Original Article

Cardiac Manifestations in Iranian Patients with Behçet's Disease

Soraya Shadmanfar, MD[1, 3], Maryam Masoumi, MD[2,3*], Fereydoun Davatchi, MD[3,4], Massoomeh Akhlaghi, MD[3], Seyedeh Tahereh Faezi, MD[3], Hoda Kavosi, MD[3], Javad Balasi, MD[5], Niloofar Deravi, MD[6], Seyed Mohammad Hashem Montazeri, MD[7], Mansoor Namazi, MD[2,8]

[1]*Health Research Center, Lifestyle Institute, Baqiyatallah University of Medical Sciences, Tehran, Iran.*
[2]*Clinical Research Development Center, Shahid Beheshti Hospital, Qom University of Medical Sciences, Qom, Iran.*
[3]*Rheumatology Research Center, Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran.*
[4]*Iran National Elite Foundation, Tehran, Iran.*
[5]*School of Medicine, Iran University of Medical Sciences, Tehran, Iran.*
[6]*School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.*
[7]*School of Medicine, Qom University of Medical Sciences, Qom, Iran.*
[8]*Shahid Beheshti Hospital, Qom University of Medical Sciences, Qom, Iran.*

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Abstract

Background: *Behcet's disease (BD) is a vasculitis with multisystem and multiorgan involvement. Cardiac involvement in BD is a rare complication with a poor outcome that manifests itself in different forms. In this study, we aimed to investigate cardiac involvement in BD.*

Methods: *This is a retrospective study based on cardiac manifestations in BD according to the data of the Behçet's Disease Unit, the Rheumatology Research Center, Tehran University of Medical Sciences, from registered patients from 1975 until June 2017. Cardiac manifestations consisted of pericarditis, myocardiopathy, myocardial infarction, stable ischemic heart disease, endomyocardial fibrosis, thrombosis, and valvular and coronary involvement. All the patients' baseline and demographic data were recorded in a designed questionnaire. The laboratory workups, imaging, and pathological tests were also performed.*

Results: *We studied 7650 patients with BD, of whom 51% were male. In the entire study population, 47 patients manifested cardiac involvement: valvular involvement in 6.1%, myocardial infarction in 23.4%, stable ischemic heart disease in 20%, pericarditis in 21.3%, intracardiac thrombosis in 2.1%, coronary aneurysm in 2.1%, heart failure in 12.8%, and dilated cardiomyopathy in 4.3%.*

Conclusion: *The prevalence of cardiac involvement in our patients with BD was 0.6%. A multidisciplinary approach can reduce mortality and morbidity rates. Consequently, we suggest that echocardiography and other cardiac diagnostic tests be routinely considered for early diagnosis and subsequent treatment.*

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Keywords: *Behçet's syndrome; Cardiovascular diseases; Iran*

[*]**Corresponding Author:** ***Maryam Masoumi,*** *Assistant Professor of Rheumatology, Clinical Research Development Center, Shahid Beheshti Hospital, Azadegan Sq, Shahid Beheshti Blvd, Qom, Iran. 3719964797. Tel: +98 25 37726688. Fax: +98 25 37706470. E-mail: Mmasoomi@muq.ac.ir.*

Introduction

Behçet's disease (BD) is a rare systemic vasculitis with the highest prevalence in Turkey, followed by Iran, Korea, Japan, China, and Saudi Arabia. By comparison, the prevalence of BD is low in Western countries and is mostly seen in immigrants.[1] BD may mimic many diseases, its several faces and symptoms varying from person to person. It can involve nearly all systems of the body with recurrent oral and genital ulcers, as well as ocular, neurological, musculoskeletal, cardiovascular, and gastrointestinal manifestations.[2-5] Its most frequent pathology is inflammation in arteries and veins.[6] Cardiovascular manifestations occur in 6% of patients with BD and mostly in individuals between 20 and 40 years of age.[7] Cardiac manifestations in BD, albeit rate, constitute a severe complication leading to poor outcomes and high mortality rates.[5, 8] Such manifestations can take the form of valvular involvement, endocarditis, myocarditis, endomyocardial fibrosis, myocardial infarction, intracardiac thrombosis, pericarditis, and dilated cardiomyopathy.[5, 8] Considering the importance of these life-threatening complications,[9] we herein report our experience with the cardiac manifestations of BD in the Iranian population.

Methods

The present descriptive study was conducted using the data from registered patients with BD from June 1975 to June 2017 at the Behçet's Disease Unit, the Rheumatology Research Center of Tehran University of Medical Sciences. From this total, 96.8% of the patients fulfilled the international criteria for Behçet's disease (ICBD).[10] The study protocol applied in the present study was in accordance with the Helsinki Declaration and was approved by the Ethics Committee of Tehran University of Medical Sciences.

Cardiac involvement was considered BD-induced if it occurred simultaneously with BD flares and if other probable causes were excluded. All the patients' baseline and demographic data were recorded in a designed questionnaire. Laboratory workups, imaging, and pathological tests were also performed. In addition to patients with a recent diagnosis of BD, patients with a previous history of BD were included. Echocardiographic diameters were evaluated by transthoracic echocardiography with 2D probes, which can screen between 2 and 4 or 1.5 and 4.5 MHz. Volumes were measured with 2 and 4 blank images via the corrected Simpson's method. Each valve structure and its function were evaluated with a Vivid 3 pro series Ge Vivid 3 echocardiography machine (GE Medical Systems, Milwaukee, USA).

Cardiac manifestations consisted of pericarditis, myocardiopathy, myocardial infarction, stable ischemic heart disease, endomyocardial fibrosis, thrombosis, and valvular and coronary involvement. Two cases with dilated cardiomyopathy were confirmed by cardiac biopsies, and BD in a patient with intracardiac thrombosis was diagnosed after thrombosis development.

Data were entered into statistical software SPSS 22 (SPSS Inc, Chicago, IL) and analyzed using descriptive statistics. Qualitative data were expressed as frequencies (percentages), and quantitative data were described with statistics such as the mean and the standard deviation. Finally, the results were presented with the aid of descriptive graphs and tables.

Results

The study population was composed of 7650 patients with BD, all of whom fulfilled the ICBD criteria. Forty-seven patients (23 men and 22 women, 0.6% of the study population) had cardiovascular lesions. The mean age at the onset of BD was 29.50±11.02 years. Oral aphthosis was detected in 43 (91.5%), pseudofolliculitis in 28 (59.6%), positive pathergy tests in 27 (57.4%), genital aphthosis in 26 (53.5%), posterior uveitis in 26 (59.6%), retinal vasculitis in 26 (55.3%), anterior uveitis in 24 (53.3%), positive HLA B5 in 23 (48.9%), oligoarthritis in 14 (29.8%), erythema nodosum in 11 (25.5%), arthralgia in 10 (23.1%), monoarthritis in 11 (23.4%), gastrointestinal manifestations in 6 (12.8%), neurological manifestations in 5 (14.9%), spondyloarthritis in 3 (6.4%), pulmonary vasculitis in 1 (2.1%), and pleurisies in 1 (2.1%). Nine cases (20.0%) suffered from vascular manifestations. Deep vein thrombosis occurred in 4 patients (8.5%), superficial vein thrombosis in 3 (6.4%), vascular aneurysm in 2 (4.3%), and large vein thrombosis in 1 (2.1%). The demographic data and a summary of clinical and laboratory findings are shown in Table 1 and Figure 1.

The clinical manifestations of BD are classified into a variety of categories, including systemic manifestations, embolic events, and cardiac manifestations. This study investigated cardiac manifestations. The results are demonstrated in Table 1.

Table 1. Summary of cardiac manifestations in the study patients with Behçet's disease

Manifestation	n (%)
Valvular involvement	11 (23.4)
Pericarditis	10 (21.3)
Myocardial infarction	9 (19.1)
Stable ischemic heart disease	8 (17.0)
Heart failure	6 (12.8)
Dilated cardiomyopathy	2 (4.3)
Intracardiac thrombosis	1 (2.1)
Coronary aneurysm	1 (2.1)

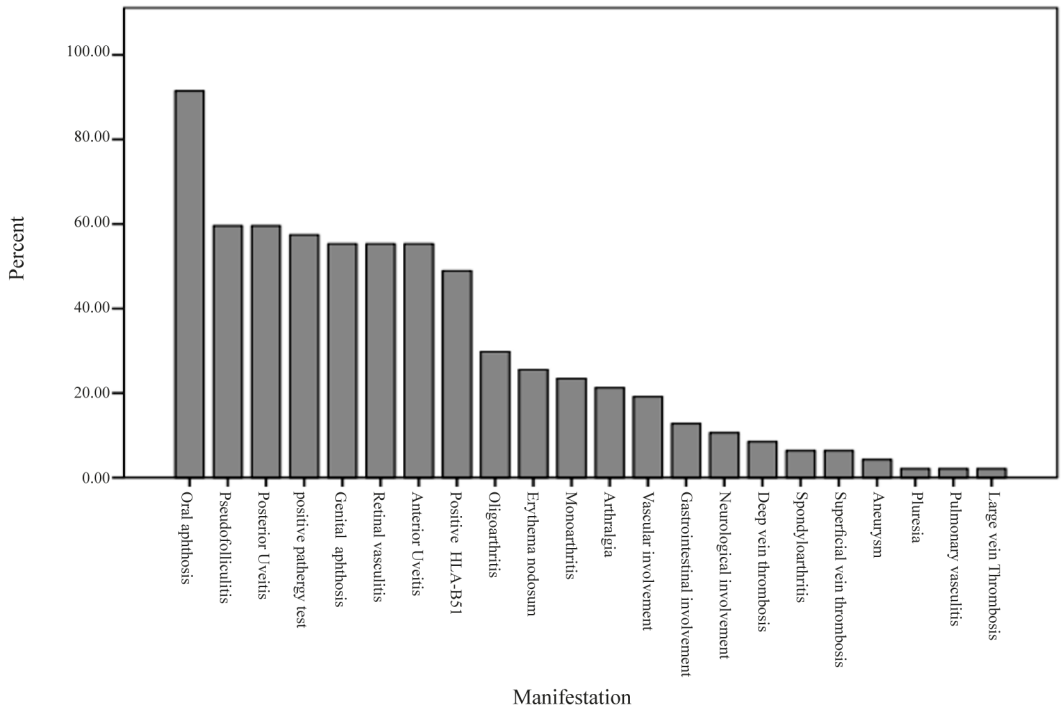

Figure 1. The image depicts Behçet's disease manifestations in the studied patients with cardiac involvement.

Discussion

BD is a vasculitis disease that affects vessels of all sizes. Although the main pathophysiology is unknown, inflamed endothelial cells within vessels are the leading cause of vascular complications.[11] Cardiac manifestations are among the most important and severe manifestations of BD and are associated with high rates of mortality.[12-14] In the literature, the prevalence of the cardiac manifestations of BD ranges from 1% to 29.0%, with such manifestations, frequently accompanied by vascular manifestations, occurring mostly in men.[2, 8] The rate of the cardiac manifestations of BD in the present study was 1.3%, which is notably lower than the ranges reported in other studies (7.0%–46.0%).[5] The manifestations are slightly more frequent in men than in women. Regarding the types of cardiac manifestations in BD, pericarditis and myocardial infarction account for the most frequent cardiac diseases. Furthermore, vascular lesions are the most prevalent cardiovascular complications of BD.[7, 8, 15] Several series have reported pericardial involvement as the most prevalent manifestation among the various cardiac manifestations of BD.[7, 16, 18] In many patients, pericarditis can be self-limited.[19] Therefore, higher rates of pericarditis described in other studies can be a result of shorter follow-up periods.[7, 8] However, this finding might be attributed to the asymptomatic character of pericarditis, which can be missed as echocardiography was not systematically conducted for all the patients. This also explains the lower prevalence of the cardiac manifestations of BD in this study. Since some cardiac manifestations are asymptomatic,[2] it is considered crucial to screen patients with BD for cardiovascular diseases.

Vascular complications usually occur within 10 years after the primary diagnosis. The male-to-female ratio for cardiovascular involvement has been reported to be 4–5:1.[16, 17] Nonetheless, in this study, we confirmed a relatively equal ratio for male and female patients. Thus, it is advisable to screen vascular manifestations in patients suffering from BD regardless of cardiac symptoms.[18, 19] Coronary artery aneurysms may manifest themselves as an acute coronary syndrome.[20] This phenomenon is detected by angiographic procedures.[10] In our study, angiography was performed in 1 of the patients suffering from BD with chest pain and detected a coronary circumflex artery aneurysm. Different types of cardiac manifestations in BD have been documented as pericarditis, endocarditis, myocarditis, endomyocardial fibrosis, intracardiac thrombosis, cardiac arrhythmia, and valvular diseases.[7, 18, 21]

In line with previous reports, pericarditis and myocardial infarction were the 2 most prevalent cardiac manifestations in this survey. Moreover, 1 patient developed intracardiac thrombosis, which is a serious complication and may be one of the first findings of BD together with pulmonary embolism. Throughout the pathogenesis of the disease, the right and/or left ventricle might be involved.[5] In contrast to our study, Geri et al,[7] in their study on 807 patients with BD at a mean age of 30 years, reported that pericarditis was the most common cardiovascular manifestation, followed by endocarditis, intracardiac thrombosis, myocardial infarction, endomyocardial fibrosis, and myocardial aneurysm.

However, in that study, the majority of the patients had no cardiac abnormalities. Some studies have reported cardiac arrhythmia in patients with BD; nevertheless, none of our patients presented with cardiac arrhythmia.[22-26]

Since the current study was conducted on a sample of the Iranian population, caution should be exercised in the interpretation of our findings vis-à-vis other nations and populations. Therefore, due to the nature of this study, future studies should enroll a larger number of patients suffering from BD with cardiovascular manifestations.

Conclusion

Cardiac involvement in BD, despite its potentially fatal nature, is rare. Since the cardiac manifestations of BD have a worse prognosis than other BD-related organ lesions, rheumatologists and cardiologists should be aware of the associated symptoms and their respective treatments with anticoagulant and immunosuppressant agents such as infliximab and colchicine. Patients with BD should undergo routine cardiac examinations to avoid further complications.

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