



Case Report

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Deep Vein Thrombosis after Arbaeen Walking: A Case Report



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Citation Azadvari M, Guitynavard F, Emami-Razavi SZ. Deep Vein Thrombosis after Arbaeen Walking: A Case Report. Case Reports in Clinical Practice. 2026; 11(2): 96-99. DOI:10.18502/crcp.v11i2.22390

Running Title Deep Vein Thrombosis due to Long Walking



Article info:

Received: March 22, 2026

Revised: April 17, 2026

Accepted: April 27, 2026

Keywords:

Deep vein thrombosis;
Walking; Dehydration;
Contraception

ABSTRACT

Deep vein thrombosis (DVT) is a serious medical problem that usually occurs in people who are immobilized, and its formation is not expected in people who do physical activity such as walking. Arbaeen walking is an event that takes place every year in Iraq over long distances and usually in hot and dry weather. During walking, there is a high probability of dehydration, which can be a risk factor for blood clots in the deep vessels. Since oral contraceptives also increase the possibility of blood clots in the vessels, it seems that women who use oral contraceptives and go for this walk, due to the possibility of concurrent dehydration, are at high risk for DVT. Due to the importance of this issue, we are currently introducing a case of a 44-year-old woman who suffered a DVT while taking a contraceptive while walking on Arbaeen.

Introduction

Arbaeen walking is one of the special rituals of the Shia people, in which a large number of people—about 20 million, including men and women of all ages—walk long distances for several consecutive days [1].

This ceremony is performed in Iraq, which is geographically hot and dry and often has high air temperatures. For this reason, people experience fatigue and muscle cramps in the lower limbs and sweat a lot during its performance. Dehydration commonly occurs in people participating in this walking. Arbaeen walking and pilgrimage

for Muslims have special rules; one of these rules for women during the Arbaeen pilgrimage is that they should not be menstruating. For this reason, some women who participate in this ceremony use methods such as taking oral contraceptives to prevent menstruation. DVT is an important medical problem, which can cause serious and life-threatening issues for people. Dehydration due to increased blood concentration can increase the chance of DVT [2].

If these people have another risk factor at the same time, the risk of thrombosis in them increases further. In the following, we introduce a 44-year-old woman with no previous history, who suffered a left popliteal vein clot after using LD pills to prevent menstruation

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in order to participate in the Arbaeen walk.

Case Presentation

The patient is a 44-year-old woman with no previous history, who presented with pain and swelling in the back of the left knee. About 25 days prior, to delay menstruation and participate in the Arbaeen walk, she used one LD contraceptive pill daily. To delay her menses and participate in the Arbaeen walk, the patient started taking LD tablets once a day from the 5th day after her menses. Around the twelfth day after starting the pill, she went for Arbaeen walking. The duration of the walk was about 7 days with an average of 5 hours of walking per day, which was done in relatively warm weather. On the 7th day after starting to walk, the patient felt stiffness and severe pain in the back of the left knee, which gradually worsened. The patient visited our clinic about 5 days after the onset of symptoms. On general examination, the patient was fine; there was no fever or shortness of breath.

The patient's body mass index was 22.1, in the normal

range. The only positive finding in the examination included swelling behind the left knee, in the popliteal region, with warmth and redness (Figure 1).

As an emergency, vein color Doppler sonography of the left lower limb and laboratory tests were performed for the patient. In the investigation, ESR was 44, CRP was 16.5, and complete vein thrombosis in the popliteal vein measuring 64 × 14 mm was found on Doppler sonography of the left lower limb (Figure 2).

Medical treatments, along with other preparations, were quickly initiated for the patient, and after 3 days of treatment, the patient's symptoms began to improve. On the seventh day after treatment, the patient's symptoms had dramatically reduced (Figure 3).

Discussion

DVT is one of the serious problems which can lead to complications and death. In most cases, the clot occurs in the vessels of the lower limbs,



Fig. 1. Redness and swelling on the left popliteal region at first visit.

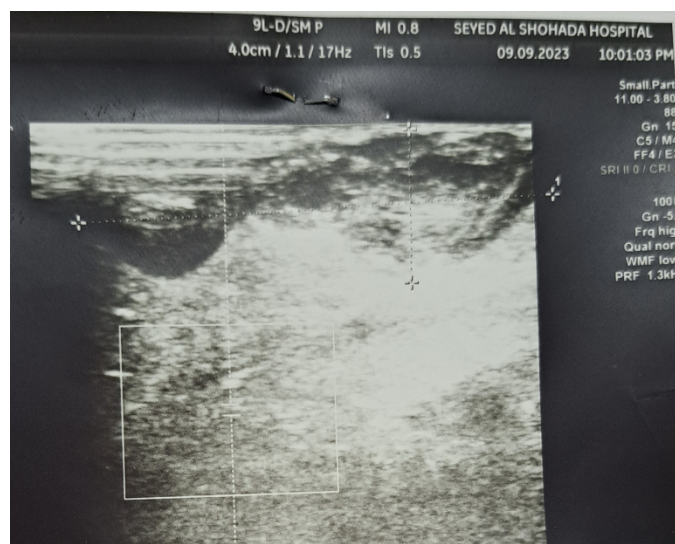


Fig. 2. Ultrasound view of patient's popliteal vein DVT



Fig. 3. Decreased swelling and redness on the popliteal region after 1-week treatment

and sometimes it also occurs in the vessels of the upper limbs. The three main causes of DVT include immobility, damage to the vessel walls, and increased blood clotting tendency [3]. Some drugs increase the tendency of blood to clot, including hormone therapy and contraceptive drugs. Dehydration is also one of the important reasons for increasing the chance of DVT, especially in athletes [4,5]. Arbaeen walking is one of the special rites of Shia Muslims, which is carried out every year over long distances and in relatively hot weather [1]. People who go for Arbaeen walk, due to exposure to hot weather and excess physical activity, may experience some problems such as lower limb pain, leg cramps, etc. According to the pathophysiology of clot formation in deep vessels, DVT of the lower limbs due to high physical activity does not seem likely. During the Arbaeen walk, some women use oral contraceptives to stop menstruation.

According to religious principles, women cannot perform pilgrimage while menstruating. Oral contraceptive use increases the chance of blood clots in women [2]. Dehydration is one of the risk factors for DVT [6]. During the Arbaeen walk, due to significant dehydration that occurs, it seems that the chance of blood clots in the leg may be increased. This risk may be intensified with simultaneous use of oral contraceptives. Until now, several studies have been conducted regarding infectious diseases in Arbaeen gatherings [1,7,8]; however, there is little information about thromboembolic events during Arbaeen walking, especially DVT. Considering that Arbaeen walking is considered a relatively heavy physical activity, perhaps it can be compared with sports such as two marathons or aerobic sports. In a case report by C. M. Hull et al., a history of DVT was reported in a female marathon runner with no history of contraceptive use [9]. Other predisposing causes of DVT in this athlete were ruled out, and the most probable cause of DVT in her was reported to be dehydration in the context of two marathons. It seems that the dehydration that occurs during the Arbaeen

pilgrimage is also significant; therefore, from this point of view, our case is comparable to this athlete's.

In another study that investigated the cause of thromboembolic events in athletes who did aerobic sports, they observed that among 19 female athletes with DVT, 14 had a history of using contraceptive pills. In this study, it was shown that exercise can cause dehydration, and if female athletes use contraceptives, the risk of DVT will increase [10]. In another two studies [4], the role of dehydration and contraceptive use as risk factors for developing DVT in athletes has been emphasized.

It seems that the results of these studies and the mentioned cases are consistent with our study. Since our patient did not have any history of disease and previous risk factors for DVT, it appears that the use of oral contraceptives along with the dehydration that occurred during the Arbaeen walk caused popliteal vein thrombosis in her.

Conclusion

Considering that Arbaeen walking is a relatively heavy physical activity performed in a relatively hot environment, there is a high chance of dehydration. Since the simultaneous use of oral contraceptives for any reason increases the chance of DVT, it is necessary to inform and educate the public about the necessary precautions regarding the non-use of contraceptive drugs in women during the Arbaeen pilgrimage.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

Funding

No funding was received to assist with the preparation of this manuscript.

Conflict of Interests

The authors have no conflict of interest to declare.

Authors' contribution

All authors met the standards of authorship based on the recommendations of the International Committee of Medical Journal Editors.

Acknowledgment

The authors would like to thank the statistics consultants of the Research Development Center of Sina Hospital for their technical assistance.

References

- [1] Al-Ansari F, Al Ansari M, Hill-Cawthorne GA, Abdulzahra MS, Al-Ansari MB, Al-Ansari B, et al. Arbaeen public health concerns: A pilot cross-sectional survey. *Travel Med Infect Dis.* 2020;35:101546. <https://doi.org/10.1016/j.tmaid.2019.101546>
- [2] Helmrich SP, Rosenberg L, Kaufman DW, Strom B, Shapiro S. Venous thromboembolism about oral contraceptive use. *Obstet Gynecol.* 1987;69(1):91-95.
- [3] Line BR. Pathophysiology and diagnosis of deep venous thrombosis. *Semin Nucl Med.* 2001;31(2):90-101. <https://doi.org/10.1053/snuc.2001.21406>
- [4] Meyering C, Howard T. Hypercoagulability in athletes. *Curr Sports Med Rep.* 2004;3(2):77-83. <https://doi.org/10.1249/00149619-200404000-00005>
- [5] Fremont B, Pacouret G, De Labriolle A, Magdelaine B, Puglisi R, Charbonnier B. Exercise deep venous thrombosis: myth or reality? About three cases of pulmonary embolism in long-distance runners. *Arch Mal Coeur Vaiss.* 2007;100(6-7):519-523.
- [6] Elias S, Hoffman R, Saharov G, Brenner B, Nadir Y. Dehydration as a Possible Cause of Monthly Variation in the Incidence of Venous Thromboembolism. *Clin Appl Thromb Hemost.* 2016;22(6):569-574. <https://doi.org/10.1177/1076029616649435>
- [7] Hamdanieh L, Ostadtaghizadeh A. Arbaeen in the Context of the COVID-19 Pandemic. *Disaster Med Public Health Prep.* 2021;15(4):e16. <https://doi.org/10.1017/dmp.2020.267>
- [8] Karampourian A, Ghomian Z, Khorasani-Zavareh D. Exploring challenges of health system preparedness for communicable diseases in Arbaeen mass gathering: a qualitative study. *F1000Res.* 2018;7:1448. <https://doi.org/10.12688/f1000research.15290.1>
- [9] Hull CM, Hopkins CL, Purdy NJ, Lloyd RC, Harris JA. A case of unprovoked venous thromboembolism in a marathon athlete presenting atypical sequelae: What are the chances? *Scand J Med Sci Sports.* 2015;25(5):699-705. <https://doi.org/10.1111/sms.12346>
- [10] Taylor BA, Parducci PM, Zaleski AL, Panza GA, Pescatello LS, Thompson PD. Venous thromboembolism associated with acute aerobic exercise: A review of case report commonalities. *Scand J Med Sci Sports.* 2019;29(11):1749-1754. <https://doi.org/10.1111/sms.13534>