Deep vein thrombosis with bulla formation: an uncommon case report and review of literature

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Deep vein thrombosis (DVT) is a common disorder that can lead to severe complications. Many factors can increase the risk of developing this disease. As we know, bulla formation due to DVT is extremely rare. A 45-year-old woman was referred to Shahid Sadoughi Hospital (Yazd, Iran) with pain and swelling of the left lower limb from one day beforehand. One day after admission, a large bulla (13 × 19 cm) appeared on the posterior part of her left leg. She had used the low-dose estrogen type of oral contraceptive pills ten days earlier. Color doppler sonography confirmed the presence of DVT. Heparin therapy was done and the patient was discharged in good condition. Bulla formation due to DVT is a very rare complication. It should be considered in patients of low socioeconomic classes and those using oral contraceptive pills. After the occurrence of DVT, we must rapidly move to avert its complications and prevent pulmonary embolism.

Keywords: blister, deep vein, venous thrombosis

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INTRODUCTION

Venous thrombosis, including deep vein thrombosis (DVT) and pulmonary embolism, can damage organs (especially the lungs) and cause death. The incidence of venous thrombosis is about 1 per 1000 persons per year and increases appreciably with age and comorbid diseases. The incidence of this condition is higher in men. Many factors can increase the risk of developing this disease including prolonged bed rest, surgery, pregnancy, oral contraceptive pills (OCP), blood-clotting disorders, cancer, smoking, and sitting for long periods [1].

Importantly, DVT can reduce the quality of life, especially if its chronic complications manifest [2]. Pulmonary embolism is the most dangerous complication of DVT, occurring in about 10% of all cases [3]. The symptoms of DVT appear suddenly and patients should see a doctor if they develop swelling, pain, tenderness, brightness, and warm or red skin on the legs. Also, discolored leg skin is a common sign [4]. Besides this, repeated abortions should be considered in the first and second trimesters. Also, a positive family history of DVT is so important [4,5]. Various diseases in the world can have rare manifestations. To our knowledge, the occurrence of bulla formation after DVT in the lower limb has been previously reported only in a few papers [6-10], so we decided to report our experience with this rare complication.

CASE PRESENTATION

A 45-year-old woman was referred to our clinic in Yazd Shahid Sadoughi Hospital with the complaint of pain and swelling of the left lower limb from a day beforehand, with her legs having unequal diameters. The patient was stable in terms of vital signs and her past medical history was clear. Her left femoral, popliteal, and dorsalis pedis pulses were undetectable and the leg was tender on examination. The patient was admitted to the cardiac care unit and heparin therapy was initiated (200 IU per hour). One day after admission, a large bulla (13 × 19 cm) appeared on the posterior aspect of her left leg (Figure 1). A few days later, some smaller bullae appeared around the initial lesion. Our patient did not report any history of DVT in her family. She had used a low-dose (LD) type of OCP 10 days earlier. The laboratory evaluations revealed: WBC: 6200, Hb: 10, PLT: 424000, Urea: 15, Cr: 0.7, PT: 12, PTT: 35, INR: 3.3, AST: 19, ALT: 15, ALK-P: 211, CPK: 142, LDH: 488

Ultrasonography of the abdomen and chest was normal. At first, because of the probability of an infectious disease, penicillin therapy was initiated (2 million IU every six hours). Then, orthopedic consultation was done and compartment syndrome was ruled out. The bulla was on the left leg and local, so a drug complication was not considered. The bacterial smear and wound culture were negative. After 14 days of treatment with heparin and ointment, the patient's bullae healed without notable complications.

Figure 1. Bulla formation due to deep vein thrombosis on the posterior aspect of the left leg.

DISCUSSION

As a fairly common disorder, DVT mainly affects the legs. In the United States, 205000 patients are treated because of this problem annually. Researchers report that the incidence of DVT is about 100 per 100, 000 in the general population [1-5].

Symptoms of DVT in the leg are pain, swelling, red or discolored skin, and warm skin around the painful area. Despite advances in primary prophylaxis, DVT still occurs. Certain medical conditions can lead to DVT including inactivity for a long time, cancer, injury to a vein, surgery, inheriting a blood-clotting disorder, heart failure, prolonged bed rest, pregnancy, obesity, and smoking [1-5].

Birth control pills (oral contraceptives) contain estrogen and progesterone. They are among the most popular contraception methods across the world. These pills are well known to be linked to an increased risk of blood clots and can make you more likely to get a DVT. This risk is even greater in patients taking higher doses of estrogen. Although this side-effect is rare, it can lead to serious adverse effects such as pulmonary embolism. In fact, the blood clot can travel through the bloodstream. Physicians should be careful about warning signs and symptoms of a pulmonary embolism in patients with DVT such as chest pain or discomfort, coughing up blood, and shortness of breath. Pulmonary embolism is a life-threatening condition [1,2,5,7].

Timely diagnosis and treatment can help prevent the complications of DVT. Color Doppler sonography is a good choice for evaluating veins as the physician can see where the bloodstream slows down or stops [8]. After diagnosis, the patient should take an anticoagulant medicine such as warfarin or rivaroxaban for a few months. However, the way we treat patients depends on so many factors. For example, DVT is treated differently in pregnancy [4-7].

The formation of bulla in DVT reminds us of the important role of the venous system in the circulatory system and the prevention of congestion. Bulla formation due to DVT is a very rare condition and to our knowledge, just one paper has been reported on this issue. In that paper, a 58-year-old patient suddenly developed swelling and pain in the lower limb. After confirming DVT, heparin

therapy was done for 14 days (as we did) and then warfarin was administered for six months [7].

When we want to approach a patient with DVT, we should know the patient's risk factors. Hereditary and acquired risk factors are two major causes. Malignancy, trauma, pregnancy, the presence of a central venous catheter, immobilization, hormone replacement therapy, and oral contraceptives are the most important predisposing factors of DVT. Our patient had used the LD type of oral contraceptive pills 10 days earlier.

Also, a documented history of DVT in the patient or first-degree relatives suggests a hereditary defect. Our patient didn't report any history of DVT in her family. If we don't treat DVT appropriately, pulmonary embolism will occur in 50% of cases. Prompt initiation of anticoagulant therapy is the best choice for treatment. We asked our patient to refrain from using combined oral contraceptive pills and alerted her about other risk factors.

CONCLUSION

Bulla formation due to DVT is a very rare complication that should be considered in patients of low socioeconomic class or with a history of OCP usage. After DVT occurrence, we must prevent further clot extension and pulmonary embolism. Then, we must limit other complications.

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