Breast Hematoma: A Rare Complication of Anticoagulant and Antiplatelet Use and Review of the Literature

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ABSTRACT

Oral anticoagulants and anti-platelet therapies are used for treatment and especially prophylaxis in clinical situations where there is a risk of thromboembolism or when thromboembolic events occur. The presented case was a patient who was hospitalized due to cellulitis in the leg, and was diagnosed with heart failure, obesity and chronic obstructive pulmonary disease. She was started on prophylactic oral anticoagulants for deep vein thrombosis and pulmonary emboli and subsequently developed spontaneous breast hematoma. The usual sites of such bleeding are the skin, gastrointestinal tract, genitourinary tract, central nervous system, retroperitoneum, muscle, and the site of recent surgical procedures or trauma while breast hematomas are usually of traumatic origin. Spontaneous bleeding into the breast after anticoagulant use is rare. While using anticoagulants, it should be kept in mind that, rarely, bleeding may occur in the breast. We advise that intervention in such cases is unnecessary, no matter how large the breast hematoma is, and that new anti-coagulant drugs may be safer.

Keywords: Breast hematoma; oral anticoagulant; treatment

Key Points

- Although very rare, hematoma due to oral anticoagulants can also be observed in the breast. Breast hematomas can be managed with supportive treatment without any intervention.

Introduction

Anticoagulant therapy prevents the formation of new thrombi and thus the expansion of existing thrombi. Anticoagulant drugs include standard (unfractionated) heparin, low molecular weight heparin, direct-acting oral anticoagulants (DOAC), fondaparinux, danaparoid and vitamin K antagonists. Among the vitamin K antagonists, the most widely used drug is warfarin sodium. Oral anticoagulants inhibit prothrombin, a vitamin K-dependent coagulation factor produced in the liver, mainly by preventing the last step of the synthesis of factors 7, 9 and 10 (1). A common complication of oral anticoagulants is that they cause spontaneous bleeding. Spontaneous bleeding into the breast after anticoagulant use is rare (2). Breast hematoma may be asymptomatic or may present with swelling, pain or, as in the following case, initial swelling and extensive ecchymosis in the ongoing process (2-9).

Case Presentation

An 81-year-old female patient was admitted to the dermatology clinic due to cellulitis in the left leg (Figure 1). The patient was transferred to the Department of Pulmonary Medicine due to lung problems, including pleural effusion, tachypnea and low oxygen saturation. Warfarin (5 mg/day) was started prophylactically for deep vein thrombosis (DVT) and pulmonary embolism in the patient who had a diagnosis of heart failure, chronic obstructive pulmonary disease and obesity.

A general surgical consultation was requested because of complaints of swelling, pain and widespread ecchymosis that were more prominent in the left breast on the eighth day of hospitalization (Figure 2).

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257

On physical examination, hypotension (88/57 mmHg.) and tachycardia (117/min.) were present with a body temperature of 36.7 oC. There was swelling and widespread ecchymosis in the left breast, while the ecchymosis of the right breast was relatively more limited. In addition, there was widespread ecchymosis of the left lateral abdomen (Figure 2,3). High international normalized ratio (INR) of 2.23 (Normal range [NR] = 1.0), prolonged activated partial thromboplastic clotting time (APTT) of 41 seconds (NR 21-35 seconds) and prothrombin time of 26.6 seconds (NR 10-13 seconds) were found during coagulation assessment. White blood cells and platelets were within normal limits, but on 24-hour hemogram follow-up, hemoglobin decreased from 13.6 g/dL to 8.1 g/dL, and hematocrit fell from 42.1% to 24.6%.

On breast ultrasonography (USG), the left breast skin was subcutaneously thickened and linear fluid loculations were observed between the left breast fat lobules. No solid mass that could cause

Figure 1. The patient with cellulitis in the right leg was hospitalized

Figure 2. Left breast hematoma. The appearance of the patient at first examination

hematoma was detected on initial USG. Since it may cause pain or bleeding in the breast in acute phase, the patient was recalled for follow-up after discharge when repeat USG and mammography were planned. These imaging studies, performed six weeks later, revealed a deep-seated collection area of up to 3 cm in the thickest part of the left breast. No finding suggestive of malignancy was observed (Figure 4).

Treatment

Anticoagulants were discontinued as soon as breast hematoma was detected. We found that the patient did not pay attention to the drug doses and the follow-up was not well done. The patient was evaluated by the hematology department and low molecular weight heparin was started. Oral anticoagulant treatment of the patient was stopped. Vitamin K and vitamin C supplements were given. Due to the risk of embolism, low molecular weight heparin treatment was continued as recommended by the relevant departments. A tight bandage was applied. The patient was given two units of fresh frozen plasma and 10 mg of phytomenadione. In addition, due to the low hemoglobin levels and symptoms, she was also given two units of erythrocyte suspension. After transfusion, the hemoglobin value was 10.2 gr/dL. Approximately 48 hours after the patient's oral anti-coagulant treatment was discontinued, the INR value decreased below 2. Afterwards, the patient was started on LMWH treatment. Hemoglobin levels and INR checks were made during follow-up. It was observed that the INR value fell

Figure 3. The image of the patient three days after the first examination
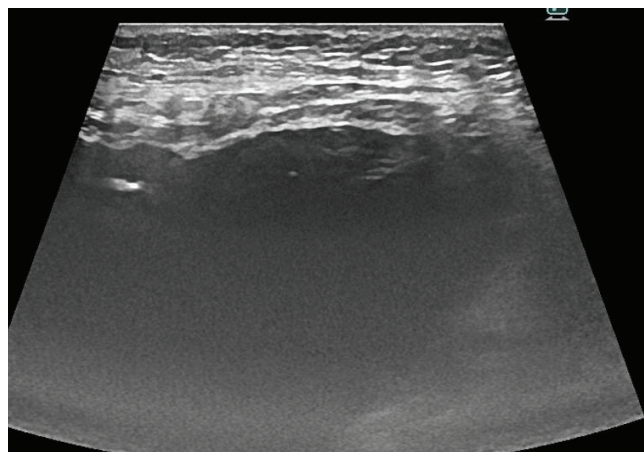

Figure 4. Breast USG image of the patient at the six week follow-up

below 2 48 hours after warfarin was discontinued, and the INR value taken 96 hours later returned to the normal range. After the eryrocyte suspension was given to the patient, it was observed that there was no decrease in the hemogram as a result of the complete blood count taken every other day. Furthermore, regression was observed in the ecchymosis areas and she was discharged with a plan to reassess after six weeks. At the six-week follow-up the areas of ecchymosis areas were observed to have improved (Figure 5) and her blood count was found to be within normal values.

Figure 5. The patient at the six week examination

Discussion and Conclusion

Initiating oral anticoagulants therapeutically or prophylactically can lead to life-threatening bleeding in some patients as a result of their narrow therapeutic range, despite their antithrombotic benefits. In prospective, randomized, placebo-controlled studies in patients with DVT and stable pulmonary thromboendarterectomy (PTE) it was shown that oral rivaroxaban and apixaban were as effective as standard treatment in terms of recurrence and early mortality in the acute phase of venous thromboembolism (VTE), and cause less major bleeding compared to warfarin in long-term maintenance treatment (10, 11). In placebo-controlled studies comparing dabigatran and warfarin, it was reported that dabigatran was as effective as warfarin in prolonged treatment (11). There is strong evidence that new oral anticoagulants, such as rivaroxaban, dabigatran, apixaban, edoxaban, can be used as an alternative to warfarin, which we have used so far in the long-term treatment process (12, 13). Due to the fact that new generation anticoagulants are safer, there is increasing interest in the use of these new new drugs around the world. These hemorrhages occur mainly in the gastrointestinal tract, kidney, and from ulcerated mucosa. However, it should be remembered that bleeding may occur in any organ, such as the breast, which is a possible site of trauma. Spontaneous breast hematoma is a very rare clinical entity in patients receiving anticoagulant therapy and those with hematological disease, and few cases have been reported in the literature to date (2-9). Thrombocytopenia, coagulation disorders or a history of anticoagulant therapy should be investigated in these patients (3). In general, the appropriate management of anticoagulant therapy for the elderly is a therapeutic challenge (7). When planning treatment, the benefits

must outweigh the risks and complications. In order to reduce the risk of bleeding and maximize safety in this patient group, a parameter to be considered before starting anticoagulant therapy is the appropriate evaluation of renal function (7). The risk of bleeding increases in patients with renal failure or dysfunction (7).

Repeat imaging is mandatory until complete clinical and imaging resolution of the hematoma has been recorded (9). If the hematoma does not resolve completely and a residual mass or mammographic abnormality persists, further investigations, including biopsy, are recommended to rule out an underlying malignancy (7). Although surgical drainage and packing and aspiration of the hematoma are performed in some cases (3, 7, 9), we believe that the treatment of breast hematomas caused by anticoagulation should be mainly conservative, including reversal of possible excessive anticoagulation, with the proviso that these hematomas should be followed closely. No surgical or invasive approach to the breast should be made until the bleeding parameters are stabilized. However, imaging should be performed, given the possibility that these hematomas may be cystic breast tumors. No cystic or solid mass was detected on USG in the presented case. At six week follow-up, imaging studies including USG and mammography demonstrated that the hematoma was completely resolved and no findings suggestive of malignancy were detected.

Among the complications that may occur in spontaneous breast hematomas, hematoma infection (7) and necrosis (4, 5) have been reported. Such necrosis is a serious complication and mastectomy may be required (4).

As is evident from the presented case and literature reports, spontaneous breast hematomas require careful investigation and follow-up.

Conclusion

It has been shown that DOACs are at least as effective as warfarin and are safer in terms of bleeding in long-term and prolonged anticoagulant therapy. Thus DOACs may be preferred in patients whose INR is difficult to control therapeutically but who are hemodynamically stable. Even in cases of severe breast hematoma, close follow-up may be sufficient. We suggest that avoiding any intervention is the most effective strategy, unless serious complications develop. Knowing and using new drugs can reduce such complications. However, if the hematoma does not resolve completely and a residual mass or mammographic abnormality persists, further investigation with biopsy is recommended to rule out an underlying malignancy.

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