POSTER PRESENTATION

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"Unraveling Complexity: Bilateral Deep Venous Thrombosis in a 16-Year-Old Male with Inferior Vena Cava Agenesis and Extensive Collateral Thrombosis" - a case report

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BACKGROUND

Inferior Vena Cava (IVC) agenesis is a rare congenital anomaly that can be found in approximately 0,5% of the general population[1]. Such malformation forms as a result of either aberrant development of vessels during embryogenesis, or in some instances, as a result of intrauterine or perinatal IVC thrombosis which leads to the obliteration of the vein[2,3]. As an adaptation response, a rich collateral venous system forms and this is why most patients remain asymptomatic. However, these patients have a high risk of developing deep venous thrombosis (DVT) due to inadequate venous outflow through the collateral circulation[4].

We present a rare case of an IVC agenesis (IVCA) in a young male which was discovered following a bilateral deep venous thrombosis.

CASE PRESENTATION

A sixteen-year-old Caucasian male presented to our emergency department with new-onset bilateral lower limb edema. Personal history revealed that he is a hockey player with no known comorbidities except for a recent trauma that occurred while playing a match. Initial laboratory tests showed elevated D-dimers and CDUS revealed incompressible, echogenic bilateral external iliac veins and left femoral vein. Following this, a CT venogram was done and it showed the absence of the infrarenal segment of IVC with multiple thrombosed collaterals, as well as widespread thrombosis that involved the common, external, and internal iliac veins and the left femoral vein. *(Figure 1.)*

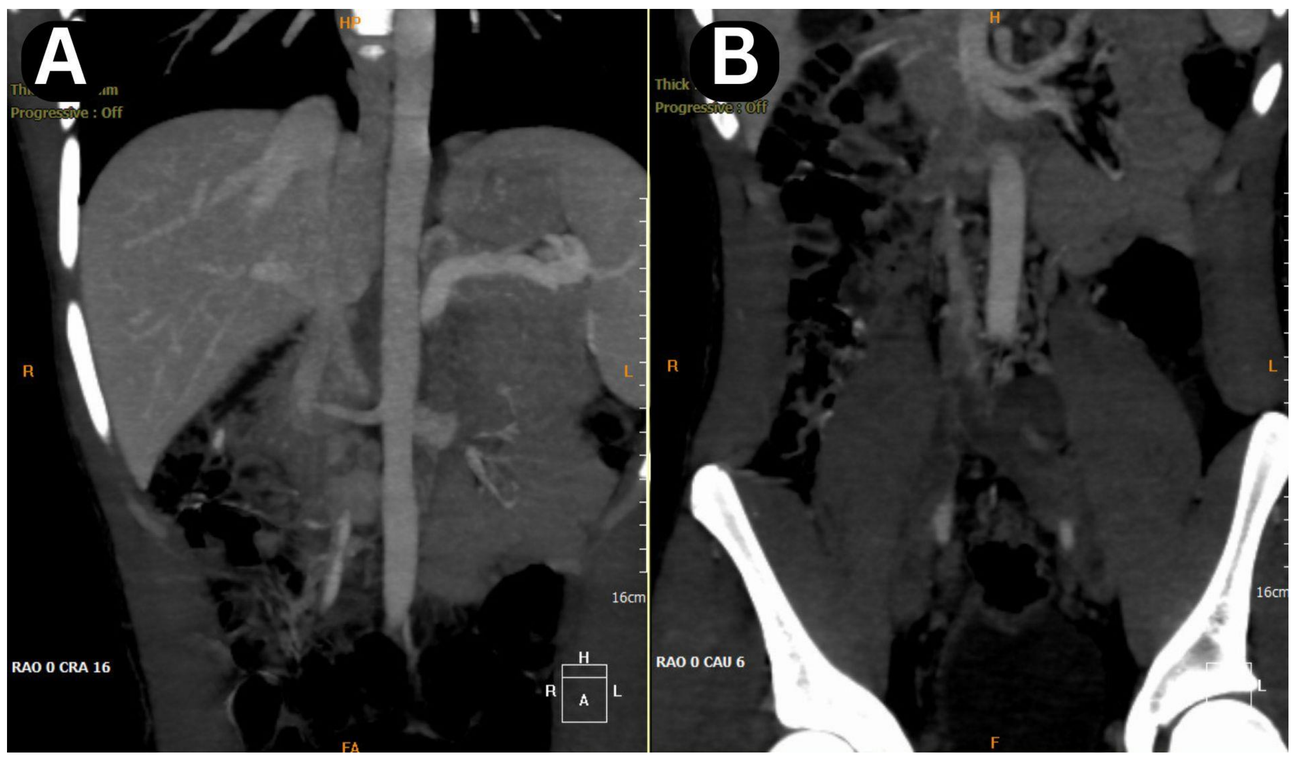

Figure 1A, 1B MSCT scan showing an absent infrarenal segment of IVC

PROCEDURE

Pharmacomechanical catheter-directed thrombolysis was performed using tissue plasminogen (tPA) and heparin infusions in conjunction with AngiojetTM (Boston Scientific) and balloon angioplasty *(Figure 2A).* Following the overnight tPA and heparin infusions, thrombectomy was repeated to remove the remaining thrombus after which complete revascularization of the collaterals occurred indicating successful restoration of blood flow to the affected area *(Figure 2B & 2C)*.The patient fully recovered and is currently on long-term anticoagulation medication.

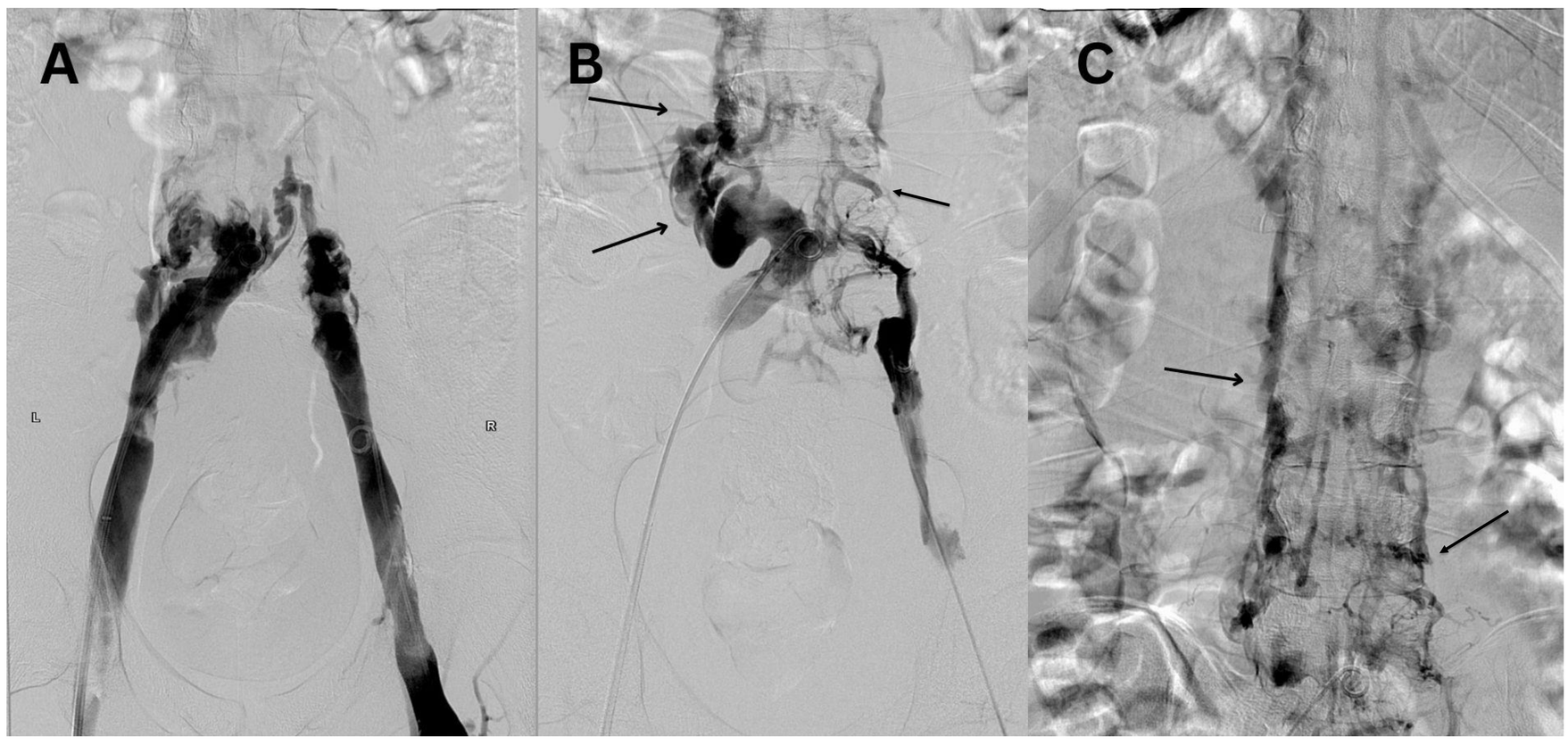

Figure 2A Initial DSA shows widespread bilateral thrombosis of the lower extremities **Figure 2B, 2C** Control DSA following the interventions shows successful recanalization of the previously occluded collaterals (black arrows)

CONCLUSIONS

Diagnosing IVC agenesis can be challenging considering a CT or MRI scan is needed to make a diagnosis[1], and these are not routinely performed in cases of suspected DVT. Thus, it is important to think of a possible IVC malformation in all young patients who present with unprovoked deep venous thrombosis, particularly if the condition is bilateral[3,5]. In such cases, a CT or an MRI scan should always be done.

There are no precise guidelines on how to approach patients with DVT due to an IVCA[3,6], but considering the risk for subsequent DVT development[1,4] and the fact that these patients are usually young, the approach should be individualized based on the clinical presentation, the severity of the DVT, and other patient-related factors. Currently, certain research suggests that catheter-directed thrombolysis could become the choice of treatment for these patients[6,7]. Alternative approaches include conservative treatment with anticoagulants, thrombectomy, angioplasty, or stenting[1,3]. Patients require lifelong anticoagulants[1,4,8].

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None