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A case of Deep Vein Thrombos is following covid vaccination- A Case Report

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ABSTRACT: A 34 year old lady presented with acute onset Deep Vein Thrombosis of left axillary and brachial vein three days after taking the first dose of covid vaccine. There was no history oftrauma, prior thrombotic event, any adverse pregnancy outcome,intake of OC pills or addiction to any substance. Patient did not complaint of weight loss, nightsweat or anorexia. Examination revealed her left upper arm was tender and edematous. Her complete hemogram, serum electrolytes, liver function test, renal function test, lipid profile and coagulation profile were unremarkable. Investigation for thrombophilia were negative andserum Homocysteine level was within normal limit. ANA (Hep 2) was negative and Antiphospholipid antibodies were not detected. Malignancy screening did not reveal evidence of any Tumor. The patient was treated with oral Rivaroxaban. She responded to the therapy and was discharged in stable condition.

I. INTRODUCTION:

Deep vein thrombosis(DVT) is formation of blood clot inside the lumen of a deep vein. A DVT can develop in veins of both upper and lower extremities. Lower extremity DVTs are 10 times more common than upper extremity DVTs. In the lower extremities, venous thrombosis can occur in the deep veins of calf or inside more proximal veins like the popliteal, femoral and iliac veins. According to Virchow's triad, thrombosis can be provoked by stasis of blood inside vessel, hypercoagulability or endothelial injury. Common predisposing factors for developing thrombosis are advanced age, cancer, heart failure, obesity, cigarette smoking, systemic arterial hypertension, chronic kidney disease, use of estrogen containing OC pills or hormone replacement therapy, hyperhomocystenemia, prolonged immobilisation, surgery or trauma. Inflammatory diseases like inflammatory bowel disease or psoariasis can also induce a prothombotic state in the body and increase chances of thrombosis. There are certain hereditary thrombophilias such as Factor V Leiden mutation, Prothrombin gene mutation, deficiency in naturally occuring anticoagulants like protein C, protein S and Antithrombin-III, activated protein C resistance and dysfbrinogenemia. Among the acquired thrombophilias, antiphospholipid antibody syndrome is the most common disorder characterised by recurrent vascular thromboses. Upper extremity DVTs are usually precipitated by indwelling vascular catheters, pacemaker wires or trauma[1,2].

There are different types of covid-19 vaccines available currently.They include the non replicating viral vector vaccines, inactivated vaccines and nucleic acid vaccines(both DNA and RNA)[3].

This is a report of a case where there is development of deep vein thrombosis of left upper limb following administration ofnon replicating viral vector vaccine(Covishield)against Covid-19.

Case description: A 34 year old non obese, non diabetic, non hypertensive, euthyroid, married Muslim lady resident of Raja Bazar, Kolkata, a teacher by occupation presented with acute onset pain and swelling of left upper limb on third day following the first dose of covid vaccination. There was no history of any trauma to the limb.On examination, her left arm is tender and oedematous but arterial pulses were normally palpable. An urgent colour Doppler ultrasonography of the limb revealed presence of a thrombus in the lumen of left axillary and brachial vein with reduced compressibility – suggestive of Deep Vein Thrombosis. The patient did not give history of intake of any medication on regular basis including OC pills. She did not have any history of stroke or

any prior thrombotic event, any adverse pregnancy outcome including fetal loss. There was no history of exposure to Tuberculosis, Covid infection in the past or any significant past history.Her family history was unremarkable. She was not addicted to any substance. She denied any weight loss, night sweats or anorexia. On clinical examination she was alert, conscious, cooperative. BP- 124/84 mmHg in sitting position, pulse- 84bpm, RR - 18/min, Temperature – afebrile, Random CBG-124 mg/ dl. There was no lymphadenopathy, no lump in breast. Examination of the chest and abdomen were within normal limits. Ophthalmoscopic examination was normal. Examination of other systems did not reveal any abnormalities.

Investigations:Her complete hemogram showed hemoglobin 12.6%, TLC 4890, DLC N68L25M3E4, platelet count 2.82 Lac, MCV 102.8, MCH 31.5, MCHC 30.7 and PCV 39. Her Sodium was 141, potassium 3.3. Her renal function and liver function tests were all within normal limits. Her blood investigation for thrombophiliarevealed Protein C activity – 142% (70-130%), Protein S activity- 95%(55-123%), Antithrombin lllactivity -112%(80-120%), Factor V activity- 261.5sec with absent Factor V Leiden mutation. Her serum Homocysteine level was 7.16 micromols/ litre(biological reference interval 4.44-13.56), SARS Cov 2 nucleocapsid antibody titer was 24.62 COI(<1.0). ANA by Hep 2 negative. Anti phospholipid antibodies were not detected. A Coagulation Panel revealed PT -17.3, aPTT- 30.8, INR-1.23, Plasma Fibrinogen-413, D-dimer -0.27 and FDP -4.08. Her Lipid Profile showed Cholesterol -140, Triglycerides-178, HDL cholesterol -54, serum Uric Acid -5.2, LDH-274, CRP- 4.9(reference <10). A malignancy screening was done including USG Neck, USG Breast with bilateral Axillae, CT Scan of Chest, Abdomen and Pelvis. IT did not revealed any enlarged Lymph nodes or any Tumor. Tumor markers i.e. CA125, CA 19.9, CEA , AFP, Beta HCG were all negative.

Clinical Course in Hospital: Opinion of Cardiology and CTVS Department wastaken. Patient was started on tablet Rivaroxaban 10 mg twice daily with monitoring for any bleeding manifestation. With oral Anticoagulant, her pain started subsiding, swelling began to regress with diminution in size of the thrombus as evident from repeat Colour Doppler performed after 2 weeks. After 12 weeks the dose of Anticoagulant was descalated to 10 mg once daily. Physiotherapy of upper limb was initiated. She was eventually discharge and advice to follow up on regular basis.

II. DISCUSSION:

Deep Vein Thrombosis of upper limb in a young female can be predisposed by various risk factors like hereditary or acquired thrombophilic states, post surgery or post trauma, occult malignancies or use of certain medications[1,2].After ruling out these possible risk factors for DVT in our patient, we assumed that her thrombosis was likely provoked by Covid vaccination.There has been few cases of cerebral venous thrombosis (CVT) reported in the US as per FDA and CDC after use of Janssen's human adenovius vector vaccine[4,5]. Similar cases of possible vaccine induced thrombosis and thrombocytopenia(VITT) were identified in Europe after administration of Chimpanzee adenovirus vector vaccine developed by Astrazeneca and Oxford group (similar in Formulation to covishield in India)[6,8,9]. Majority of this events occurred in women. However data regarding the occurrence of Thrombosis following covid vaccination in Indian population is limited[7,10]. It is important to decide the future vaccination schedule against covid in such patient (whether second dose of same vaccine or different vaccine). Also further studies are needed to identify people at risk of such events following vaccination.

III. ACKNOWLEDGEMENT :

Consent has been taken from the patient for publishing the case. We would like to express our gratitude to our patient and her husband for their full cooperation.
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Contributory Statement:
BBB – prepared and edited the manuscript and was involved in patient management
BB , MM , SRK – helped with clinical correlation and diagnosis and supervised the treatment
AM – supervised the entire workup, management and manuscript preparation, revision and editing.
All authors were in agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work were appropriately investigated and resolved.

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