

Lieno-Adrenal Shunt a Rescue for Porto Systemic Decompression in 23-Year-Old Female

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ABSTRACT

Extra hepatic portal vein obstruction is one of the commonest cause of portal hypertension and upper gastrointestinal bleed in the third world. Portal vein cavernous transformation is one of the hallmarks of EHPVO. Despite various lesser invasive interventional approaches for management of EHPVO, surgical shunts still play an important role in long term treatment of patients with EHPVO. Here we present a case of 23 years old female who presented to the OPD with complains of dull aching abdominal pain for a year which was insidious on onset and gradually progressive. The pain was non-radiating, localized to the left upper quadrant of the abdomen which aggravated on lying on the left side. She underwent lieno-adrenal shunt for porto-systemic decompression and management of EHPVO. This case aims to highlight the use of leino-adrenal shunt as a feasible alternative to Linton's shunt.

Keywords: cavernous transformation; extra hepatic portal vein obstruction; leino-adrenal shunt; linton's shunt; surgical decompression.

INTRODUCTION

Extra hepatic portal vein obstruction (EHPVO) is the commonest cause of portal hypertension and upper GI bleed in the third world.¹⁻³ Primarily, thrombosis of portal vein occurs, replaced by multiple collateral vessels overtime to maintain hepatic flow, also known as portal vein cavernous transformation (PVCT).^{2,4} PVCT remains one of the hallmarks of EHPVO.⁵ Despite the development of various pharmacological and endoscopic measures like endoscopic variceal ligation and other interventional approaches such as transjugular intrahepatic portosystemic shunt (TIPSS), surgical decompressive shunts play an important role in long term treatment

of variceal bleeding and portal hypertension with least recurrence and minimal chances of encephalopathy.^{4,6} Linton's shunt is one of the most accepted shunts for decompression of portal system⁷ and modification of Linton's shunt using adrenal vein as a conduit can be used when adrenal vein is viable with adequate caliber in case of difficulties in isolation of renal vein.^{4,8}

CASE REPORT

A 23 years old female presented to the OPD with dull aching abdominal pain for a year which was insidious in onset and gradually progressive. The pain was non-radiating, localized over

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the left upper quadrant which aggravated on lying on the left side associated with easy bruising of skin. There was no history of fever, vomiting or haematemesis. She also reported of history of endoscopic variceal ligation twice when she was 16 and 19 years old respectively following multiple episodes of haematemesis. On examination, HEENT was normal, she had a heart rate of 90bpm, a blood pressure of 130/80 mmHg, respiratory rate of 20B/min and spo2 of 98%. She had a temperature of 98F. Chest examination revealed normal chest with bilateral vesicular breath sounds and equal air entry. CNS was intact. On abdominal examination there was mild tenderness in epigastric region and spleen was palpable. Hemogram showed Hb of 9mg/dl, Platelet count was decreased to 50,000/cu.mm. PT/INR was 19.7/1.55. RFT was normal and LFT revealed total bilirubin of 1.9 mg/dl with all other parameters within normal limits. CECT abdomen showed a non-visualized portal vein with multiple dilated and tortuous collaterals very likely suggesting cavernous transformation of portal vein. Esophageal, peripancreatic and periportal collateral vessels with minimally dilated left intrahepatic biliary ducts were visualized along with splenomegaly. USG revealed Splenomegaly (18.5cm) along with multiple tortuous vessels in Portal vein bed with perihilar, perigastric and peripancreatic collaterals.

She then underwent Exploratory Laparotomy. At operation, massively enlarged Spleen was seen; multiple dilated and tortuous collaterals along the periportal region were noted. She underwent proximal splenectomy, during dissection there were thick retroperitoneal tissue around the left renal vein and a short splenic vein (Figure 1) (Figure 2). Splenic vein avulsion occurred during dissection so adequate length for lieno-renal shunt was not achieved. Left adrenal vein of adequate caliber was noted and to ensure tension free anastomosis it was chosen as a conduit for the shunt. Lieno-adrenal shunt



Figure 1. Preparation of Renal Vein.

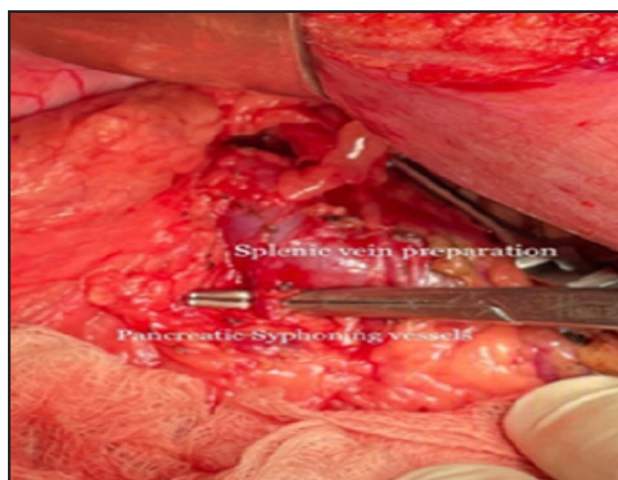


Figure 2. Splenic Vein Preparation.

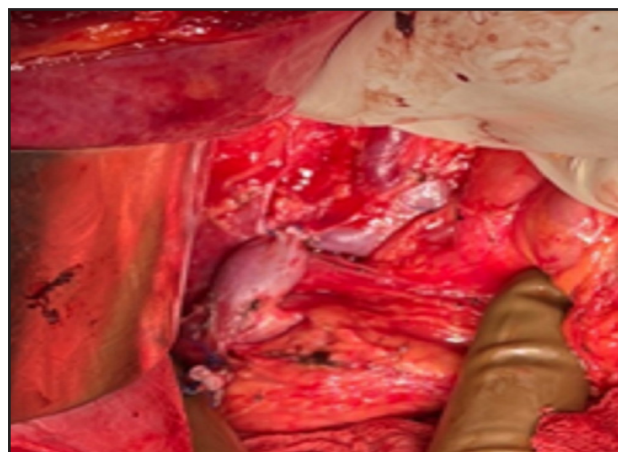


Figure 3. Lieno-adrenal Shunt.

was performed (Figure 3). Patient was shifted to the post-operative ICU and kept there for three days after which she was transferred to ward. Post operative stay was uneventful and she was finally discharged on her seventh post operative

day. On follow up patient was doing well and shunt patency was confirmed by Doppler ultrasound. Complete hemogram showed all parameters under normal limits. Hypersplenism was corrected.

DISCUSSION

Surgical decompressive shunts remain one of the most important modality for management of patients with EHPVO. Unlike other lesser invasive methods to control variceal bleed such as endoscopic band ligation, sclerotherapy etc. surgical shunts decompresses the portal system lowering the elevated portal pressure.⁹ Preserving adequate flow through the portal system to prevent encephalopathy and ascites also remains a priority while performing a surgical shunt.⁴ Patients with EHPVO very commonly present with mild to severe splenomegaly, symptomatic hypersplenism and abdominal discomfort on day to day basis, splenectomy followed by spleno-renal shunt is most commonly performed in such patients.^{1,3} In 1947, Dr. Robert Linton first reported splenectomy with PSRS.¹⁰ Unlike mesocaval shunt the proximal spleno-renal shunt does not require any natural or synthetic grafts and there is less encephalopathy or reported mortality during the post-operative period.³ Anatomical abnormalities making spleno-renal shunt difficult or non-availability of SMV and SV due to thrombosis may force the surgeons to go for other unconventional shunts.⁹ Other unconventional shunts like REX bypass or selective portocaval shunts use natural or prosthetic grafts and offer increased procedural complexities along with increased rate of complications so aren't often

used. Modified proximal spleno-renal shunt using adrenal vein as a conduit has shown to be very effective and relatively safer than any other unconventional shunts.⁴ Remotely located patient who cannot seek instant tertiary care and have higher chances of not keeping up with regular follow-ups are more likely at risk of further variceal bleeds on other lesser invasive management which might be life threatening at times and thus are indicated to undergo Spleno-renal shunt. Adrenal vein has proved to be a suitable conduit and lienio-adrenal shunt has proved to have similar outcomes as spleno-renal shunt with comparable post operative patency.⁹ Adrenal vein lies in area of dissection during the surgery while isolation of renal vein and using it as a conduit can help avoid direct vascular anastomosis to the renal vein and complications related to it; further it drains into renal vein in much more anatomical angle and allows tension free anastomosis hence, lienio-adrenal shunt can be a very good alternative to Linton's shunt.⁸ Compared to distal spleno-renal shunt, the spleno-renal/ spleno-adrenal shunt tends to provide better clinical outcomes in patients presenting with massive splenomegaly and hypersplenism.

CONCLUSIONS

Lieno-Adrenal shunt is a feasible alternative of Linton's shunt for porto-systemic decompression in patient with extra hepatic portal obstruction leading to portal hypertension and hypersplenism.

Conflict of interest: None

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