

Upper Limb Proximal Deep Venous Thrombosis

K. Balagurunathan^{1*}, S. Selvakumaran², Shanthi Vijayalakshmi³

{¹Professor and Head, ²Assistant Professor, Surgical Gastro Enterologist, Department of Surgery}

{³Assistant Professor, Department of Radiology}

Venkateswarra Medical College - 605102, Puducherry, INDIA.

*Corresponding Address:

cdmraja2000@yahoo.co.in

Case Report

Abstract: Deep Vein Thrombosis (DVT) of upper limb is an unusual phenomenon not being encountered frequently and hence there is often a delay in diagnosis unfortunate enough increasing the morbidity and mortality of this condition. Unexplained swelling of the upper limb in a healthy adult male/female and any predisposing factors from the patient's history should alert the emergency room doctors for hospital admission and further investigations to confirm or rule out DVT before it is too late.

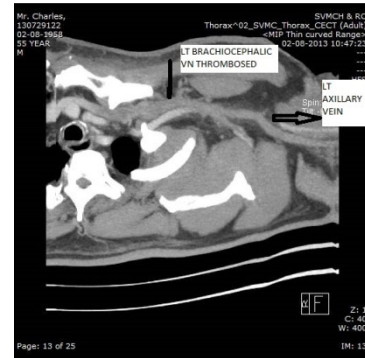
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Introduction

Deep vein thrombosis per se is a known medical entity most of which occurs in calf muscle veins – Calf DVT. Upper limb deep vein thrombosis very often is a sequelae of post sports trauma (paget schroetter syndrome) indwelling catheter treated thrombosis, thrombophilic tendency (contraceptive pill conception). We report a case of axillary vein thrombosis of idiopathic category in a middle aged non atheletic male with no clinically demonstrable etiologic factors.

Case Report

55year old male visited surgical outpatient department with chief complaints of pain and swelling over left upper limb extending upto shoulder for past three days. The swelling was sudden in onset, progressive in nature with severe pain in whole of upper limb. No history of sports activity or trauma. Patient was known diabetic and hypertensive for past four years. On examination there was swelling and tenderness in whole of upper limb up to shoulder. No visible engorged veins seen in the skin. Distal radial artery pulsation was palpable. Ultrasound examination of left upper limb showed acute DVT in left upper limb – left brachio cephalic trunk, left proximal juglar vein, left subclavian vein, left axillary vein until proximal brachial vein. Doppler duplex study of arterial system was normal. Doppler duplex study of venous system showed acute thrombosis. CT Venogram has confirmed the above findings of ultrasound studies with thrombosis extending upto brachio cephalic trunk abutting the origin of SVC.



INR was monitored from beginning initially 1.2. Anti coagulation treatment was started and after ten days it was maintained at 2.33. Anti coagulation with Heparin followed by Enoxheparin and warfarin sodium. Patient was also treated with antibiotics and subcutaneous insulin therapy.

Thrombotic profile

HOMOCYSTEINE – 12.9 mmol/L (high normal)
TOTAL ANTI CARDIOLIPIN ANTIBODY – 6.0 IU/L (normal)
PROTEIN C – 140 % (high normal)
PROTEIN S - 70 % (normal)
ANTI THROMBIN – III – 25.0 mg/dl.(normal)

He was found to have high normal values of Homocysteine and Protein C. Folate therapy was initiated and continued with oral anti coagulants Acenocoumarol. He was advised to continue anti coagulation oral anticoagulant and folate therapy. Future monitoring of INR value will decide type and duration of future therapeutic management. Lifelong anti coagulation therapy is still controversial treatment option that may be considered if needed.

Discussion

DVT has been hypothesized in 1846 in Berlin by Virchow, one of the “Fathers of medicine” to have following etiological factors –

VIRCHOW TRIAD – 1.change in blood flow with systemic stasis 2. Blood hyper coagulability 3. Endothelial injuries.

With all the modern sophisticated bio chemical analysis and radiological diagnosis ,the etiology of DVT remains the same as per Virchow triad.¹ Lower limb DVT has gained wide spread attention where as upper limb DVT – axillo subclavian thrombosis- incidence, prognosis, rarity, management, mortality had been scarcely published.² Recent increase in incidence of DVT specifically in South India is probably due to development of more precise diagnostic methods and also pollution related to environmental and dietary contaminants. Primary AVT called Paget schorrtter syndrome is due to increased effort and undue sports trauma in dominant upper limb.^{3,4,5} Secondary AVT commonly follows the following problems – malignancies and systemic diseases, central venous catheters, local anatomic variations.¹⁻⁸

Patients on oncology chemotherapy tend to develop axillary vein thrombosis either because of long CV lines responsible for intrinsic intimal damage and thrombotic tendency following chemical inflammation.^{7,9,10} Thrombophilia on hypercoagulability induced by oral contraceptive pill therapy in women has been well recognised. Post athletic sports trauma posses a great susceptibility for AVT following a period of violent or exaggerating exercise in young athletes.

DVT and Genetic Factors

Factor V Leiden , Protein C , Protein S and Anti Cardio Lipid Antibodies.

Factor V leiden is one of common causes of inherited DVT. Deficiencies in protein S and C fails to regulate the clotting cascade.

Protein S & C deficiencies always have a tendency for thromboembolitic challenges in the vascular compartement.³

Lab Investigation for DVT

INR till today claims to be the standard of monitoring thrombophilic status of the patient during the active period and post thereuptic period. An INR of 2.0 to 3.0 is often the selected treatment goal so INR values less than 2.0 during anti coagulation therapy indicates inadequate protection from clotting. These patients were advised regarding the following in their today life activities because of intervention in the clotting cascade. For e.g., the patients are advised against using aspirin and ibuprofen – which produces platelet abnormalities, to avoid green leafy vegetables which has Vitamin K and this ia a pro clotting factor. Homocysteine if present in high values should be treated by folate therapy.

Clinical Evaluation

By history taking if the patient has given the following statements

History	Physical Examination
Long haul plane flights of recent schedule – economy seat syndrome.	Unilateral edema
Loss of endurance	Low grade fever
Fatigue	Warmth in affected extremity
Exertional Pain or swelling in upper extremity	Skin discoloration
Constant or intermittent pain in the affected limb	
Sensation of lightness or heaviness	

The above history and clinical examination should always alert the emergency room physicians towards the DVT diagnosis.

Management

Early anti coagulation with heparin and Enoxaparin with simultaneous oral anti coagulation therapy remains the treatment of choice in Indian rural scenario. Catheter directed thrombolysis using streptokinase and urokinase is still superior method of management but unfortunately the above procedure was not available. However more radical methods have been described such as per cutaneous transluminal angioplasty for intrinsic stenosis, thoracic outlet decompression for extrinsic outlet decompression(6,10,11,12,13.) .

Most important observation is, AVT if not diagnosed and treated in appropriate time leads to potentially fatal pulmonary embolism even though there is differential clinical statistics regarding the incidence of post AVT pulmonary embolism and death.(2,6,14 ,15 16)

Conclusion

Clinical assessment of upper limb DVT should include 1. Taking a proper history 2. Failure to recognise signs and symptoms of DVT 3. Unexplained swelling of whole upper limb without any systemic sepsis 4. Dilated superficial collateral veins 5. Distended jugular vein possibly 6. Doppler duplex study of upper limb swelling in a healthy adult is always a must nowadays, fortunately the duplex scan is available in most of rural towns in South India. Timely diagnosis by the trainee doctors in emergency room with a surgical consultation without inappropriate delay coupled with a ultrasonographic diagnosis followed by immediate anti coagulation therapy can always save the patient with upper limb DVT.

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