

## UPPER EXTREMITY DEEP VENOUS THROMBOSIS

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## ТРОМБОЗ ГЛУБОКИХ ВЕН ВЕРХНИХ КОНЕЧНОСТЕЙ

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Upper extremity deep vein thrombosis (UEDVT) constitutes around 10% of all DVT, and can cause both pulmonary embolism (PE) and post-thrombotic syndrome (PTS) in the arm. The incidence of secondary UEDVT is increasing due to widespread use of central venous catheters in patients with cancer and other chronic diseases. We report a case of 51-year-old female diagnosed with upper extremity deep venous thrombosis in emergency department with no co-morbidities and its successful treatment.

**Keywords:** upper extremities deep vein thrombosis, post-thrombotic syndrome, emergency medicine.

Тромбоз глубоких вен верхних конечностей (ТГВБК) составляет около 10% от всех тромбозов глубоких вен и может вызывать как легочную эмболию (ЛЭ), так и посттромботический синдром (ПТС) в руке. Заболеваемость вторичным ТГВБК увеличивается по причине широкого использования центральных венозных катетеров у пациентов с онкологическими и другими хроническими заболеваниями. В данном сообщении приводится случай 51-летней женщины, у которой в отделении неотложной помощи был диагностирован тромбоз глубоких вен верхних конечностей без сопутствующих заболеваний, и его успешное лечение.

**Ключевые слова:** тромбоз глубоких вен верхних конечностей, посттромботический синдром, неотложная помощь.

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## Introduction

Until recently, there has been much less clinical and research focus on identification and management of upper extremity deep venous thrombosis (UEDVTs) than deep venous thrombosis (DVTs) of the lower extremity. Up to 10% of all deep vein thrombosis (DVT) are related to upper extremity, occurring at an incidence of about 3 per 100,000 in the general population typically young with no previous comorbidities and physically active individuals [2,4,5]. However, this figure is probably an underestimation of the actual problem as a large number of upper extremity deep vein thrombosis (UEDVT) goes undetected since the problem is generally asymptomatic, especially in patients who have repeated central vein cannulations or indwelling lines

and port. An aggressive treatment approach that includes anticoagulation, catheter-directed thrombolysis, and thoracic outlet decompression is aimed at relieving acute symptoms and minimizing complications, including recurrent thromboembolism, pulmonary embolism and post-thrombotic syndrome [1].

## Case Report

An 51 year-old obese female presented to emergency department with 1 week history of complain of left arm pain, new onset left upper arm and neck swelling. She complained of mild breathing difficulty on exertion since past 3 days. There was no history of trauma, fever or strenuous exercise. The patient was previously well with no recent weight

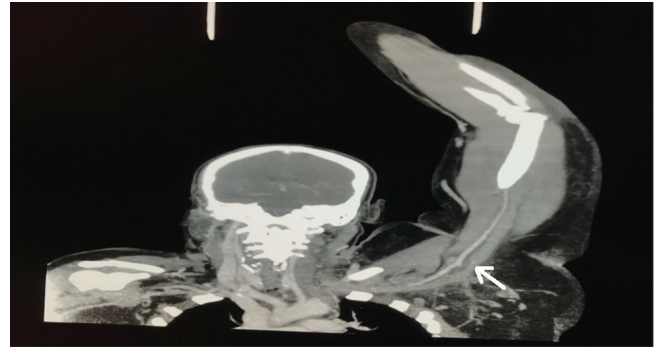
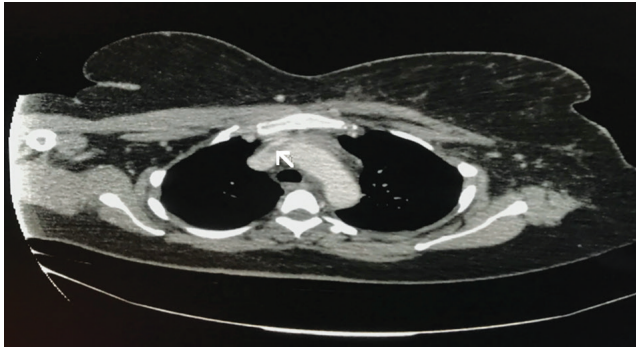


Fig 1 and 2 shows thrombosis to brachial vein and extending to Superior Vena-cava respectively.

loss, change in bowel habit, respiratory symptoms or abnormal bleeding. The patient was not on any regular medications and there was no past medical history of note. The patient was a non-smoker, no recent immobilization or injury, no previous history of thrombosis and was not taking the oral contraceptive pill.

On examination, primary Survey showed mild respiratory distress with a respiratory rate of 28/min, blood pressure of 130/70 mm Hg, pulse rate of 84/minute with a normal oxygen saturation, conscious, oriented with no focal neurological deficits. ECG showed normal sinus rhythm. Unilateral left upper arm and neck edema associated with significant tenderness. Other systemic examination was unremarkable during secondary survey.

Emergency Echo screening was done which showed good LV systolic function with no RWMA. The patient subsequently underwent venous Doppler ultrasonography, which showed thrombosis in the left brachial, IJV and innominate vein. She underwent CT venogram, which confirmed the extensive thrombus in the left brachiocephalic to brachial vein minimally extending to SVC and IJV up to skull base with gross tissue edema.

Patient and her family were counseled regarding the severity of the disease and treatment plan in the form of IV thrombolysis and its complications in detail. Post consent, she was thrombolysed with IV Alteplase 100mg over 2 hours which allowed significant reduction in the upper limb swelling. Patient was started on injection Clexane 60mg SC and also on oral anticoagulation in the form of Rivaroxaban for further maintenance.

Patient improved symptomatically over period of 2 days. Her basic investigation showed severe iron and vitamin B12 deficiency anemia (Hb-9.6g/dl, MCH-21pg, MCV-74fl, MCHC-28g/dl, VitB12-120pg/ml, S.Iron-14ug/dl) for which she was transfused with 1500mg elemental iron and Vit

B12. Patient was discharged on hemodynamically stable condition on 3rd day and remained stable when reviewed again after 1 week.

## Discussion

Most DVTs involve the lower extremities. The upper extremities may be affected in a small number of cases. The upper extremities are thought to be at a decreased risk for DVT compared with the lower extremities because the venous circulation of the arms is located at nearly the same level as the heart. Eighteen to 69% of upper extremity DVTs involve the subclavian vein, 5% to 42% involve the axillary vein, and 4% to 13% involve the brachial vein [7,8]. Factors such as anatomy (eg, Paget-Schroetter syndrome, an effort thrombosis associated with increased activity of the upper extremity that accounts for 20% of upper extremity DVTs), infection, central venous catheters, trauma, hypercoagulable states, and upper extremity surgery all increase the risk for development of an upper extremity DVT [1,9]. The rate of upper extremity DVT has increased from 2% of all cases of DVT between 1966 and 1986 to 4% to 10% of all cases currently, largely being attributed to the growing use of central venous catheters. The mortality rate after development of an upper extremity DVT is high (34% at 3 months and 48% at 6 months) and likely a reflection of the substantial comorbidities harbored by these patients.

Upper extremity and lower extremity DVTs have similar clinical manifestations. The most common symptoms of upper extremity DVT are edema and pain, occurring in 98% and 63% of cases, respectively [1]. Patients can also experience skin discoloration, numbness, pruritus, and limited range of motion. However, patients with an upper extremity DVT may also be asymptomatic. This is problematic for physicians, as an estimated 12% to 36% of patients with an upper extremity DVT

will develop a pulmonary embolism (PE) or post-thrombotic syndrome [3,6]. Patients with an upper extremity DVT may have more than twice the risk of developing a PE compared with patients with a lower extremity DVT. Thus, it is vital that physicians remain vigilant in assessing for upper extremity DVTs, especially in patients with risk factors [6].

Patients with UEDVT typically present with heaviness, discomfort, pain, paraesthesia, and swelling of the affected arm. Many patients with catheter-related UEDVT have no symptoms of venous obstruction, and the inability to draw blood from the catheter or fever caused by catheter infection may be the presenting problem [2,3]. Physical examination may reveal pitting edema, redness, or cyanosis of the involved extremity; visible collateral veins at the shoulder or upper arm; and fever.

This case report underscores the importance of diagnosing UEDVT rapidly and accurately to prevent thrombosis-related morbidity and mortality and speedy recovery of the patient. This emergent condition requires aggressive treatment including thrombolysis or thrombectomy and carries significant risk of gangrene and limb loss, consideration of pulmonary embolism and other potential emergent sequela.

### Conclusion

Emergency physicians should suspect upper limb DVT in any patient with tenderness and swelling of limb and worsening dyspnea with no apparent risk factors.

High index of suspicion with prompt objective diagnosis, especially in patients with clinical features and central venous catheters, is important to diagnose and treat the serious implications of UEDVT. Rapid diagnosis of upper extremity deep venous thrombosis can expedite anticoagulation treatment. Due to the potential complication of life-threatening pulmonary embolism and long-term disability, it is essential that primary care providers be aware of this condition in order to properly

diagnose patients they may see in their emergency department.

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## ҚўЛЛАР ЧУҚУР ВЕНАЛАРИНИНГ ТРОМБОЗИ

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Қўллар чуқур веналарининг тромбози (ҚЧВТ) чуқур веналарда кузатиладиган барча тромбозларнинг тахминан 10 фоизини ташкил қилади ва ҳам ўпка эмболиясини, ҳам қўлларнинг посттромботик касаллигини чақириши мумкин. Онкологик ва бошқа сурункали касалликлари бўлган беморларда марказий веноз катетерларни кенг қўллаш сабабли иккиламчи ҚЧВТ билан касалланиш сони тобора ортиб бормоқда. Ушбу мақолада 51 ёшдаги аёлда шошилинич тиббий ёрдам бўлимида қўл чуқур венасининг асоратланмаган тромбози аниқланиш ҳолати ва уни муваффақиятли даволашга эришилганлиги ёритилган.

**Калит сўзлар:** қўллар чуқур веналарининг тромбози, посттромботик синдром, шошилинич ёрдам.

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