Common femoral vein wall thickness measurement as a diagnostic test in suspected Behçet's Disease

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Key message: In suspected BD patients, CFV thickness evaluation by Doppler US can be a useful diagnostic technique.

Dear Editor,

The diagnosis of Behçet's disease (BD) is mainly based on multi-systemic clinical manifestations after ruling out other potential causes. There is no specific diagnostic feature such as imaging, histopathology, or a biomarker (genetic or serological) for BD. Therefore, the diagnosis may be a challenge in patients especially those presenting with only major organ involvement such as posterior uveitis, neurologic, vascular, and gastrointestinal manifestations (usually without mucocutaneous features) mostly in countries with a low prevalence of BD. The development of

other disease manifestations to make a definite diagnosis can sometimes take months and even years. Furthermore, the disease can remain clinically limited lifelong in some patients. In this group of patients, the term incomplete or suspected BD was used especially in Japanese Criteria (1), also possible BD was defined in recent ICBD Classification Criteria. (2) In this group of patients, diagnosis is made by 'expert opinion' according to the presence of specific clinical manifestations of BD such as genital ulcers, ocular, vascular, and neuro-parenchymal involvement.

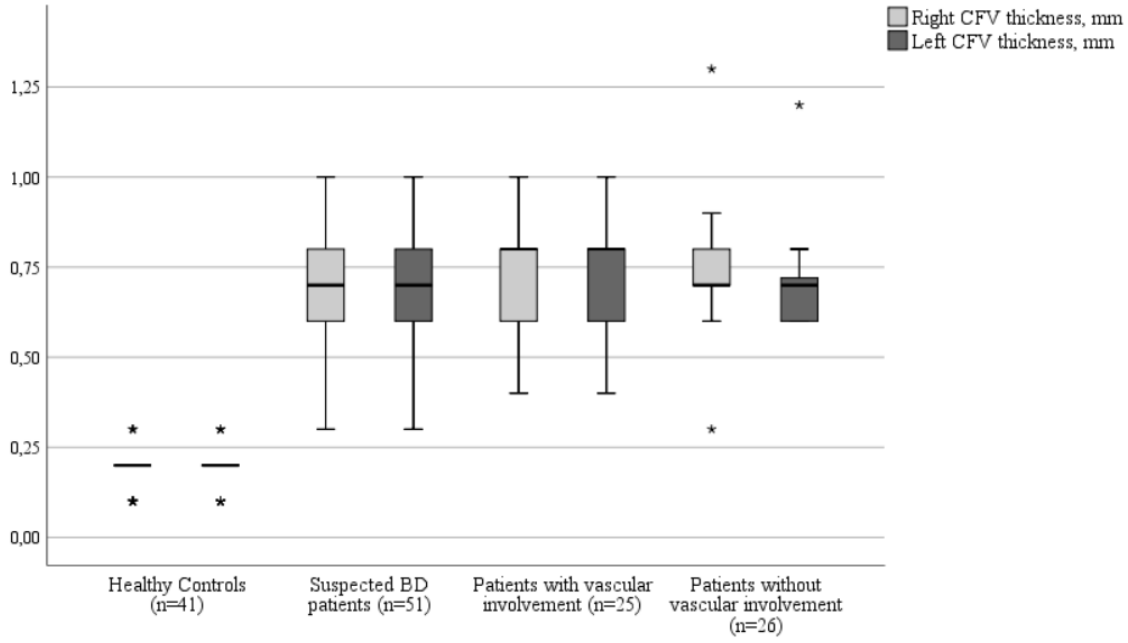
We recently published the first controlled Doppler US study showing increased venous wall thickness of lower extremity veins independent of vascular involvement in male BD patients. We suggested that the cut-off value of ≥0.5 mm for common femoral vein (CFV) thickness had a high specificity and sensitivity for the diagnosis of BD (>80%)(3) Our findings were also confirmed by other groups from Turkey. (4) We later assessed the diagnostic performance of CFV thickness measurement in BD compared to multiple disease control groups such as ankylosing spondylitis, Crohn's Disease, systemic vasculitides, antiphospholipid syndrome, venous insufficiency, and non-inflammatory DVT. Our findings indicated that increased CFV thickness is a distinctive feature of BD, rarely present in other inflammatory or vascular diseases. The cut-off value of ≥0.5 mm, determined in our first study, performed quite well against all control groups with sensitivity and specificity higher than >80% (except antiphospholipid syndrome). Both 'inter-observer reliability' and 'intraobserver reliability' of our method were observed to be good. (5, 6) Most recently, increased venous wall thickness was observed in childhood BD with and without vascular involvement, and Atalay et al. suggested that increased VWT may be a new criterion for the diagnosis in both definite and incomplete pediatric BD patients. (7)

In this study, we aimed to assess the diagnostic performance of CFV thickness measurement in patients with 'suspected' BD. Suspected BD was defined as limited manifestations not meeting ISG (8) and Japan Research Committee Criteria (1), but diagnosed as BD by expert opinion after ruling out other causes. Fifty-one (26 male/25 female) patients were recruited from Behçet's Clinic at Marmara University. Bilateral CFV wall thickness was measured in the prone position from the posterior wall (2 cm distal from the saphenofemoral junction) through the craniocaudal direction by an experienced radiologist blinded to the clinical data. (Philips iU22, Philips Health Care, Bothell, WA, USA) equipped with a high-resolution linear transducer 8–12 MHz). Mean age was 39 years (SD: 10.9), and the mean disease duration was 60.3 (SD: 51.7) months. Sixteen (31.4%) patients had a family history of BD and pathergy test was positive in 7 (13.7%) of them. Forty-two (82.4%) had major organ involvement (20 vascular, 8 ocular, 8 neurological involvement). Twenty-five of 42 patients were male. Both right and left CFV thickness

measurements were significantly higher in BD than age-sex-matched healthy controls for right CFV: 0.71 (0.16) vs 0.18 mm (0.05); for left CFV: 0.71 (0.15) vs 0.19 mm (0.04), p<0.001 for both). There was no difference between patients with and without vascular involvement (Figure 1). Forty-eight (94.1%) patients had CFV wall thickness above the cut-off value of ≥ 0.5 mm.

Our study shows that CFV thickness measurement can be helpful in daily practice for the differential diagnosis of BD in patients presenting with limited disease manifestations. Early diagnosis of BD is important, especially in cases presenting with venous thrombosis due to major treatment differences between thrombosis associated with BD and non-inflammatory thrombosis. Prompt immunosuppressive treatment is needed in BD thrombosis while non-inflammatory thrombosis only requires anticoagulants. Our results suggest that CFV thickness measurement is a valuable, noninvasive, and widely accessible diagnostic tool (positive in >90% of cases) in suspected BD, especially with major organ involvement.

Figure 1: Distribution of common femoral vein (CFV) wall thicknesses in healthy controls and suspected Behçet's Disease (BD) according to organ involvements (The asterisk (*) symbols represent the extreme values)



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Ethics: The study protocol was approved by Marmara University Local Ethics Committee (No:09.2017.529).

Data Availability Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

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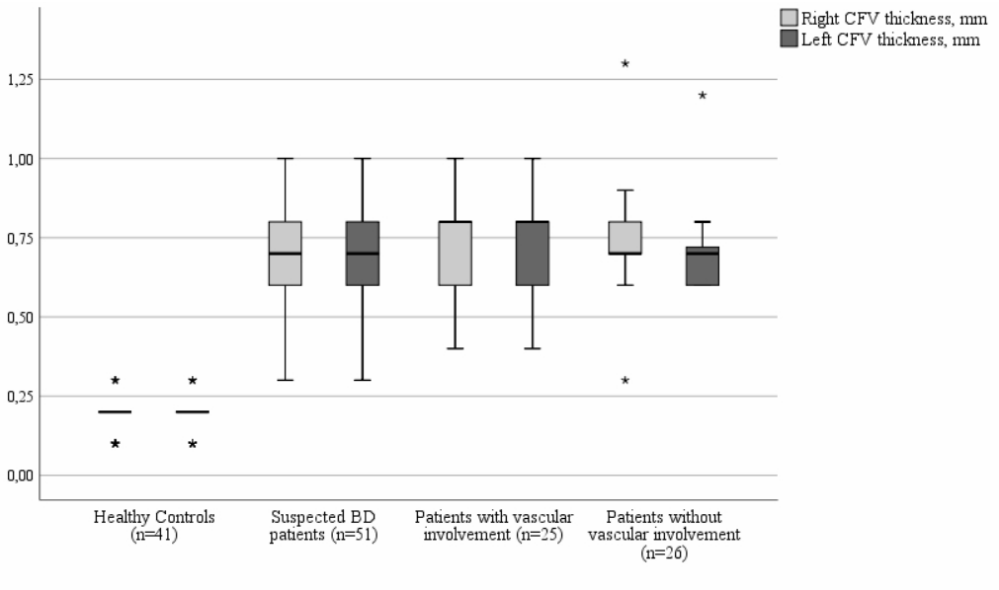

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21x12mm (1200 x 1200 DPI)