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Hepatic myelopathy improved by embolization of spontaneous portosystemic shunt and partial splenic artery embolization: a case report and literature review

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Dear Editor,

We present a 49-year-old man was admitted to the hospital due to progressive weakness in both lower limbs over the past 3 months. The patient had been diagnosed with post-hepatitis B cirrhosis in 2014, subsequently developed portal vein thrombosis in September 2016. Since May 2024, the patient had recurrent hepatic encephalopathy with a significantly higher blood ammonia level than the normal range, and traditional drug treatment was ineffective. Concurrently, the Child-Pugh grading of liver function fluctuated from B to C. In August 2024, the patient began experiencing weakness in both legs and occasional falls attributed to an unsteady gait. These symptoms gradually worsened, and three months later, the patient progressed to a complete inability to walk independently. Notably, there were no accompanying symptoms such as dizziness, headache, back pain, limb numbness, paresthesia, or other discomfort. The neurological examination revealed grade 4 muscle strength in both lower limbs, increased muscle tone, symmetrical bilateral tendon reflexes (+++), and no sensory disturbances. The patient was unable to perform the standing test with eyes closed. The bilateral finger-nose test and

heel-knee-tibia test results were normal, and pathological signs were negative. Electromyography of both lower limbs indicated decreased amplitude of sensory nerve action potentials in the bilateral superficial peroneal nerves. Brain MRI demonstrated white matter hyperintensity, whereas cervical, thoracic, and lumbar MRI, electroencephalogram, and tests for 32 autoantibodies against brain and paraneoplastic tumors were unremarkable. Considering the patient's hepatitis B-related cirrhosis, recurrent hepatic encephalopathy, and the absence of organic changes on brain and spine MRI, in addition to normal nerve conduction and EEG studies, a diagnosis of hepatic myelopathy (HM) is plausible.

We limited the shunt volume by embolizing the inferior mesenteric venous shunt and a segment of the splenic artery in december 2024. Three months post-operation, the patient was able to walk slowly and independently, with the muscle strength of both lower limbs recovering to grade 5-. Additionally, muscle tension was significantly reduced compared to pre-surgery levels, and tendon hyperreflexia improved from (+++) to (++). A follow-up abdominal enhanced CT scan revealed partial necrosis of the spleen, confirming the effectiveness of the inferior mesenteric vein embolization.

Discussion

Hepatic Myelopathy (HM) is a rare neurological complication of advanced liver disease, especially in patients with portal hypertension and spontaneous or surgical establishment of portosystemic shunt (such as after transjugular intrahepatic portosystemic shunt (TIPS))[1]. Undoubtedly, early liver transplantation remains the optimal option for achieving remission of HM[2, 3]. However, partial splenic artery embolization (PSAE) has also been reported as a viable alternative[4]. Our case illustrates that the combination of PSAE with interventional shunt procedures may offer a feasible alternative in selected patients not eligible for liver transplantation.

References

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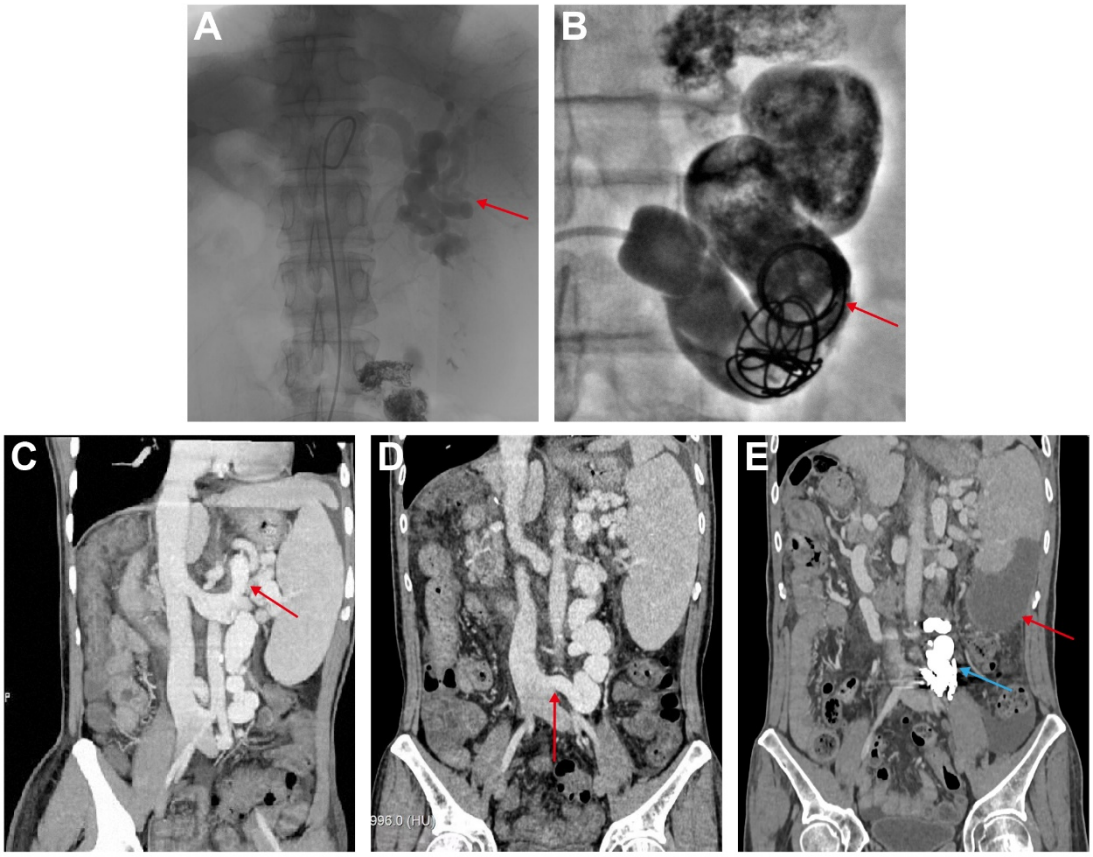

Figure Legends

Figure 1. (A) Digital subtraction angiography (DSA) showing tortuosity and dilatation of the splenic artery (red arrow); (B) DSA showed inferior mesenteric vein embolism during operation (red arrow); (C) Abdominal enhanced CT showing splenorenal shunt (red arrow); (D) Enhanced abdominal CT showing inferior mesenteric venous-inferior vena cava shunt (red arrow); (E) Abdominal enhanced ct 3 months later showed partial splenic necrosis (red arrow) and inferior mesenteric vein embolism (red

arrow).

Conflict of Interest Statement

None.

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