# EFFICACY OF HANDHELD ECHOCARDIOGRAPHY (HHE) IN THE EMERGENCY SETTING: REPORT OF A CASE OF DILATED CARDIOMIOPATHY IN A YOUNG MALE

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***Keywords:*** *hand-held echocardiography, dilatative cardiomiopathy*

***Abstract:*** *We present the case of an apparently healthy young male in whom the diagnosis of dilatative cardiomiopathy was done by handheld echocardiography (HHE) in the emergency ward prompting to immediate specific care without delay and we present comparativly images from both HHE and standard high-performace echocardiography.*

***Cuvinte cheie:*** *ecocardiografie miniaturizată mobilă, cardmiopatie dilatativă*

***Rezumat:*** *Prezentăm cazul unui pacient tânăr şi aparent clinic sănătos la care diagnosticul de cardiomiopatie dilatativă a fost pus precoce cu ajutorul EMM efectuată în camera de gardă, permiţând iniţierea promptă a tratamentului de specialitate. Prezentăm comparativ imagini înregistrate cu EMM şi cu un ecocardiograf standard de înaltă performanţă.*

## INTRODUCTION

Recent advances in technology have made possible the miniaturization of the ultrasonographic devices. The advantages of the handheld echocardiography (HHE) are related to the small size of the devices and to the structural and functional data provided by the two-dimensional and colour Doppler examination techniques.(1)

## PURPOSE

The aim of the present paper is to present an unusual case of dyspnea in an apparently healthy young male which was effective and promptly diagnosed by HHE.

## CASE PRESENTATION

A 35-year old male, occasional smoker and with a recent episode of respiratory tract infection in the presented himself to the emergency ward for palpitations and increasing dyspnea at low-intensity physical exertion. The patient had normal body mass index, and the physical examination showed resting heart rate of 102 beats/min and sitting blood pressure of 117/86 mmHg. There were no signs suggestive for a respiratory illness as a cause of the dyspnea, nor signs of cardiac decompensation

The 12-lead ECG tracing showed normal sinus rhythm with a rate of 101/minute, a horizontalized QRS axis and no morphological disturbances. Chest X ray and routine blood examination (which did not include BNP testing) were negative.
HHE (V-Scan, General Electric) was available and the junior doctor on duty performed bedside echocardiographic examination of the patient in the emergency ward. Bi-dimensional examination showed a dilated left ventricle with a severely depressed ejection fraction estimated visually to be in the range of 20%-30%. There were mitral regurgitation and a slightly dilated right atrium (figures no. 1-3).

An experienced sonographer at a later echocardiographic examination using a standard echo machine confirmed these findings (figures no. 4-6) and the patient underwent the clinical pathway for diagnostic work-up of the dilative cardiomyopathy.

**Figure no. 1. Parasternal long axis recorded by HHE**

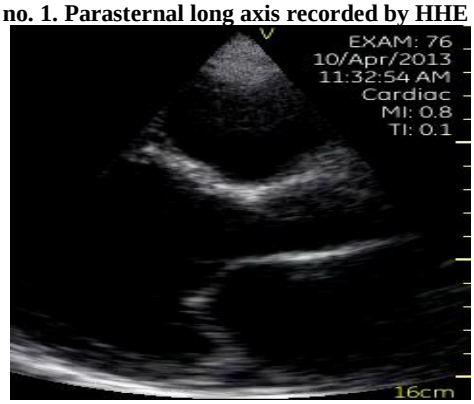


**Figure no. 2. Parasternal long axis recorded by standard-echo**

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**Figure no. 3. Parasternal short axis recorded by HHE**

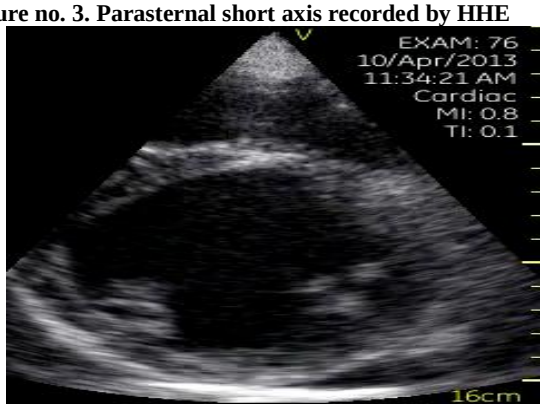


**Figure no. 4. Parasternal short axis recorded by standard echo**

**Figure no. 5. Apical 4 chambers view witch colour Doppler recorded by HHE**

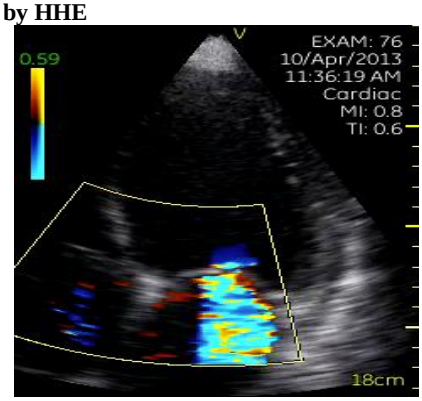


**Figure no. 6. Apical 4 chambers view witch colour Doppler recorded by HHE**

HHE has limited technical features but allow an immediate screening complementary to the physical examination.(2)

In the present case, the immediate availability of the HHE was of utmost importance for the early diagnostic of the underlying condition and the initiation of the appropriate treatment.

Current guidelines recommend the use of the hand-held imaging devices as a tool for initial screening in the emergency setting but care has to be taken not to under or over-estimate the severity of the underlying condition by HHE performed in emergency settings.(3)

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