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V.K. Tashchuk*, I.O. Makoviychyk#, D.I. Onofreychuk#, M.Yu. Dyachenko#, V.A. Shevchuk #

**MYOCARDIAL INFARCTION IN YOUNG WOMEN - CASUISTRY OR REALITY?
CASE REPORT**Higher State Educational Establishment of Ukraine "Bukovinian State Medical University"* (Chernivtsi)
Chernivtsi regional clinical cardiology center#

Abstract. The problem of myocardial infarction at a young age and in women is very relevant, because there are differences between women and men in the diagnosis of acute coronary syndrome treated by emergency percutaneous coronary intervention by age (women older), higher rate of multi-vessel disease in women, chronic kidney dis-

ease, acute heart failure by Killip IV at presentation etc. Learning clinical case of myocardial infarction in young women with coronaropathy possible due to hereditary diseases.

Key words: acute myocardial infarction, young women, coronary angiography, Pierre Robin syndrome.

Background. "To be, or not to be..." myocardial infarction at a very young age and in women? – "... - that is the question" (Hamlet, Act III, Scene 1). Dr. A.Gupta [13] said that various national campaigns launched in recent years have focused on young women with acute myocardial infarctions (AMI). At the same time although AMI mainly occurs in patients older than 45, young men or women can suffer AMI and fortunately, its incidence is not common in patients younger than 45 years [6]. It is known that AMI at a young age is commonly characterized by evidence of multiple cardiovascular risk factors and by a favorable prognosis in short- and medium-term follow-up [1].

As an example each year more than 30,000 women younger than 55 years of age are hospitalized with AMI in the USA [13], but the authors said about AMI admissions for patients in subgroups of age (30-34, 35-39, 40-44, 45-49, and 50-54 years of age – because its incidence is not common in patients younger than 45 years), sex (women and men), and race (white and black) [14] and the causes of MI among patients aged less than 45 can be divided into four groups: 1) atheromatous coronary artery disease; 2) non-atheromatous coronary artery disease; 2) hyper-coagulable states; 4) MI related to substance misuse. But another authors [9] associate pathophysiology of AMI in teenagers and young adults which is varied but not usually due to atherosclerotic plaque rupture except for those with genetically predetermined or familial hyperlipidaemias. AMI in a young healthy female without significant traditional risk factors is uncommon and spontaneous coronary artery dissection, though an infrequent cause of acute myocardial infarction, is an increasingly recognized etiology in young, otherwise healthy females [8]. An important role is belongs by the study of the impact of association between various gene polymorphisms and the phenotypic expression of AMI - ApoE polymorphism (presence of *epsilon4* allele) appears to be a strong independent predictor of adverse events, suggesting a remarkable influence in the accelerated coronary disease [1].

Objectives. The aim of our report is one case of acute myocardial infarction involving the anterior interventricular branch of left coronary artery in healthy young females with genetic risk factors.

Methods. The case report in this review illustrates an AMI in a young woman that was to objectively performing electrocardiography (ECG), cardiac troponin assay, echocardiography (EchoCG), and coronary angiography.

Results. AMI in the teenage years of life is a rare phenomenon and it's more rare in patients who have no risk factors or comorbid conditions or normal coronary arteries [10]. A case of AMI in a young woman (26 years) without familial, inherent, or extraneous risk factors but in case of genetic pathology ("Pierre Robin sequence" (PRS), also referred to as "Pierre Robin malformation", "Pierre Robin malformation sequence", "Robin sequence", "Pierre Robin syndrome", and "Pierre Robin anomalad", which consists of three essential components: 1) micrognathia or retrognathia, 2) cleft palate (usually U-shaped but sometimes V-shaped), 3) glossoptosis, often accompanied by airway obstruction) is presented. We have not information about communication between AMI and PRS, but upper airway obstruction may occur at anomalies of development (PRS) [11].

At admission complaints of general weakness shortness of breath, chest pain, which give the left shoulder – patient appealed for help to the doctor GP after four and half hours and after recording an ECG went by sanitary transport to Chernivtsy Cardiologic Center (PCI able). From history: in April 2015 noted the short-term pain behind the breastbone, ECG were normal. In June 2016 emotional stress again after having chest pains, lasting about 30 minutes, passed examination - EchoCG (mitral valve prolapse). On admission patient showed typical levels of troponin test (1820 ng/L), ECG (ST segment elevation in leads I, aVL, V₂-V₆ and QS waves in leads V₂-V₄), EchoCG (left ventricular ejection fraction is 55 % with anterior wall hypokinesis), coronary angiography (were detected hemodynamically significant stenosis and signs of parietal thrombus in the proximal anterior interventricular branch of the left coronary artery)) and after this was implanted stent without drug coverage (BMS) with a diameter of 3.0 mm and a length of 22 mm (pict. 1). Peculiarity of our case should also be considered as standard showing of sex hormones (our patient showed the level of sex

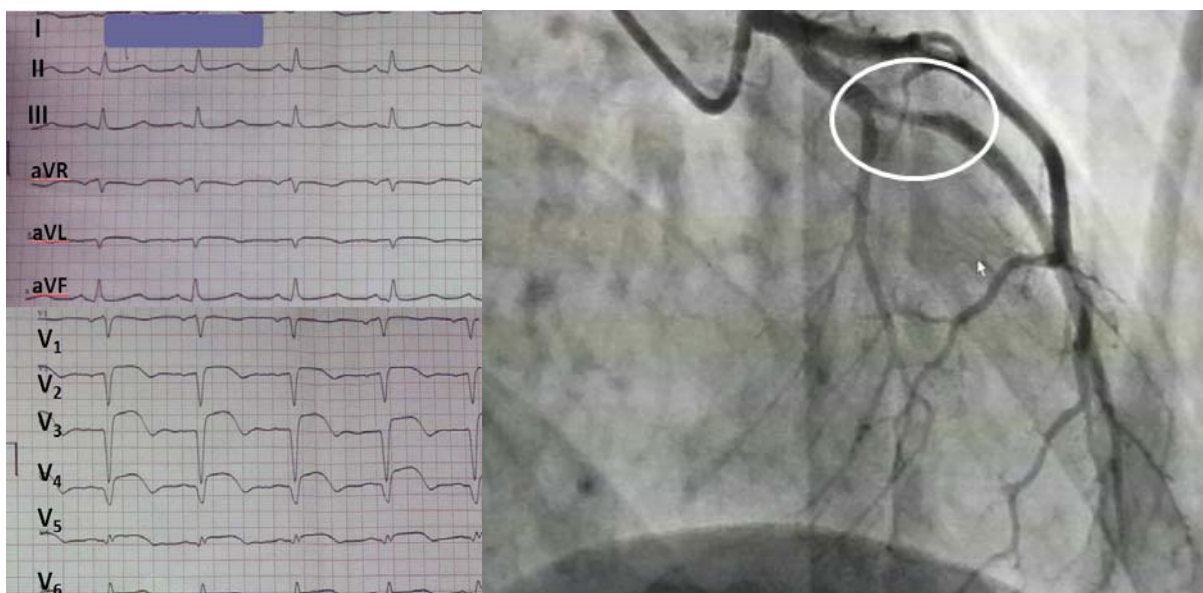


Fig. 1. Electrocardiogram of our patient at presentation and cardiac catheterization pictures of proximal LAD

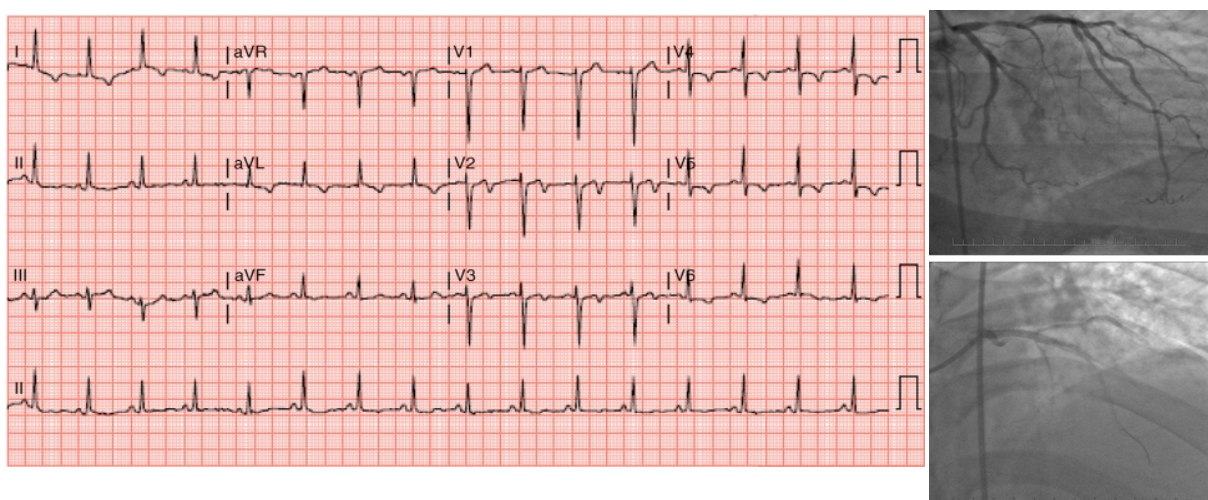


Fig. 2. Electrocardiogram of the patient at presentation and cardiac catheterization pictures of proximal LAD before and after stent placement in case of Wellen's syndrome [7]

hormone it's a normal for testosterone 1,26 nmol/L (normal level for young woman is 0,290-1,67 nmol/L), progesterone 1,21 ng/mL (normal level for young woman is depends on the phase of the cycle 0,2-1,5 / 0,8-3,0 / 1,7-27,0 ng/mL), not significantly increased prolactin 23,58 ng/mL (normal level for young woman is 4,79-23,3 ng/mL), sex hormone binding globulin (SHBG) 127,4 nmol/L (normal level for young woman is 32,4-128,0 nmol/L), free androgen index as a total testosterone/SHBG 0,99 units (normal level for young woman is 0,297-5,62 units), dehydroepiandrosterone sulfate (DHEA-s) 209,2 ug/dL (normal level for young woman is 98,8-340,0 ug/dL), anti-mullerian hormone 2,63 ng/mL (normal level for young woman is 1,83-7,53 ng/mL). Consequently sex hormones are not relevant in this case with AMI in young women.

The anterior interventricular branch of left coronary artery (the left anterior descending artery - also LAD, anterior interventricular branch of the left coronary artery, or anterior descending branch) also known as the "widow maker" and popular problems

of Wellen's syndrome with typically ECG features (pict. 2) [7]. This patient presented with "Type 1" or "A" Wellen's, which comprises 25 % of cases and has biphasic T waves in lead V2 and V3, other patients with syndrome Wellen's demonstrated "Type 2" or "B" syndrome Wellen's, which is deeply inverted, symmetrical T waves in predominantly V2 and V3 (75% cases of syndrome Wellen's) [7], that was different from our case.

In the same time in "Pierre Robin syndrome" mutations in the COL2A1 or COL11A1 genes cause connective tissue dysplasia that results in a short ramus and antegonial notching of the mandibular body and subsequent micrognathia [12]. Mutations in the collagen type II alpha-1 gene (COL2A1) have been reported to be responsible for a series of abnormalities, known as type II collagenopathies, and 16 definite disorders have been described to be associated with the COL2A1 mutations [5].

Obstruction of upper airway may occur at anomalies of development ("Pierre Robin syndrome"

etc) [4, 2] and maybe recurrent episodes of hypoxia was the cause of coronaropathy in this case?

The problem of myocardial infarction at a young age and in women is very relevant, because there are differences between women and men in the diagnosis of acute coronary syndrome treated by emergency percutaneous coronary intervention by age (women older), higher rate of multi-vessel disease in women, chronic kidney disease, Killip IV at presentation etc [3]. And now we say about case of AMI in a young women with mutations in the COL2A1 or COL11A1 genes cause connective tissue dysplasia as a cause of heart attack in conditions of constant hypoxia as a possible cause of atherogenesis.

Prospects for further research. Further studies require the development of a heart attack with an estimate of the influence of young age and sex.

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ИНФАРКТ МИОКАРДА У МОЛОДЫХ ЖЕНЩИН - КАЗУИСТИКА ИЛИ РЕАЛЬНОСТЬ? КЛИНИЧЕСКИЙ СЛУЧАЙ

В.К. Ташук, І.О. Маковійчук#, Д.І. Онофрейчук#, М.Ю. Дяченко#, В.А. Шевчук#*

Резюме. Проблема инфаркта миокарда у женщин молодого возраста является актуальной, существуют различия между женщинами и мужчинами в объективизации острого коронарного синдрома, распространенности экстренного транскутанеального коронарного вмешательства, в распределении по возрасту (женщины старше), более высоком уровне множественного поражения коронарных сосудов, наличия хронических заболеваний почек, острой сердечной недостаточности Killip IV при поступлении и т.д. Представленный клинический случай инфаркта миокарда у молодой женщины с коронаропатией возможно связан с наследственным заболеванием.

Ключевые слова: острый инфаркт миокарда, молодые женщины, коронарография, синдром Пьера Робина.

ИНФАРКТ МИОКАРДА У МОЛОДИХ ЖІНОК - КАЗУЇСТИКА ЧИ РЕАЛЬНІСТЬ? КЛІНІЧНИЙ ВИПАДОК

В.К. Ташук, І.О. Маковійчук#, Д.І. Онофрейчук#, М.Ю. Дяченко#, В.А. Шевчук#*

Резюме. Проблема інфаркту міокарда у жінок молодого віку є актуальною, існують відмінності між жінками і чоловіками в об'єктивізації гострого коронарного синдрому, поширеності екстренного транскутанеального коронарного втручання, у розподілі за віком (жінки старші), більш високим рівнем множинного ураження коронарних судин, наявності хронічних захворювань нирок, гострої серцевої недостаточності Killip IV під час надходження і т.п. Представлений клінічний випадок інфаркту міокарда в молодій жінки з коронаропатією можливо пов'язаний зі спадковим захворюванням.

Ключові слова: гострий інфаркт міокарда, молоді жінки, коронарографія, синдром П'єра Робіна.

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Чернівецький обласний клінічний кардіологічний диспансер#

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