Successful Intravenous Streptokinase Therapy in Refractory Extensive Deep Vein Thrombosis Associated with Inferior Vena Cava Agenesis: A Novel Treatment for a Rare Case

The Editor,

Agenesis of inferior vena cava (IVC) is a rare anomaly associated with deep vein thrombosis (DVT), particularly in young people.[1] IVC agenesis or hypogenesis should be kept in mind when we meet with a young case with refractory and recurrent DVT.[2] There are many therapeutic protocols for the treatment of IVC agenesis patients complicated with DVT such as continuous heparin therapy, but many challenging issues remain.[3]

We present a 40-year-old male case, admitted with pain, edema, and swelling in the right lower extremity 2 weeks after laparoscopic cholecystectomy. Color Doppler ultrasound study showed extensive DVT in iliofemoral vein. Without further evaluation and with the diagnosis of DVT and surgery, heparin (80 μ/kg bolus dose and 18 μ/kg maintenance dose) was prescribed for 10 days continued with warfarin. After the treatment, symptom was resolved and international normalized ratio keep more than 2.

He discharged after 2 weeks and returned with pain, swelling in the left lower extremity 1 week later. Color Doppler ultrasound study again reported acute DVT in the left iliofemoral vein and chronic DVT in the right iliofemoral vein. The case evaluated for underlying disease and predisposing thrombosis condition such as hypercoagulation state and blood factor disorders. Plasma protein C and S, factor V, anti-thrombin III, antiphospholipids, and anticardiolipin antibodies were within normal values.

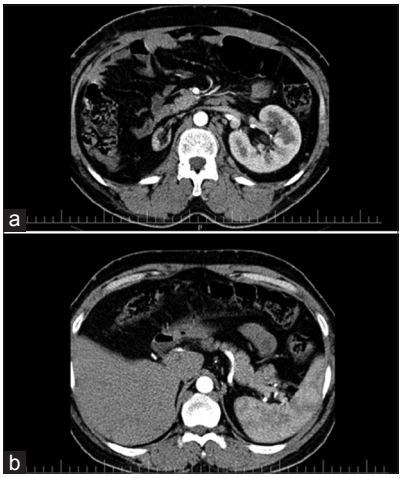

Figure 1: (a) Right kidney agenesis and contralateral kidney hypertrophy. (b) Dilatation of azygos and hemiazygos without evidence of inferior vena cava (inferior vena cava agenesis)

Thus, IVC agenesis suspected. Computed tomography angiography was shown IVC agenesis in addition to the dilatation of collaterals, azygos and hemiazygos veins. Bilateral common iliac veins thrombosis detected. As incidental findings, the right kidney agenesis also found [Figures 1 and 2].

With the diagnosis of IVC agenesis and extensive bilateral DVT, the case was treated with heparin and warfarin, but there was not a considerable response in ultrasound evaluation and symptoms. There is no evidence of pulmonary embolism, and the vital signs were stable. Then the treatment with streptokinase (250,000 IU within 30 min followed by 100,000 IU/h for 72 h, intravenous infusion) was started. After a few days, symptom resolved. At the final ultrasound examination, recanalized DVT was reported. Life-long treatment with oral anticoagulant was recommended.

At conclusion, we report a case of IVC agenesis as the rare cause of recurrent DVT. Moreover, there is renal agenesis that is could be related to this agenesis.[4] We treated a refractory extensive DVT secondary to IVC agenesis with streptokinase which is not a usual medication for DVT. There are some reports about the recurrent DVT in relation with IVC agenesis but most of them treated with routine anticoagulant therapy such as heparin and warfarin.[5-7] Hence, this novel treatment (streptokinase therapy) was rarely prescribed for such this condition[8] while we use it successfully and more works are needed to clear the advantages or disadvantages of this treatment.

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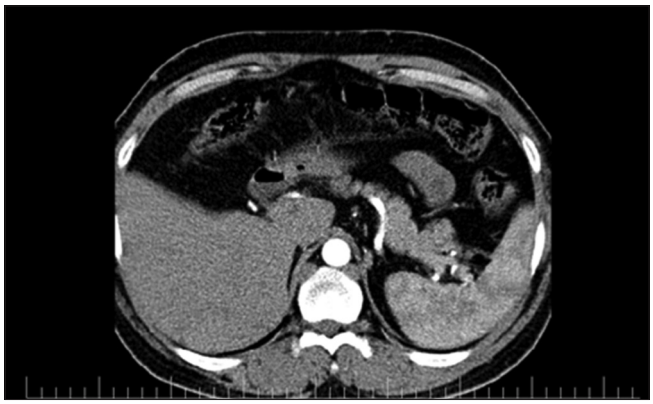

Figure 2: A tiny inferior vena cava (agenesis of inferior vena cava)

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Conflicts of interest

There are no conflicts of interest.

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