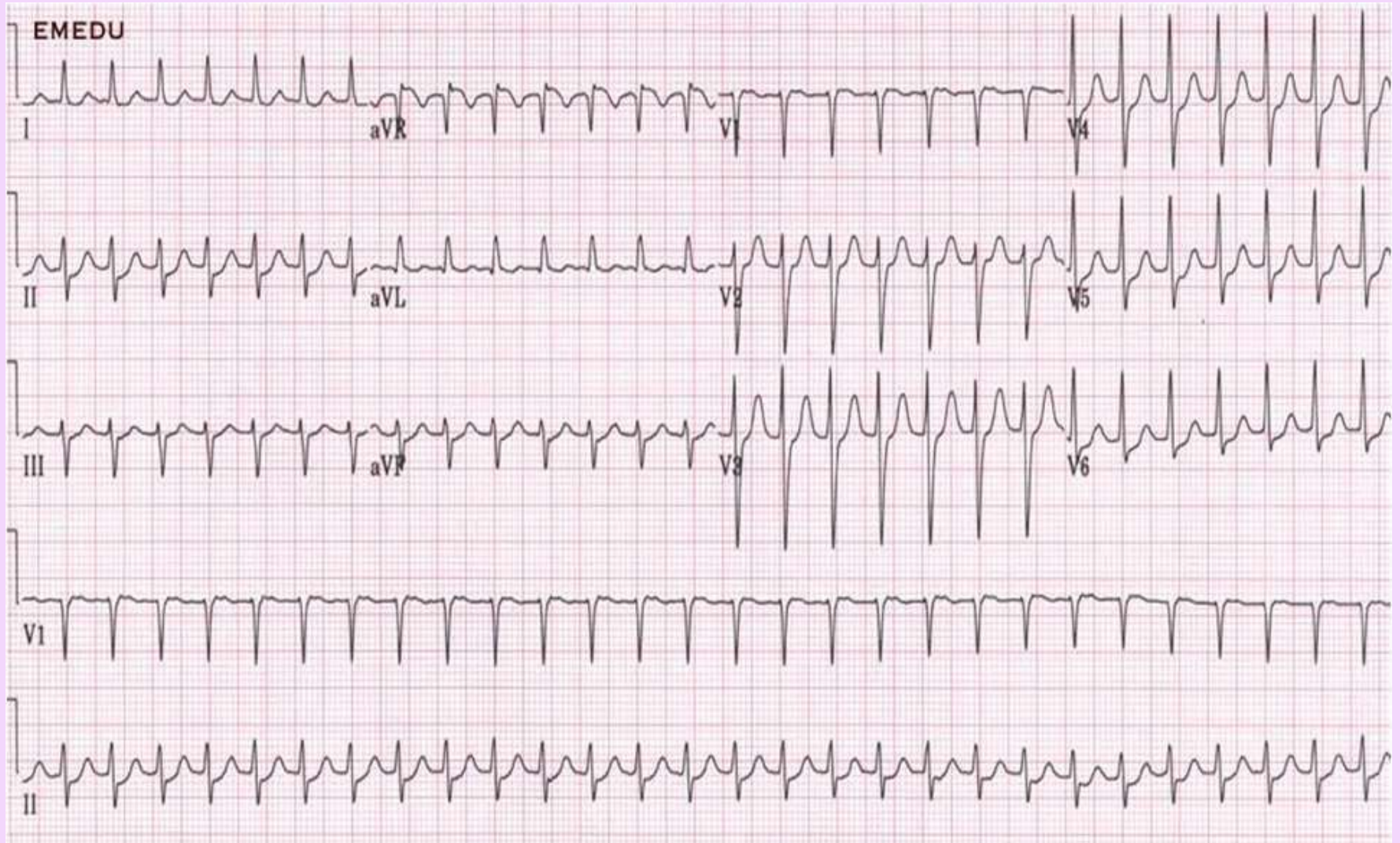


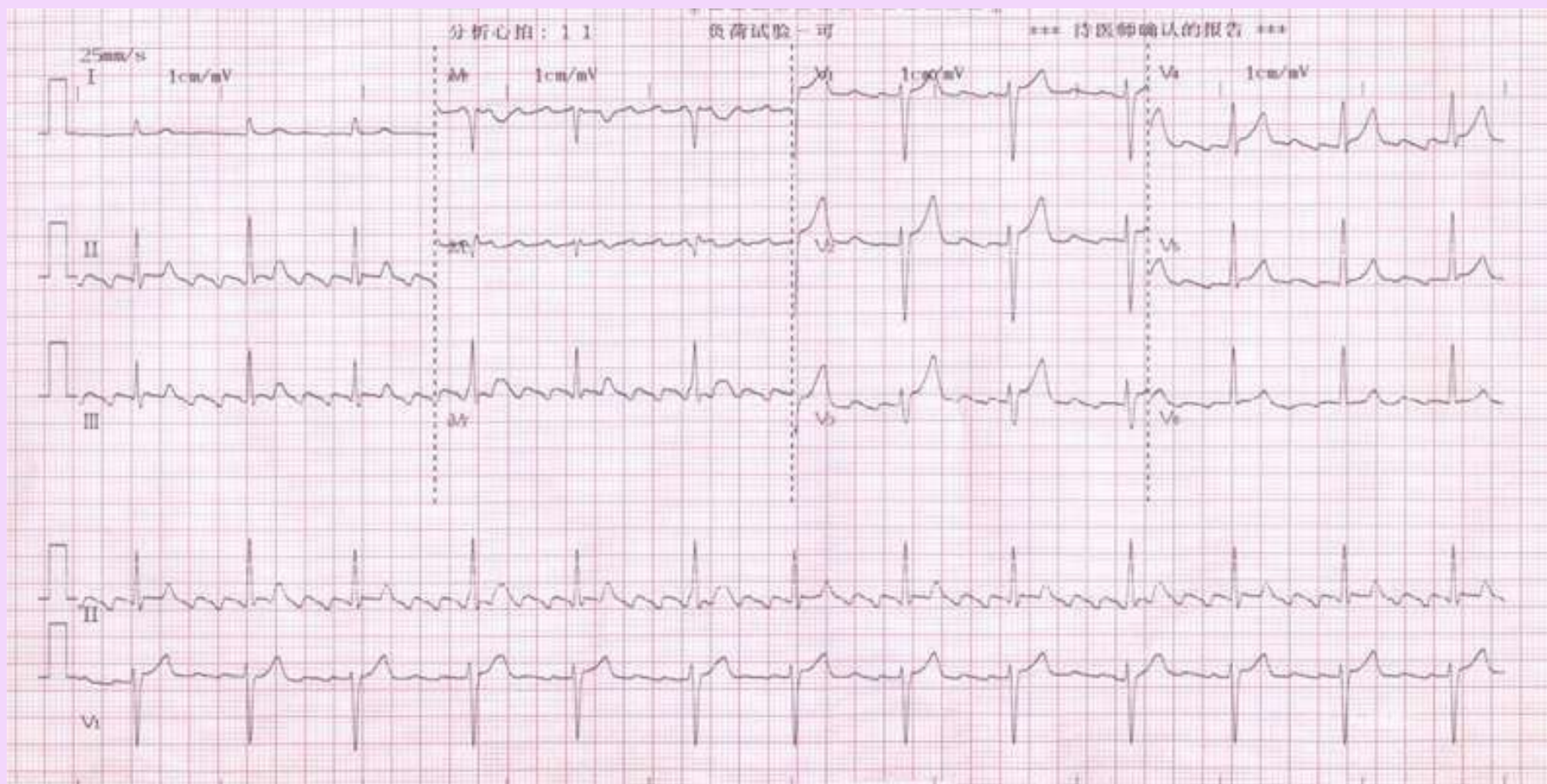
21/F, 心悸一周



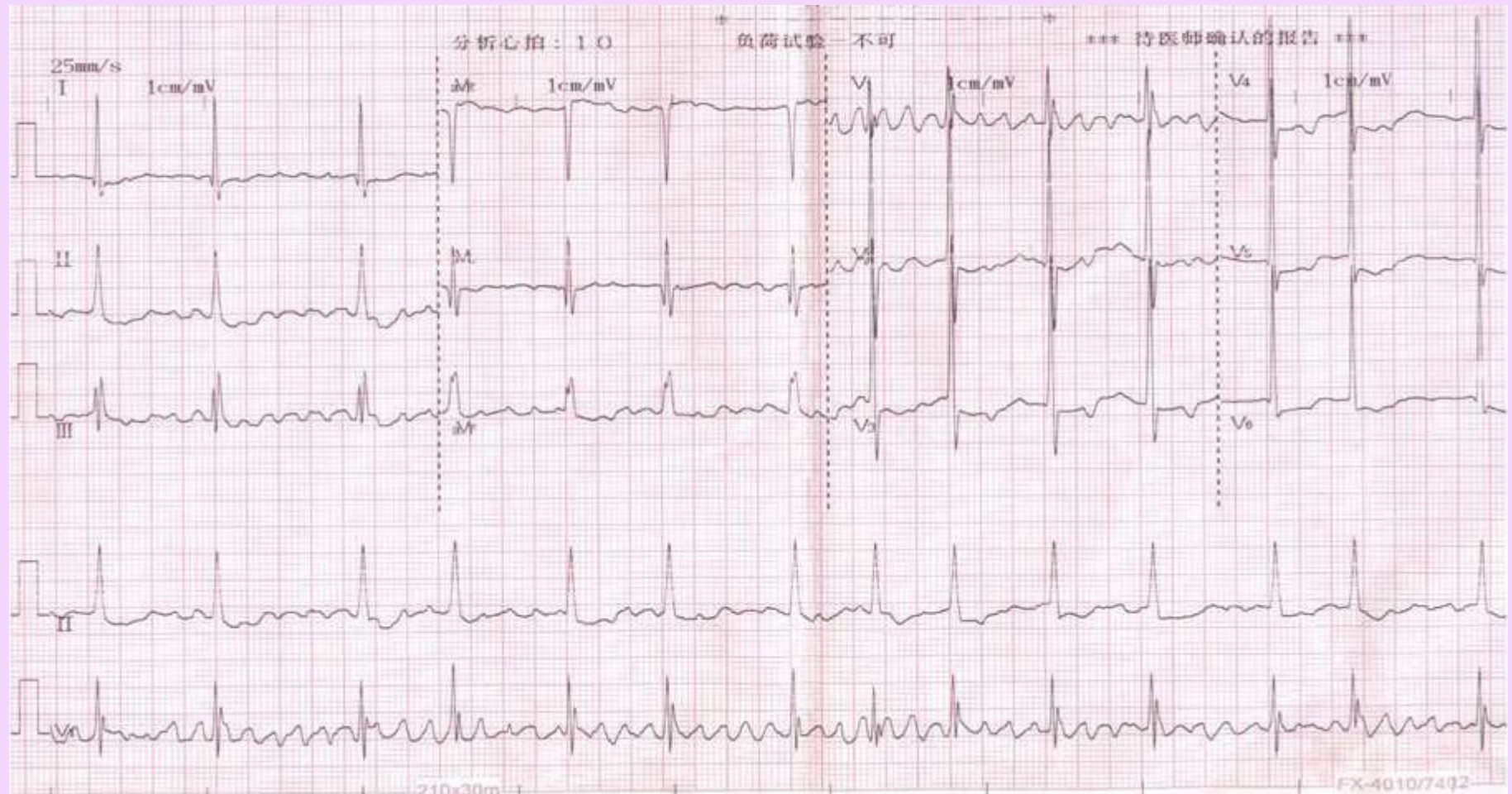
30/M, 发作性心悸1小时



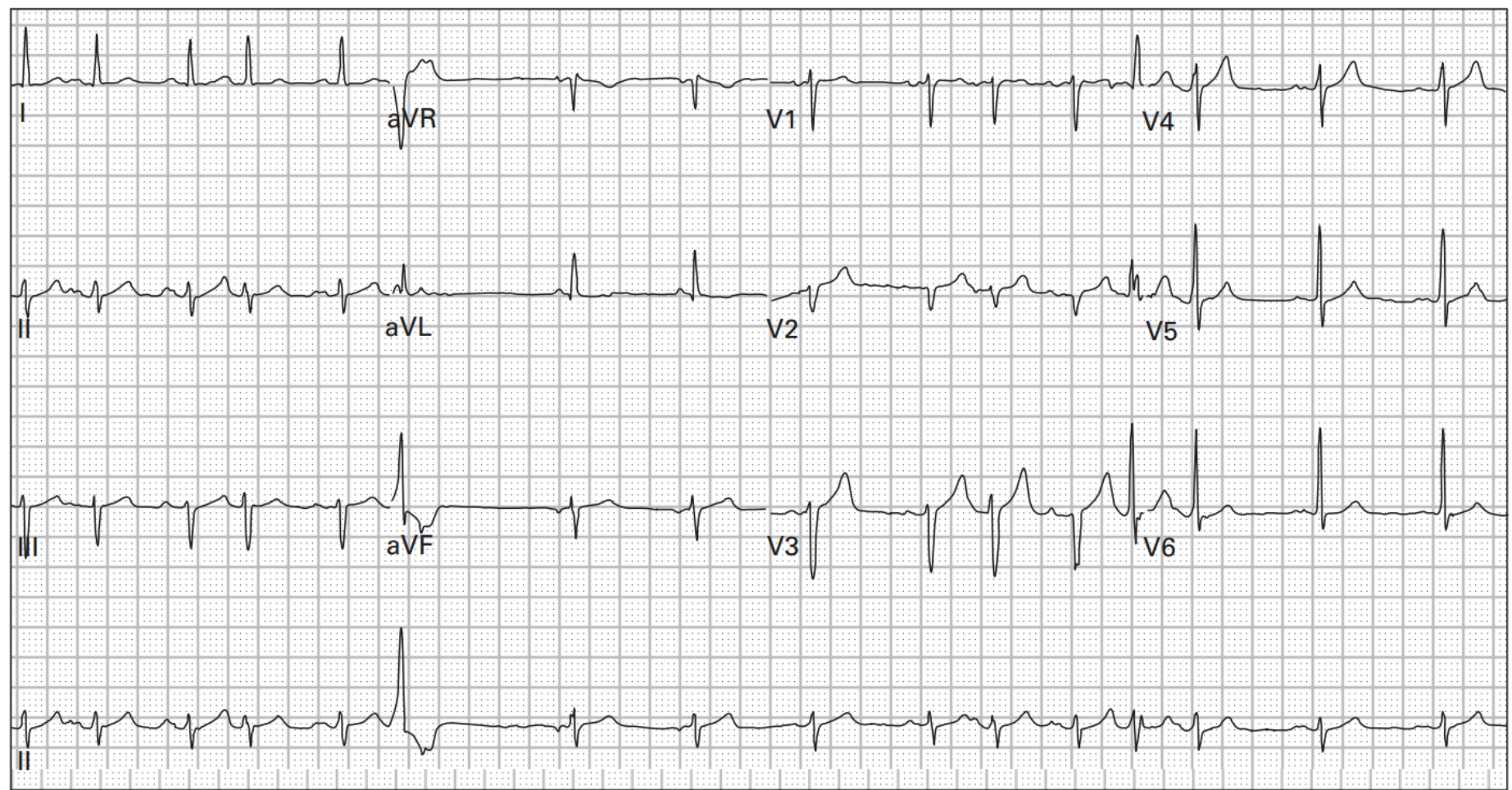
F/70, 阵发心悸4年



M/67, 高血压20年, 心悸1周

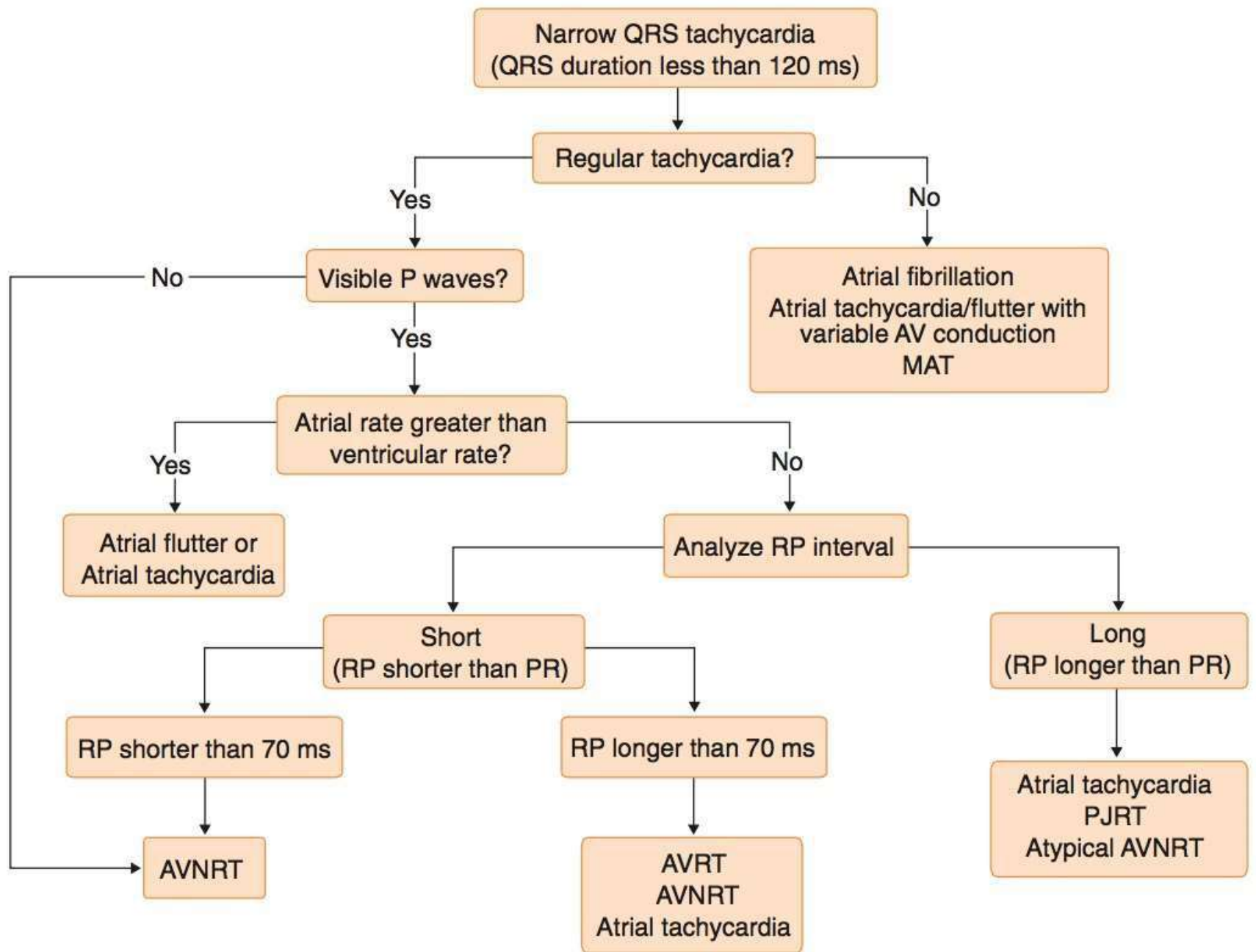


M/72, 严重肺气肿, 呼吸困难



Atrial Fibrillation

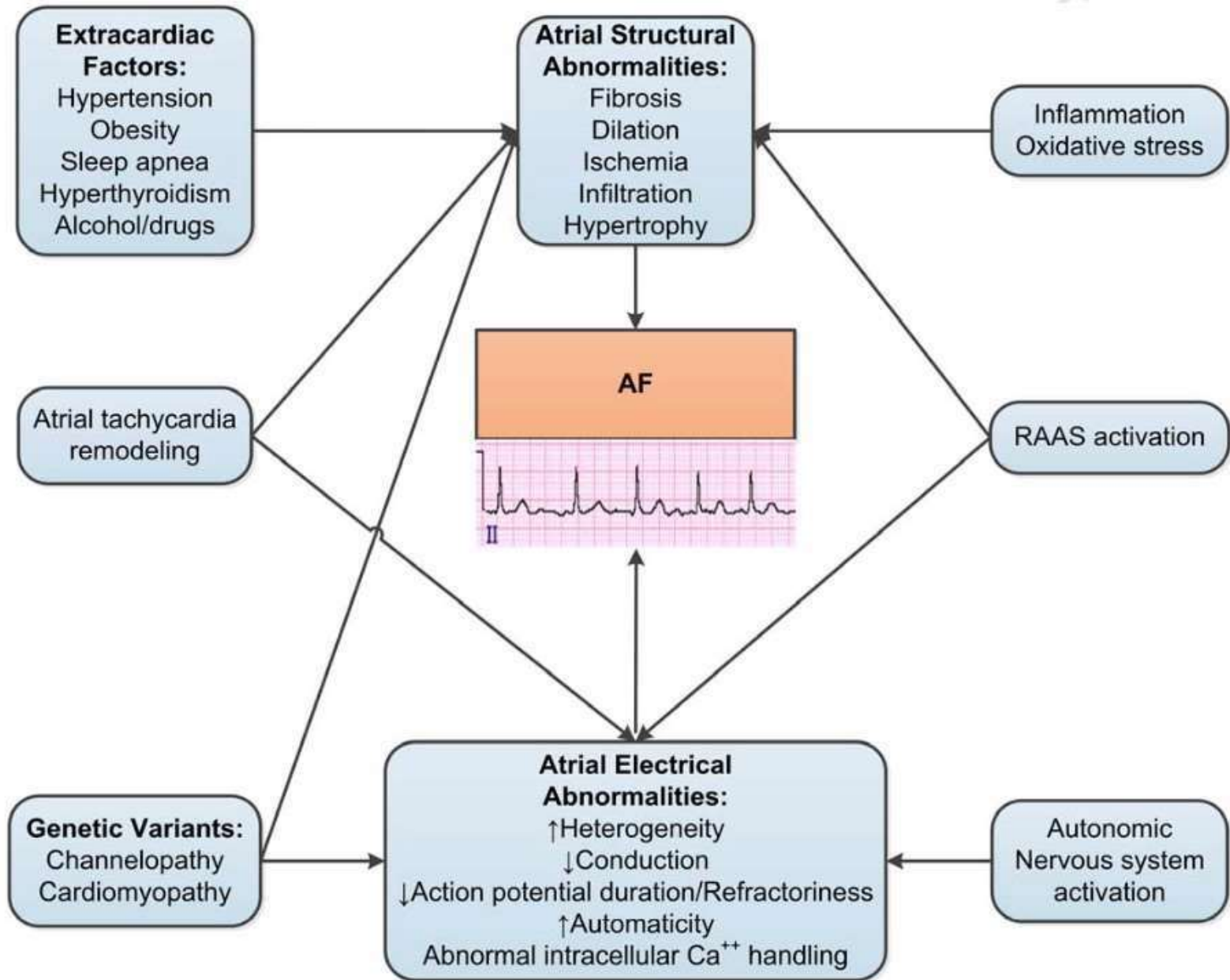
- Definition
 - AF is a supraventricular tachyarrhythmia with uncoordinated atrial activation and consequently ineffective atrial contraction
- ECG
 - 1) irregular R-R intervals
 - 2) absence of distinct repeating P waves
 - 3) irregular atrial activity
 - f wave 350-600bpm in V1



Hemodynamic consequences

- suboptimal ventricular rate control
- loss of coordinated atrial contraction
- beat-to-beat variability in ventricular filling
- sympathetic activation
- Ventricular filling↓↓ LVC↓↓ CO↓↓
 - mitral stenosis, hypertension, hypertrophic cardiomyopathy(HCM), restrictive cardiomyopathy

Figure 2. Mechanisms of AF



Risk factors

Clinical Risk Factors
Increasing age
Hypertension
Diabetes mellitus
MI
VHD
HF
Obesity
Obstructive sleep apnea
Cardiothoracic surgery
Smoking
Exercise
Alcohol use
Hyperthyroidism

Increased pulse pressure
European ancestry
Family history
Genetic variants
Electrocardiographic
LVH
Echocardiographic
LA enlargement
Decreased LV fractional shortening
Increased LV wall thickness
Biomarkers
Increased CRP
Increased BNP

Reversible Causes

- binge drinking, cardiothoracic and noncardiac surgery, myocardial infarction (MI), pericarditis, myocarditis, hyperthyroidism, electrocution, pneumonia, and pulmonary embolism
- WPW syndrome(pre-excitation) , AVNRT, atrial ectopic tachycardia

Classification

Paroxysmal AF	• AF that terminates spontaneously or with intervention within 7 d of onset. • Episodes may recur with variable frequency.
Persistent AF	• Continuous AF that is sustained >7 d.
Longstanding persistent AF	• Continuous AF of >12 mo duration.
Permanent AF	• Permanent AF is used when there has been a joint decision by the patient and clinician to cease further attempts to restore and/or maintain sinus rhythm. • Acceptance of AF represents a therapeutic attitude on the part of the patient and clinician rather than an inherent pathophysiological attribute of the AF. • Acceptance of AF may change as symptoms, the efficacy of therapeutic interventions, and patient and clinician preferences evolve.
Nonvalvular AF	• AF in the absence of rheumatic mitral stenosis, a mechanical or bioprosthetic heart valve, or mitral valve repair.

History taking

- Characterize the pattern of AF
- Determine its cause
- Define associated cardiac and extracardiac disease
- Assess thromboembolic risk

临床表现

- 疲乏、心悸、呼吸困难、低血压、晕厥、心衰；
- 心室率慢时可无症状；心室率 $>150\text{bpm}$ 时可发生心绞痛、心衰；
- 体循环栓塞事件（脑卒中、外周栓塞）

体格检查

- 心音强弱不等
- 心率绝对不齐
- 脉搏短绌
- 心室率较快时难以区分窦性心动过速，阵发性室上性心动过速，房颤，房扑，AVNRT及AVRT等。
- 房颤患者若心律规则
 - 恢复窦性心律、房速伴房室传导阻滞、房扑伴房室传导阻滞、交界区性心动过速、室性心动过速；心律规则且慢（30-60次/分）时考虑发生完全性房室传导阻滞

Labs

- ECG: diagnosis
- CXR: pulmonary disease and HF
- Echo/TEE: detect underlying structural heart disease and LA/LAA thrombi, assess cardiac function, evaluate atrial size
- U&Es: serum electrolytes, SCr
- Myocardial enzyme: AMI?
- Thyroid function: Hyperthyroidism
- Blood Rt: Anemia
- ABG: hypoxemia
- Serum digoxin level

Assess risk of thromboembolism and major bleeding events

- CHA2DS2-VASc(≥ 2 , non-valve disease)
 - Congestive heart failure, HTN, Age ≥ 75 y (doubled), DM, Prior Stroke or TIA or thromboembolism (doubled), Vascular disease, Age 65–74y, Sex category
- HAS-BLED(≥ 3)
 - HTN (SBP >160 mmHg), abnormal liver or renal function, history of stroke or bleeding, labile INRs, elderly age (>65 y), use of drugs that promote bleeding, or excess alcohol

Table 7. Comparison of the CHADS₂ and CHA₂DS₂-VASc Risk Stratification Scores for Subjects With Nonvalvular AF

Definition and Scores for CHADS ₂ and CHA ₂ DS ₂ -VASc		Stroke Risk Stratification With the CHADS ₂ and CHA ₂ DS ₂ -VASc scores	
	Score		Adjusted stroke rate (% per y)
CHADS₂ acronym		CHADS₂ acronym*	
Congestive HF	1	0	1.9%
Hypertension	1	1	2.8%
Age ≥75 y	1	2	4.0%
Diabetes mellitus	1	3	5.9%
Stroke/TIA/TE	2	4	8.5%
Maximum Score	6	5	12.5%
CHA₂DS₂-VASc acronym		6	18.2%
Congestive HF	1	CHA₂DS₂-VASc acronym†	
Hypertension	1	0	0%
Age ≥75 y	2	1	1.3%
Diabetes mellitus	1	2	2.2%
Stroke/TIA/TE	2	3	3.2%
Vascular disease (prior MI, PAD, or aortic plaque)	1	4	4.0%
Age 65–74 y	1	5	6.7%
Sex category (i.e., female sex)	1	6	9.8%
Maximum Score	9	7	9.6%
		8	6.7%
		9	15.20%

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