



# Subjective Improvement: Difficulties Of Frederick Syndrome Diagnostics

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# Frederick syndrome (FS)



FS is a combination of atrial fibrillation (AF) or atrial flutter with a complete atrioventricular (AV) block.

- **Risk factors:**

- Chronic ischemic heart disease, Cardiosclerosis, Heart defects, Myocarditis, Cardiomyopathies, Drug induced

- **Clinical features:**

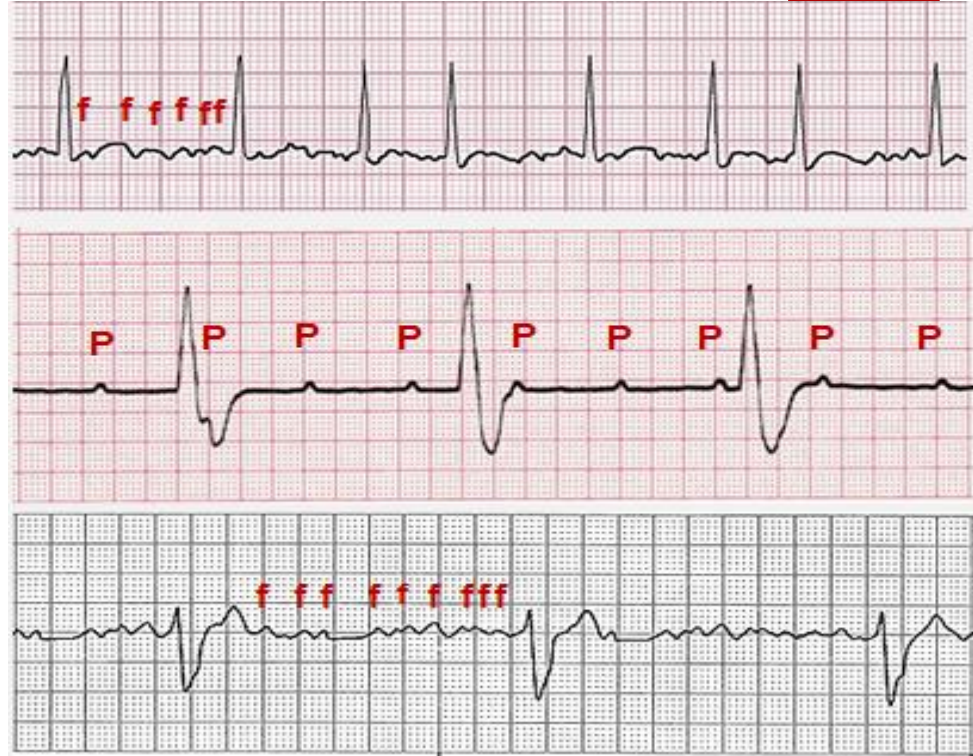
Gradual loss of atrial fibrillation's specific symptoms.

Appearance of AV block's symptoms for instance dizziness, Morgagni-Adams-Stokes (MAS) attacks. However, when ventricular rhythm is consistent at 50–60 beats/min, the patient's condition is subjectively improved, which often leads to difficulties in diagnosis.

# ECG Finding of the FS



1. AF: absent P waves, presence of fibrillatory (f) waves, irregular rhythm
2. 3<sup>rd</sup> degree AV block: P waves and QRS complexes occur regularly but at two distinctly different rates.
3. FS: absence of P waves, presence of f waves, regular ventricular rhythm



# Clinical case



## ○ **Passport data:**

Name: A.A.S.

Age: 79 years old

Gender: male

Address: Kharkov, Ukraine

Occupation: on pension

Date of admission: 21/09/2018

## ○ **Complaints:**

- Dyspnea with minimal exertion (walking on flat), relieved by rest.
- Lower extremities edema, more pronounced in the evening;
- General weakness
- Tiredness and decreased workability

# Anamnesis Morbi



- Palpitations initially appeared in 2010, intermittently and aggravated by increased workload.
- BP to 160/100 mm Hg. Diagnosis of Essential hypertension was concluded (Arterial hypertension, II gr., stage 2, permanent AF, with rapid ventricular response, treated with Valsartan, Amiodarone 200mg QD).
- In 2013 - permanent AF, with slow ventricular response (SVR). Due to improved general state (absence of palpitations and heart intermissions), Amiodarone dosage was decreased. Dynamic observation of the patient after transition of AF to SVR was not carried out.
- In 2015 - a sharp deterioration of the condition occurred - complete AV block (FS) with Morgagni-Adams-Stokes attacks developed, hence implantation of permanent pacemaker was done (VVI mode) with a HR of 70/min.
- Consequently patient was discharged in a satisfactory condition on Clopidogrel, Valsartan, Amiodarone, Hydrochlorothiazide.
- Since spring 2018 - progressive decrease in physical load tolerance and increased dyspnea. Thus was hospitalized due to progressive worsening of state in the last 3 days.

# Anamnesis vitae



## Insignificant

- Negative hereditary history;
- Patient denies tuberculosis, diabetes mellitus, viral hepatitis, sexually transmitted diseases and allergic reactions;
- Past medical history include URVI, chicken pox – in childhood;
- Denies drinking, smoking, drug abuse
- According to the patient there were no cardiovascular diseases in the family

# Objective status



- General condition of moderate severity, clear consciousness, active position,
- height - 162cm, weight - 76 kg, BMI = 29kg / m<sup>2</sup>
- Skin and mucosa: clean, pale, with preserved skin turgor and moistness;
- Presence of diffuse pitting edemas of both shins;
- Subcutaneous adipose tissue is developed moderately, distributed symmetrically.
- Thyroid gland is not enlarged;
- Lungs: dullness on percussion at the bases, harsh breathing over both lung fields and weakened at the bases on auscultation . RR-18/min
- Heart borders extend 2 cm to the left , heart sound are rhythmic, muffled, accentuated S2 sound over pulmonary artery, decrescendo systolic murmur at the apex, diastolic murmur above the aorta, HR 70 bpm. BP *sin* - 140/80mm Hg, *dext* - 140/85mm Hg (on antihypertensive therapy), radial pulse is synchronous, rhythmic at 70 bpm.
- On palpation abdomen is painless, liver +1 cm from costal margin, painless; spleen is not palpable. Tapping sign is negative on both sides. ( Pasternatskiy sign)

# Data of survey



## 1. Full blood count, urine analysis, biochemical panel:

### CBC

Hemoglobin, g/L	Erythrocytes $\times 10^{12}/l$	Color index	Leukocytes $\times 10^9/L$	ESR, mm/h
147	4.29	0.9	5.7	7

### Urine analysis

Specific gravity	PH	Protein, g / l	Glucose	Leucocytes	Epithelium	Bacteria
1.021	6.0	Not detected	Not detected	1-3	0	Not detected

### Biochemical panel

Urea, mmol/l	Creatinine,mg/dl	ALT, U/l	AST, U/l	FPG, mmol/l
4.8	1.2	20.7	14.1	3.6

All parameter within normal range.



# Data of survey



## 2. Lipid profile:

- I. **Total cholesterol** – 6,16mmol/l (N- 3,0-5,2)
- II. **VLDL-C** – 1,31 mmol/l (N <0,88)
- III. **LDL-C** – 3,87 mmol/l (N <3,5)
- IV. **HDL** – 1,0 mmol/l, (N >0,9)
- V. **Triglycerides** - 2,69mmol/l (N <1,95)
- VI. **Atherogenic coefficient** - 5,16 (N <3,0); HDL-C – 1,0 mmol/l (N>0,9)

## 3.Ultrasound of thyroid gland:

**hyperplasia of thyroid gland I degree.**

# Data of survey



4. Chest X-ray:  
without pathological changes

5. EchoCG:

- I. sclerotic changes in the walls of the aorta;
- II. signs of left ventricular hypertrophy (posterior wall thickness in diastole 1,13 (0,6-1,1 cm), the interventricular septum – 1,12 (0,6-1,1 cm));
- III. increased size of the left atrial chamber (anterior-posterior left atrial size 4,5 (4,0 cm));
- IV. mitral regurgitation of II degree, aortic regurgitation I degree, ejection fraction - 44% (55-65% Teincholz).

# Data of survey



- ECG finding :



Conclusion: pacemaker rhythm (VVI regimen), left axis deviation (aFQRS = -46,2), HR - 70 bpm, QRS – 54ms, QTc -370ms

# Clinical diagnosis according to the current classifications



# Current classifications



➤ **Grade 2 hypertension :**

**Bp: 160-179/100-109**

➤ **Stage III**, Organ damage due to hypertension :

Heart failure II A - III stage

➤ **High risk** of cardiovascular disease due to hypertension :

Grade 2 HT SBP 160-179 or DBP 100-109 and Organ Damage

➤ **Permanent AF :**

Applies when a physician and patient collectively accept the presence of AF and stop further attempts to restore and/or maintain sinus rhythm.

➤ EHRA score of atrial fibrillation – **Severe :**

Severe symptoms'; normal daily activity affected.

# Current classifications



➤ CHA <sub>2</sub> DS <sub>2</sub> -VASc Score - <b>High Risk</b> of Stroke :	Score 4 - Congestive heart failure 1S, Hypertension 1S, Age ≥75 years 2S
➤ NYHA classification of heart failure - <b>Class III</b> :	Marked limitation of physical activity in which less-than-ordinary activity results in fatigue, palpitation, dyspnea, or Anginal pain; the person is comfortable at rest
➤ Heart failure based on Ejection fraction values :	HFmrEF: LVEF- 40%- 49%
➤ BMI classification - <b>overweight</b> :	25.0 – 29.9 Kg/m <sup>2</sup>
➤ Lipoprotein patterns - <b>IIB</b> :	Increase in LDL, VLDL, TGs and Cholesterol

# Diagnosis



## **Main:**

Ischemic heart disease. Diffuse cardiosclerosis. Combined acquired heart defect: mitral valve insufficiency II degree, aortic regurgitation I degree. Atrial fibrillation, permanent form; Frederick syndrome with MAS syndrome (2015). Condition after implantation of pacemaker in VVI mode (2015). CHA2DS2-VASc - 4, HAS-BLED Score-2. Arterial Hypertension 2 grade, III stage, high risk. Hypertensive heart. Heart failure IIB, III FC (NYHA) with HFmrEF (EF – 44%). Dyslipidemia IIb.

**Concomitant:** Hyperplasia of thyroid gland of 1<sup>st</sup> degree

# Treatment

Medications prescribed at hospital	Our recommendations
<b>Torase mide</b> 20mg 1 time/day	<b>Torase mide</b> - 5mg once in 3 days with up-titration to 10 mg if needed under control of creatinine level
<b>Amiodarone</b> 200 mg 2 time/day	<b>Carvedilol</b> - initially 3,25 mg 2 times per day with gradually up-titration to the maximum tolerated dose
<b>Ramipril</b> (10 mg) 1 times/day <b>hydrochlorothiazide</b> 25 mg 1 time/day	<b>Perindopril</b> - initially 4 mg 1 times/day
<b>Clopidogrel</b> 75 mg 1 time daily	<b>Clopidogrel</b> 75mg 1 time/day
<b>Thiotriazolin</b> 4,0 ml IV 1 time\day	<b>Rozuvastatin</b> 10 mg once daily under the control of lipid profile and LFTs
	<b>Further investigations:</b> electrolytes (Na, K, Ca), BNP, INR, TFTs (TSH, T3, T4), Holter monitoring, consult of endocrinologist



# Conclusion



- Atrial fibrillation was detected 5 years before worsening of the patient's condition. No data on the patient's dynamic follow-up after “pseudo-improvement” of the patient's condition (transition to the slow-ventricular response type of AF) was provided.
- Late diagnosis was due to inappropriate timing of cardiac monitoring, which was necessary at the initial stage of heart rhythm reduction against the background of a constant form of AF with simultaneous complete AV block.
- Cardiology referral is necessary for management of patient with arrhythmias as it would ensure comprehensive treatment, including applicable time for cardiac surgery.

*Thank  
you!*

