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RESEARCH ARTICLE

ANTI-PHOSPHOLIPID SYNDROME INDUCED POST COVID INFECTION: A CASE REPORT

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Abstract

Anti- phospholipid syndrome (APS) is an autoimmune prothrombotic disease characterized by persistently elevated antiphospholipid antibodies, resulting in recurrent arterial and venous thromboembolic events. The deep veins of the lower limbs and the cerebral arterial circulation are the most common sites of venous and arterial thrombosis, respectively [1] The other major clinical manifestations of the antiphospholipid syndrome are obstetrical. They include the unexplained death of one or more morphologically normal fetuses at or beyond the 10th week of gestation, the premature birth of one or more morphologically normal neonates before the 34th week of gestation because of either eclampsia or severe preeclampsia, and three or more unexplained, consecutive spontaneous abortions before the 10th week of gestation [2] Thrombotic events post COVID 19 infection has been described since the beginning of pandemic in 2019[3]. Autopsy reports have shown that most thromboses are located in the lung, although they have also been observed in other organs such as the skin and kidneys. SARS-CoV2 infection induces a generalized prothrombotic state, which is attributed to a combination of factors such as hypoxia, excess cellular apoptosis, and mainly to overactivation of the immune system [4]. Considering the high rate of mortality due to coagulation abnormalities and thrombosis among coronavirus disease 2019 patients, it is important to pay attention to the differential diagnoses of coronavirus disease 2019 and other diseases following thrombotic events [5].

Introduction:-

A 22 year old single female, morbidly obese (BMI: 53.73 kg/M2), presented to Emergency room with complains of fever, cough, right lower limb swelling. On admission she had tachycardia and desaturation.

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Her chest x ray showed right lower lung zonal well-defined wedge-shaped opacity seen along with right mid lung zone ill-defined patchy opacity possibilities including pulmonary embolism and pneumonic changes (Figure 1). She was admitted under medical team in our hospital. A Doppler venous ultrasound of the lower limbs showed Late subacute/chronic right ilio-femoral D.V.T with areas of recanalization (Figure 2). Moreover, the patient underwent CT Pulmonary Angiography which revealed Acute right lower lobe pulmonary embolism (figure 3 & 4). The patientcomplained of abdominal pain on and off during admission for which she underwent CT Abdomen with contrast which revealed Venous thrombosis of the IVC and right common and external iliac veins (Figure 5& 6)

The patient hadhistory of COVID 19 infection around 5 months back. During hospitalization, the patient showed an elevated level of Anticardiolipin antibody (immunoglobulin G isotype), Lupus anticoagulant, Dimer was 10 (ug/ml FEU), CRP was very high (204.9 mg/L) and normal platelet count. She was started on Clexan along with warfarin and covered with Antibiotic for urinary tract infection. An Insertion of Inferior Vena Cava Filter was done by vascular team after the finding IVC venous thrombosis on CT abdomen with contrast. Echocardiography showed that there is a moderately sized flat and mobile thrombus which is located in the inferior vena cava, with disturbed flow

She was discharged home with follow up in Rheumatology and cardiology clinic

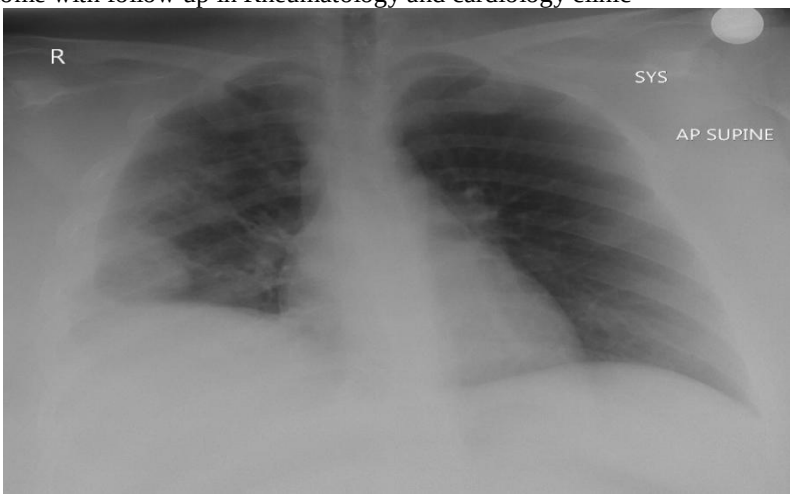

Figure 1:-

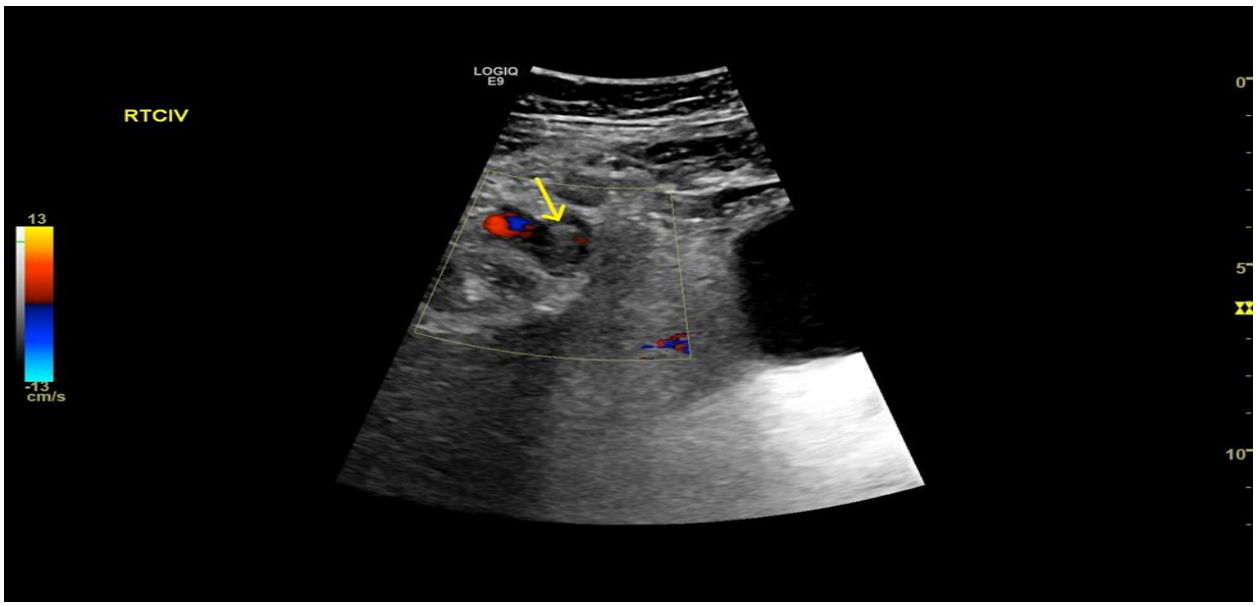

Figure 2:- Ultrasound Doppler study revealed right non-compressible CIV showing echogenic lumen however with areas of minimal peripheral flow (yellow arrow? early thrombus recanalization

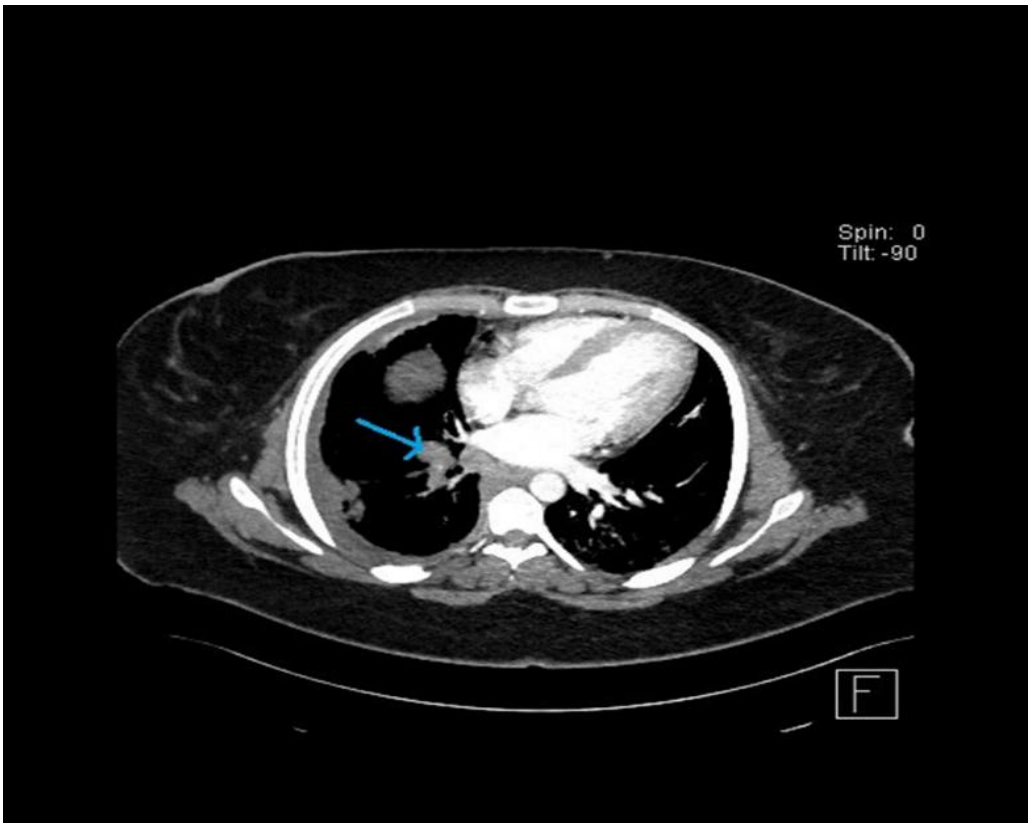

Figure 3:-

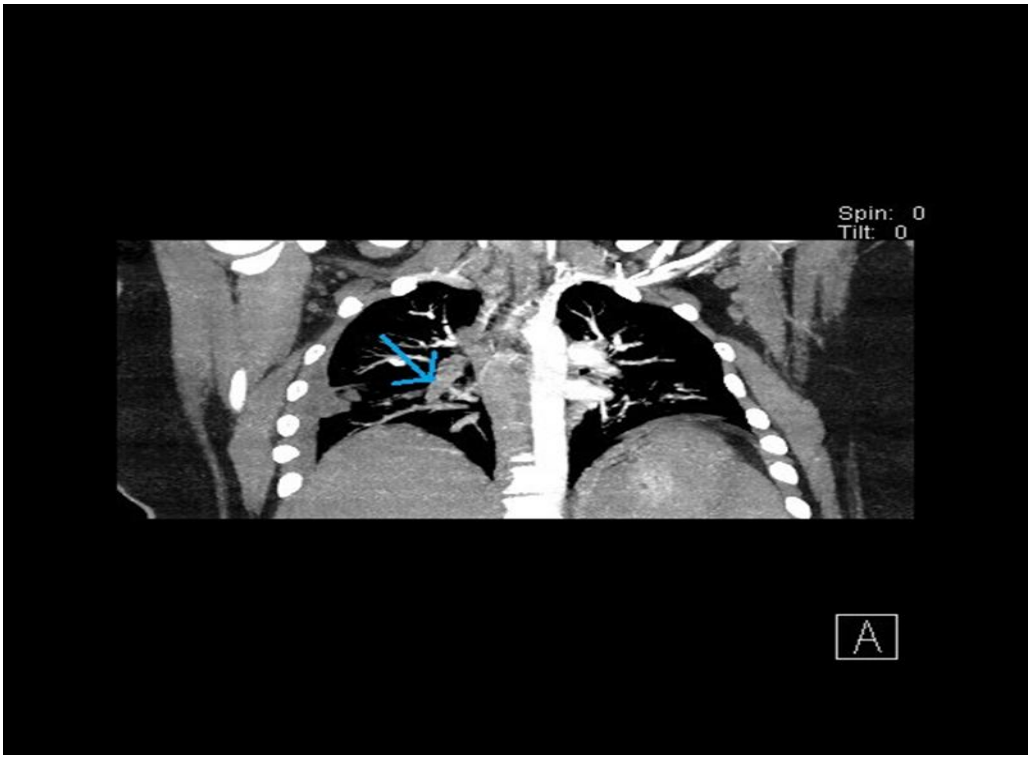

Figure 4:- CT PULMONARY ANGIOGRAM coronal and axial MIP views showing occlusion of the inferior division of the right pulmonary artery (blue arrow) impressive of acute pulmonary embolism.

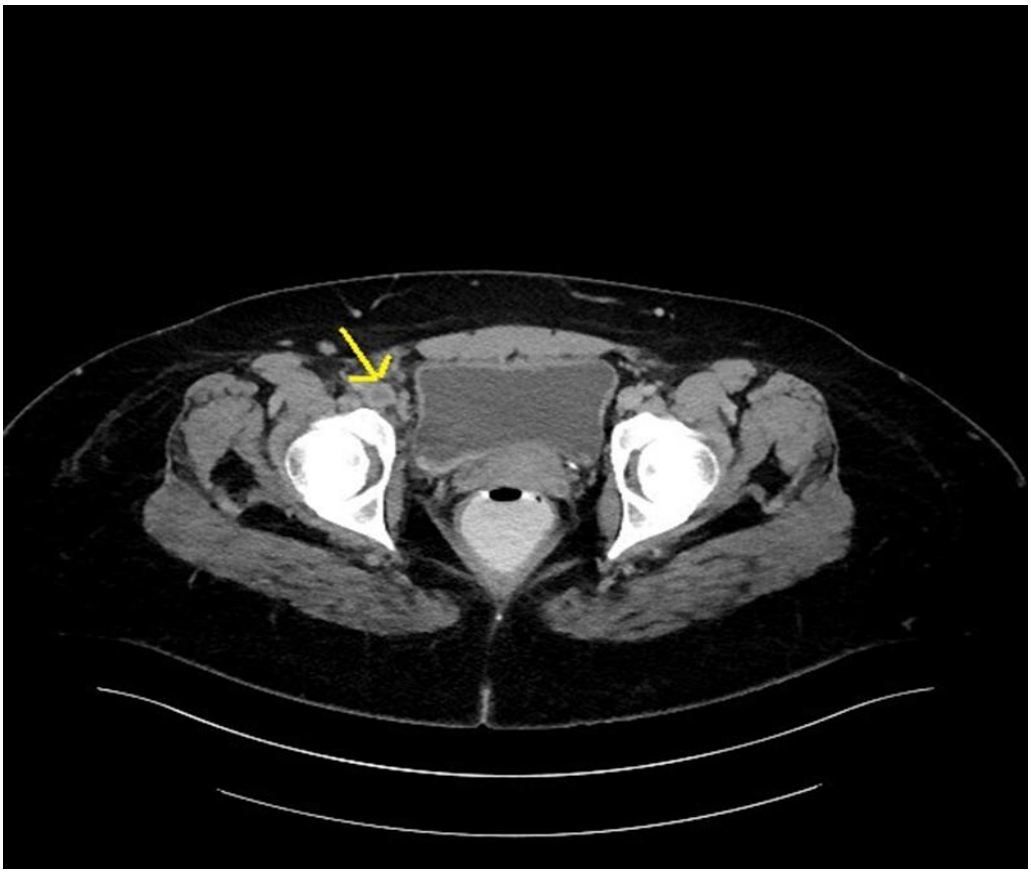

Figure 5:-

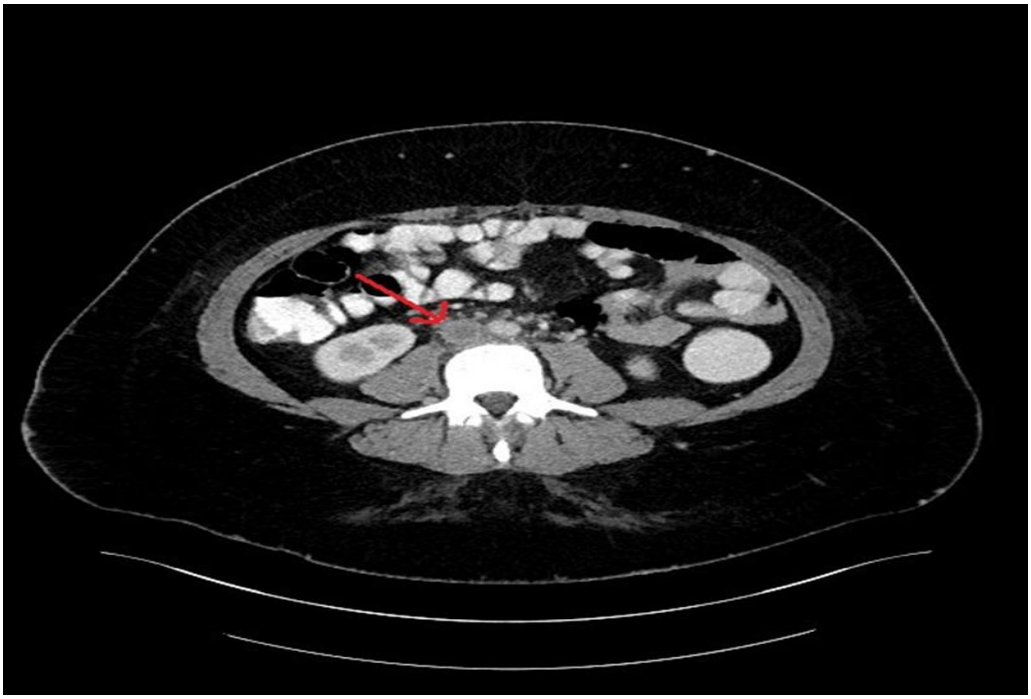

Figure 6:- IV Contrast enhanced CT scan of the abdomen and pelvis showing Occlusion of the IVC (red arrow) and right EIV (yellow arrow) as shown in figure 5.

With no luminal contrast opacification except for minimal peripheral contrast is seen denoting thrombus formation.

Discussion:-

Antiphospholipid syndrome (APS) is a systemic autoimmune disease characterized by the appearance of thrombosis or gestational morbidity (clinical criteria) in a patient with persistently high levels of antiphospholipid antibodies (aPL) [6] The antiphospholipid antibodies recognized in the classification criteria are lupus anticoagulant, anticardiolipin and anti-beta2-glycoprotein I antibodies of IgG and IgM isotypes. Presence of double or triple aPL positivity has been associated to higher risk of thrombosis [7]. The aPL levels rise nonspecifically during acute infections [8]. Therefore, to avoid false positives, the classification criteria indicated that to classify a patient with a thrombotic event as APS, there must be positivity of aPL in 2 determinations separated 12 weeks [9].

There are three forms of APS: (1) APS associated with the presence of another autoimmune disease such as systemic lupus erythematosus, (2) an isolated APS form without other autoimmunity (primary APS), and (3)catastrophic antiphospholipid syndrome(CAPS), the most severe form with multiorgan involvement, and evidence histopathology of multiple vascular occlusions. It associates poor response to anticoagulant treatment and a high risk of mortality [10]

On the other hand, there is a high morbidity and mortality of COVID-19 have been associated with the thrombotic microangiopathy described in the patients in addition to the increased prevalence of thrombosis affecting medium/large arterial and venous vessels [11,12]

The COVID-19-associated coagulopathy (CAC) is of particular interest due to the fact that it could represent a new type of coagulopathy, which has many points overlapping with sepsis-induced coagulopathy (SIC), disseminated intravascular coagulation (DIC), hemophagocytic syndrome (HPS), thrombotic microangiopathy (TMA), and Anti Phospholipid syndrome (APS) being of particular relevance for the subsequent analysis of APS in COVID-19, but in addition, showing numerous characteristics of its own

Although COVID-19 and APS are two different diseases, severe COVID-19 may result in a thrombotic syndrome with pulmonary, cardiovascular, renal, and central nervous system abnormalities, similar to(CAPS). Elevated lactate dehydrogenase and D-dimer levels, and thrombocytopenia occur in both CAPS and COVID-19; most patients with COVID-19 have elevated fibrinogen levels. Thrombotic microangiopathy (TMA) in both conditions may occur through endothelial damage, complement activation, and release of neutrophil extracellular traps (NETosis) [13, 14]

Conclusion:-

The clinical significance and the duration of aPL positivity, as well as the pathogenicity of aPL in and after COVID-19 infection remains controversial. Further research is necessary to determine whether and how aPL emerging during COVID-19 infection increases risk for thrombosis. Determination of persistence of such aPL tests at 12 weeks and beyond, and long-term outcomes in these patients are necessary to understand whether infection with SARS-CoV-2 triggers long-lasting effects on the hemostasis and immune systems and could be responsible for development of autoimmune syndromes such as APS

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