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## Postoperative upper extremity deep vein thrombosis in a gynecologic oncology patient: A case report



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### ABSTRACT

**INTRODUCTION:** Upper extremity deep vein thrombosis (UEDVT) represents approximately 10% of all thromboembolic events. It is a rare condition after a gynecologic surgery and highly related with pulmonary embolism.

**PRESENTATION OF CASE:** Herein, we present a very rare case of a unilateral left upper extremity deep vein thrombosis in a morbidly obese patient with synchronous primary cancers of endometrium and ovary.

**DISCUSSION:** Our aim was to underline the relationship between the presence of gynecologic malignancy, oncologic surgery and UEDVT.

**CONCLUSION:** Upper extremity deep vein thrombosis should be kept in mind in the presence of any symptom on upper extremity during postoperative period even in patients without central venous catheter.

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### 1. Introduction

Upper extremity deep vein thrombosis (UEDVT) describes the formation of fibrin clot within the axillary, subclavian and brachial veins of the arm [1]. Annual incidence of UEDVT has been estimated as 0.4–1 per 10000 patients. UEDVT approximately represents 10% of all thromboembolisms [2]. The incidence of UEDVT seems to be rising which may be related with growing prevalence of malignancies, widespread use of central venous catheters and an aging population [3]. UEDVT may be primary; Paget Schroetter syndrome and thoracic outlet syndrome are the most common reasons [4]. However, secondary causes are more frequently seen such as placement of central venous catheter, malignancy, trauma, pregnancy, oral contraceptive use, baseline coagulopathy [4–6]. Typically UEDVT presents as an edema, erythema and pain of the affected extremity. Less commonly, paresthesias, weakness, and visible venous collaterals may be the first signs. It is easily diagnosed by duplex ultrasonography [7]. Herein, a UEDVT in an extremely obese patient underwent gynecologic oncologic surgery was presented. To our knowledge, this is the first case report of UEDVT in a gynecologic oncology patient.

### 2. Case report

A 39-year-old, gravida 0, para 0 woman with abdominal distension was seen in our hospital. Her body mass index was 44 kg/m<sup>2</sup>. She had been diagnosed with Hodgkin lymphoma in her childhood and received ABVD chemotherapy regimen (Doxorubicin, Bleomycin, Vinblastine, Dacarbazine) and followed-up for 20 years without recurrence. Her menstruation cycles were regular and she had used no medications. After physical examination, laboratory and imaging studies, patient underwent laparotomy with presumed diagnosis of simultaneous ovarian and endometrial cancer. A total hysterectomy with bilateral salpingo-oophorectomy, omentectomy and pelvic and paraaortic lymphadenectomy were performed. Compression anti-embolic stock was worn before surgery and prophylactic, low-molecular weight heparin (80 mg enoxaparin, once a day) was started 6 h after surgery. In the third day of postoperative follow-up, she complained with left arm swelling and pain. On exam, no color change but a significant difference in circumference of the left arm when compared to the right arm was observed (Fig. 1). A compression Duplex ultrasonography of the left arm demonstrated a large, nearly occlusive thrombus in the left axillary vein extending to the left brachial vein (Fig. 2). D-dimer level was within normal limits and there was no abnormality in thrombophilia screening including factor V Leiden mutation, prothrombin mutation, antithrombin III, MTHFR mutation, protein C and S functional and lupus anticoagulants. Chest radiography was performed for right central venous catheter and no abnormal finding was observed. She was treated with therapeutic dose low-molecular weight heparin (100 mg enoxaparin, twice a day) for a

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Fig. 1. There was a difference in circumference of the left arm (50.5 cm) (A) and forearm (36 cm) (B) when compared to the right arm (38 cm) (C) and forearm (27 cm) (D).

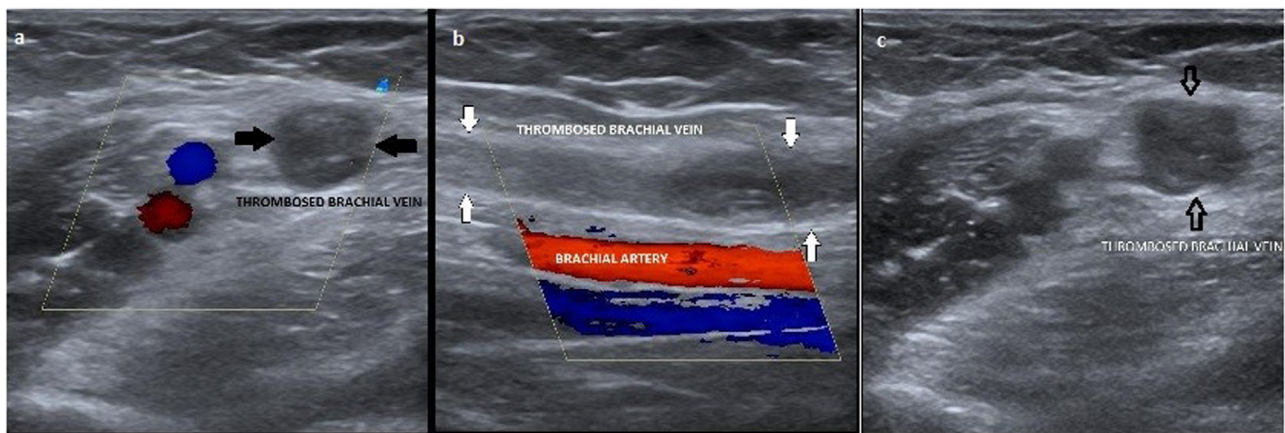


Fig. 2. Ultrasound images of brachial vein thrombosis of the left arm. a. Coronal view. b. Sagittal view of thrombosed brachial extending to axillary vein.

month and continuation of the treatment for at least additional five months was planned. Follow-up 4 month after surgery showed a resolution of arm symptoms and swelling. Patient received 6 cycles of carboplatin and paclitaxel regimen as an adjuvant treatment.

Written informed consent was obtained from the patient. The manuscript was prepared in accordance with the Surgical Case Report (SCARE) guideline [8].

**3. Discussion**

According to the Agency for Healthcare Research and Quality, venous thromboembolism (VTE) is the number one preventable

complication [9]. Without VTE prophylaxis, 38% of gynecological oncology patients are expected to develop a thrombotic event. Even with prophylaxis, 15% of these patients still develop perioperative thromboembolic complication [10–12]. Patients with cancer have almost a four-fold increase incidence of VTE following gynecologic surgery [12,13].

Every gynecologic oncology patients require dual thromboprophylaxis [9]. However, preoperative use and dose of heparin is a controversial issue. It has been shown that preoperative anticoagulation (Low molecular weight heparin (LMWH), 40 mg, 2 h before surgery) is significantly associated with lower risk of VTE without any harm such as higher blood loss [14]. Dual thromboprophylaxis

laxis with sequential compression devices and daily low molecular weight heparin were given to patient. While sequential compression device started just before the operation, LMWH started 6 h after the surgery.

UEDVT is infrequent, but has similar significant clinical concern. The morbidity and mortality associated with UEDVT, have been found to parallel that of lower extremity DVT [5]. However, genetic predisposition may be a major underlying cause particularly in cases with thrombosis in atypical location, thrombophilia testing of our patient showed normal results. Morbid obesity, oncologic surgery, malignancy itself and presence of central venous catheter were the risk factors in this case.

In conclusion, DVT can be seen in atypical locations such as upper extremity and requires the same attention as DVT in lower extremity. High index of suspicion is essential for early diagnosis for UEDVT.

#### Conflict of interest

The authors declare that there is no conflict of interests regarding the publication of this paper.

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#### References

- [1] F.M. Safdie, F. Dip, J.A. Gatas, S. Moon, E.L. Menzo, S. Szomstein, et al., Incidence and clinical implications of upper extremity deep vein thrombosis after laparoscopic bariatric procedures, *Obes. Surg.* 25 (2015) 1098–1101.
- [2] J.D. Grant, S.M. Stevens, S.C. Woller, E.W. Lee, S.T. Kee, D.M. Liu, et al., Diagnosis and management of upper extremity deep-vein thrombosis in adults, *Thromb. Haemost.* 108 (6) (2012) 1097–1108.
- [3] C. Mai, D. Hunt, Upper-extremity deep venous thrombosis: a review, *Am. J. Med.* 124 (5) (2011) 402–407.
- [4] N. Kucher, Deep-vein thrombosis of the upper extremities, *N. Engl. J. Med.* 364 (9) (2011) 861–869.
- [5] E. Bernardi, A. Piccioli, A. Marchiori, B. Girolami, P. Prandoni, Upper extremity deep vein thrombosis: risk factors, diagnosis, and management, *Semin. Vasc. Med.* 1 (1) (2001) 105–110.
- [6] H.V. Joffe, N. Kucher, V.F. Tapson, S.Z. Goldhaber, Upperextremity deep vein thrombosis: a prospective registry of 592 patients, *Circulation* 110 (12) (2004) 1605–1611.
- [7] M.I. Manaqibwala, I.E. Ghobrial, A.S. Curtis, Upper extremity thrombosis presenting as medial elbow pain after shoulder arthroscopy, *Case Rep. Orthop.* 2014 (2014) 653146.
- [8] SCARE Group R.A. Agha, A.J. Fowler, A. Saetta, I. Barai, S. Rajmohan, D.P. Orgill, The SCARE statement: consensus-based surgical case report guidelines, *Int. J. Surg.* 34 (2016) 180–186.
- [9] W. Stroud, J.M. Whitworth, M. Miklic, K.E. Schneider, M.A. Finan, J. Scalici, et al., Validation of a venous thromboembolism risk assessment model in gynecologic oncology, *Gynecol. Oncol.* 134 (July (1)) (2014) 160–163.
- [10] J.M. Whitworth, K.E. Schneider, P.J. Frederick, M.A. Finan, E. Reed, J.M. Fauci, et al., Double prophylaxis for deep venous thrombosis in patients with gynecologic oncology who are undergoing laparotomy, *Int. J. Gynecol. Cancer* 21 (6) (2011) 1131–1134.
- [11] D.D. Rahn, M.M. Mamik, T.V.D. Sances, K.A. Matteson, S.O. Aschkenazi, B.B. Washington, et al., Venous thromboembolism prophylaxis in gynecologic surgery: a systematic review, *Obstet. Gynecol.* 118 (2011) 1111–1125.
- [12] D.L. Clarke-Pearson, L.N. Abaid, Prevention of venous thromboembolic events after gynecologic surgery, *Obstet. Gynecol.* 119 (2012) 155–167.
- [13] A.M. Nick, K.M. Schmeler, M.M. Frumovitz, P.T. Soliman, W.A. Spannuth, J.K. Burzawa, et al., Risk of thromboembolic disease in patients undergoing laparoscopic gynecologic surgery, *Obstet. Gynecol.* 116 (2010) 956–961.
- [14] J.M. Whitworth, K.E. Schneider, P.J. Frederick, M.A. Finan, E. Reed, J.M. Fauci, et al., Double prophylaxis for deep venous thrombosis in patients with gynecologic oncology who are undergoing laparotomy: does preoperative anticoagulation matter? *Int. J. Gynecol. Cancer* 21 (2011) 1131–1134.

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