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*Case Reports*

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# Type B Hepatic Encephalopathy After Pancreatic Surgery – A Case Report

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**Case Reports**

Portal vein (PV) kinking and stenosis can occur as a post-surgical complication after liver transplant, but also after pancreaticoduodenectomy, especially when PV resection and reconstruction are performed [1,2]. Hyperammonemia in a non cirrhotic patient leading to hepatic encephalopathy is rare. It should be ruled out when there is an acute neurologic event in patients following gastric/hepatobiliary surgeries. The risk is higher if PV thrombosis is present [3].

We report the case of a 49 year-old female with no relevant past medical history. She was referred to General Surgery outpatient clinic due to a pancreatic mass in abdominal ultrasound. She complained of **epigastric pain** and weight lost (7kg in 3 months), but no jaundice, vomiting or anorexia. Physical examination was unremarkable.

Diagnostic work-up included blood tests and imaging. Ca-19.9 was elevated (1256 U/mL), no anaemia or abnormal liver tests. Abdominal computed tomography scan (CT scan) (image 1) showed a **pancreatic infiltrative mass** in the head/body causing pancreatic duct dilation and pancreatic body atrophy, with portal mesenteric junction occlusion and superior mesenteric artery (SMA) 180º contact, compatible with a locally advanced pancreatic cancer.

Conversion chemotherapy was decided in a multidisciplinary decision team. Endoscopic ultrasonography with fine needle aspiration confirmed carcinoma and she underwent 7 cycles of modified FOLFIRINOX with partial response, prompting surgical exploration.

Intraoperatively resectability without arterial resection was possible and **TRIANGLE** operation with **total duodenopancreatectomy** was performed. **Type IV PV resection** with bovine pericardial graft (6cm) reconstruction was needed (image 2).

Postoperative period was complicated with a pancreatic fistula and abscess, managed with percutaneous drains and antibiotics.

The patient was readmitted to the intensive care unit 30 days after surgery due to convulsive status epilepticus. A cerebral CT scan yielded normal findings, ruling out central nervous system involvement. Additionally, **progressive ascites** prompted an abdominal CT scan which revealed **kinking and stenosis of the proximal venous anastomosis** (image 3) a finding corroborated by Doppler ultrasound. Ammonia levels were elevated and a **Type B hepatic encephalopathy** was assumed. Given the critical condition of the patient, endovascular treatment was favored, involving anastomosis dilation and stenting (see Image 3), successfully restoring blood flow. However, despite these interventions, the patient's neurological status remained poor, leading to demise a few weeks later.

Venous resection with reconstruction has become an accepted technique to achieve negative margins in borderline resectable and locally advanced pancreatic tumours that respond to primary systemic treatment [1].

Possible complications after this complex surgery include PV stenosis (which incidence is rarely reported) and/or thrombosis leading to hepatic encephalopathy due to porto-systemic shunt [1,2].

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Treatment of choice for PV stenosis is often balloon dilation and stent placement. However, stent placement seems to be essential mainly when managing early anastomotic stenosis, because stenosis in this setting is caused essentially by reactive oedema following surgery and balloon fails to dilate the lumen due to recoil [2].

As far as we know, hepatic encephalopathy due to PV conduct kinking/stenosis but without thrombosis has not been reported. In this case, delayed time until diagnosis may have facilitated hyperammonemia and the patient's poor outcome.

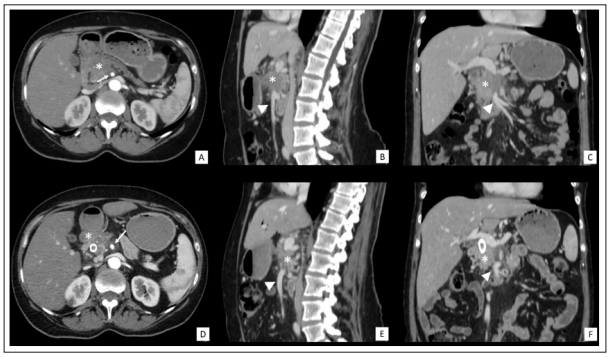

**Image 1:** Pre (A, B, C) and post (D, E, F) conversion chemotherapy. Note lesion shrinkage from 40mm to 26mm (C->F)

* – lesion; arrow - Superior mesenteric artery; arrowhead - Superior mesenteric vein

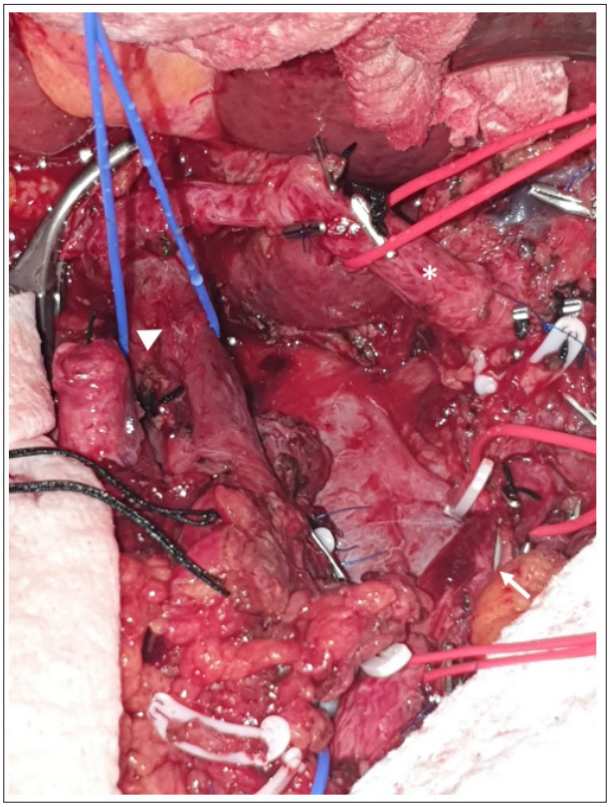

**Image 2:** Intraoperative image after TRIANGLE operation

* – Common hepatic artery (gastroduodenal artery ligated); arrowhead – Portal vein (splenic vein ligated), arrow – Superior mesenteric artery (pancreaticoduodenal arteries ligated)

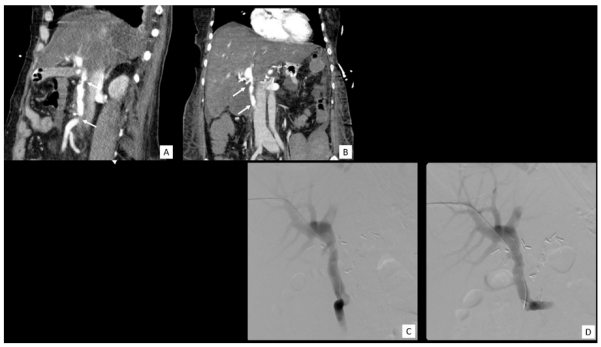

**Image 3:** CT scan (A, B) showing kinking of the venous anastomosis (arrow). Fluoroscopy images before (C) and after endovascular dilation and stenting (D)

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