Warfarin Induced Sub-Pectoral Breast Hematoma: A Case Report

Mohammad N Athamnah¹, Amani Saleh Hadi Saeed², Hussein S O Al Azzam³, Naeem Tawfik al-saad⁴

¹ Breast Oncoplastic Surgery, Princess Basma Teaching Hospital, Irbid, Jordan.
² Specialist of Clinical Oncology and Nuclear Medicine, National Oncology Center, Aden, Yemen.
³ General Surgery Consultant, Princess Basma Teaching Hospital, Irbid, Jordan.
⁴ Intern Medicine Specialist, Princess Basma Teaching Hospital.

Corresponding Author: Amani Saleh Hadi Saeed, e-mail: r_332@yahoo.com

Copyright © 2021 Athamnah et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract
Warfarin is commonly used oral anticoagulation therapy and is prescribed to treat and prevent thromboembolic events in high risk patients. Bleeding is the most serious complication of warfarin use. There are many cases in the literature that caused severe bleeding in different parts of the body but there is not spontaneous breast hematoma. A case of sub-pectoral breast bleeding induced by Warfarin therapy after minor trauma is presented here. Patient is 61-year-old obese female with body mass index (BMI) of 53. She is known to have deep vein thrombosis on warfarin therapy. Patient presented to emergency room complaining of right breast pain, swelling and discoloration 4 days after trauma to right breast and chest wall. Patient was treated in a conservative manner. Hemodynamic stabilization, blood transfusion, Vitamin K injection and supportive treatment. Surgical evacuation of breast hematomas is not uncommon in similar cases. The role of ultrasound guided drainage therapy for Warfarin induced bleeding needs further evaluation.

Keywords: breast hematoma · warfarin · anticoagulation

Introduction
Warfarin is the most common medication prescribed for the treatment and prevention of thrombosis due to mechanical heart valves, atrial fibrillation, pulmonary embolism and deep venous thrombosis [1,2]. Warfarin inhibits the vitamin K epoxide reductase complex 1 which is essential for synthesis of clotting factors in the liver. Excessive bleeding is a major side-effect of Warfarin [3]. As a result of its narrow therapeutic range, prolonged elimination half-life and drug-drug interactions. Based on these facts Warfarin can cause life threatening and fatal bleeding in some patients. Around 10% of patients on warfarin develop hemorrhagic complications. Skin, Genitourinary, Gastrointestinal, spinal and intracranial regions are the common sites of bleeding [4]. Other unusual locations of bleeding have been reported such as esophageal hematoma [5], retropharyngeal hematoma [6], retroperitoneal hematoma [7], and breast/chest wall hematoma which accounts of 0.01-0.1% [8].

Case presentation
A 61-year-old female obese patient (BMI 53, Height 159cm ,Weight 134 kg) with a history of Deep Vein Thrombosis D.V.T. (6 months ago) treated with warfarin 6.5 mg once daily. Patient presented to our Emergency Room (E.R.) complaining of pain, progressive enlarged

■ Abstract

Warfarin is commonly used oral anticoagulation therapy and is prescribed to treat and prevent thromboembolic events in high risk patients. Bleeding is the most serious complication of warfarin use. There are many cases in the literature that caused severe bleeding in different parts of the body but there is not spontaneous breast hematoma. A case of sub-pectoral breast bleeding induced by Warfarin therapy after minor trauma is presented here. Patient is 61-year-old obese female with body mass index (BMI) of 53. She is known to have deep vein thrombosis on warfarin therapy. Patient presented to emergency room complaining of right breast pain, swelling and discoloration 4 days after trauma to right breast and chest wall. Patient was treated in a conservative manner. Hemodynamic stabilization, blood transfusion, Vitamin K injection and supportive treatment. Surgical evacuation of breast hematomas is not uncommon in similar cases. The role of ultrasound guided drainage therapy for Warfarin induced bleeding needs further evaluation.

Keywords: breast hematoma · warfarin · anticoagulation

Introduction
Warfarin is the most common medication prescribed for the treatment and prevention of thrombosis due to mechanical heart valves, atrial fibrillation, pulmonary embolism and deep venous thrombosis [1,2]. Warfarin inhibits the vitamin K epoxide reductase complex 1 which is essential for synthesis of clotting factors in the liver. Excessive bleeding is a major side-effect of Warfarin [3]. As a result of its narrow therapeutic range, prolonged elimination half-life and drug-drug interactions. Based on these facts Warfarin can cause life threatening and fatal bleeding in some patients. Around 10% of patients on warfarin develop hemorrhagic complications. Skin, Genitourinary, Gastrointestinal, spinal and intracranial regions are the common sites of bleeding [4]. Other unusual locations of bleeding have been reported such as esophageal hematoma [5], retropharyngeal hematoma [6], retroperitoneal hematoma [7], and breast/chest wall hematoma which accounts of 0.01-0.1% [8].

Case presentation
A 61-year-old female obese patient (BMI 53, Height 159cm ,Weight 134 kg) with a history of Deep Vein Thrombosis D.V.T. (6 months ago) treated with warfarin 6.5 mg once daily. Patient presented to our Emergency Room (E.R.) complaining of pain, progressive enlarged
Warfarin Induced Sub-Pectoral Breast Hematoma: A Case Report

Unintentional suprawarfarin toxicity was suspected. Patient reported a minor insignificant trauma of her right breast and chest wall after she stumbled on stairs. Consequently, on the same day she complained of right breast pain. After 4 days of breast pain, which was not responding to over the counter pain killers, she decided to visit the emergency room. Upon examination in E.R. blood pressure was 90/50 mm Hg, temperature 37°C and heart rate of 95/min. Patient was alert and oriented in time and place. Chest wall examination revealed a huge painful large right breast with purplish discoloration, extending to right axillary region. No signs of direct trauma or cut wounds were noticed and no other sites of bleeding was identified. There were no signs of gastrointestinal bleeding (melena, hematemesis), no neurologic manifestations or hematuria. Furthermore, the examination of these systems, Upper and lower extremity examination were unremarkable.

Management of breast hematoma associated with warfarin therapy is matter of dispute. After patient stabilization, both surgical evacuation and conservative management are valid options depending on patient overall situation. The main fear related to conservative treatment is the development of hematoma infection. Risk of skin necrosis is also important. On the other hand, surgical evacuation can leave a considerable scar, continuous blood oozing is also encountered after surgical evacuation. After hemodynamic stabilization and achieving coagulopathy to restore clotting factor levels to 30-50% of baseline (Shearer MJ), alongside antibiotic converge and pain control. On the Second admission day, patient reported dizziness, increased breast pain and drop in Hemoglobin (4.6 g/dl). Therefore, two units of packed red blood cells were transfused beside another two units of Fresh Frozen Plasma. On the third day, patient was stable with Hemoglobin of (8 g/dl), INR (2.2). Patient was hospitalized for another two days and discharged home after that with stable vital signs, stable Hemoglobin readings and decreased breast pain.

Discussion

There is uncertainty about the etiology of intra-parenchymal breast bleeding related to Warfarin therapy. Severe bleeding rate related to Warfarin therapy were reported to be %7 to %16. Life threatening bleeding rate is around 1-2% [9]. Only few cases of breast bleeding associated with Warfarin therapy are reported in literature [10]. To the best of our knowledge, this is the first case to report sub-pectoral breast bleeding, all reported cases describe bleeding to be intra-parenchymal rather than sub-pectoral in origin. Sub-pectoral bleeding is mainly from internal mammary perforators. Computerized Tomography (CT) of the breast clearly shows the relation between the hematoma and Pectorals Major muscle in our patient, see (Figure 3). Hematoma is located between the muscle and anterior chest wall. This possibly explains the extension of bleeding laterally deep towards axillary area.

On admission patient blood tests showed White Blood Cell count of (24,500), Hemoglobin of (6.6 g/dl), Platelet count of (388,000), PT64.6) PTT: (61.8) INR: (5.1), Warfarin stopped.

The initial treatment commenced whereas she was given; 10 mg of vitamin K intravenously, two units of Fresh Frozen Plasma (FFP) in trial to reverse warfarin skin discoloration of the right breast over the last 4 days.

Figure 1. Showing anterior aspect of both breasts with right breast enlargement

Figure 2. Right breast enlargement and extension of hematoma laterally towards right axillary region.

Figure 3. Showing the sub-pectoral site of hematoma. White arrows: Pectoralis major Muscle. Yellow arrow: Sub-pectoral hematoma. Red arrow: Pectoralis Minor Muscle.
a therapeutic range of Warfarin therapy INR (2.3), our patient tolerated conservative management. The Covid-19 pandemic impelled conservative management to prevent long hospital stay. Elective surgeries were postponed and only lifesaving surgeries were performed as our hospital is heavily affected by Corona Virus situation. Shorter hospital stay is necessary to prevent Corona Virus cross infection and to save human resources and supplies. The Covid-19 situation has also played a role as open surgical treatment in operation room is strictly reserved for life saving situations. Thus, our management was based on conservative basis and no surgery or drainage was performed.

Treatment of breast hematoma related to warfarin therapy can be improved by further investigating the role of ultrasound guided drainage.

Drainage under ultrasound guidance for the management of breast Hematoma induced by Warfarin anti-coagulation therapy is only reported in one case study [10]. Drainage under ultrasound guidance can be promising, but more research is needed to evaluate this treatment modality. Recurrence rate, infection rate after ultrasound guidance drainage and the ability to evacuate sub-pectoral hematomas need further evaluation.

**Conclusion**

Warfarin is the most common medication prescribed for the treatment and prevention of thrombosis. Skin, Genitourinary, Gastrointestinal, spinal and intracranial regions are the common sites of bleeding related to warfarin therapy. Few cases reported breast bleeding/ Hematoma after Warfarin therapy. The sub-pectoral location of bleeding is unique to this case report. Sub-pectoral bleeding is mainly related to internal mammary perforators explaining the drop in Hemoglobin. After patient stabilization, conservative management versus surgical management is a matter of dispute. Our patient was successfully managed in a conservative manner which is adequate in her case, but further follow-up to the hematology clinic was arranged to consider switch warfarin to a newer generation of direct oral anticoagulation based on the INR measurement and the half-life of warfarin and other multi factors. Only 1 paper reported successful management of breast bleeding by ultrasound guided drainage, and because our patient had a sub-pectoral (internal mammary perforator) related bleeding, ultrasound guided drainage was avoided. Further evaluation of ultrasound guided drainage in similar scenarios is needed.

**References**

8. ÖZDEMİR B, BAYRAM A, BOLCA TOPAL NA, Kumbay E. Warfarin-Induced Chest Wall and Breast Hematoma in an Elderly Female Patient With Atrial Fibrillation: Original Image.