CIRA Case of the Week
April 2017

Case Courtesy of Drs. Sean Winters,
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University of Alberta

Case Presentation

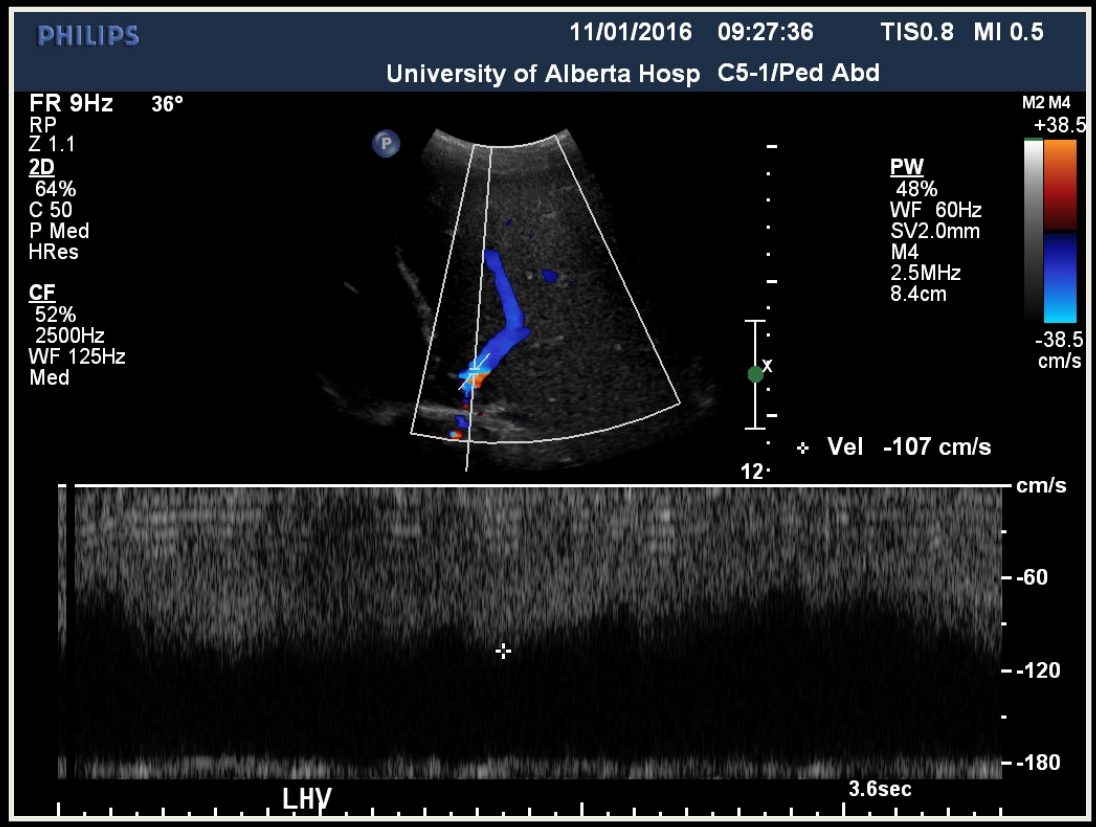
- 4 year old female patient
- 18 months post LRD left lobe liver transplant for acute unspecified fulminant hepatic failure

Case Presentation

- Complicated post-operative course over first 6 months:
  - surgery for bowel obstruction
  - twice had washout and wound dehiscence
  - lung wedge resection
  - PTLD

Case Presentation

- Had been doing very well for about a year
- Mild chronic hyperbilirubinemia for several months 28-38 μmol/L
- Acutely worse recently with refractory ascites requiring frequent paracentesis



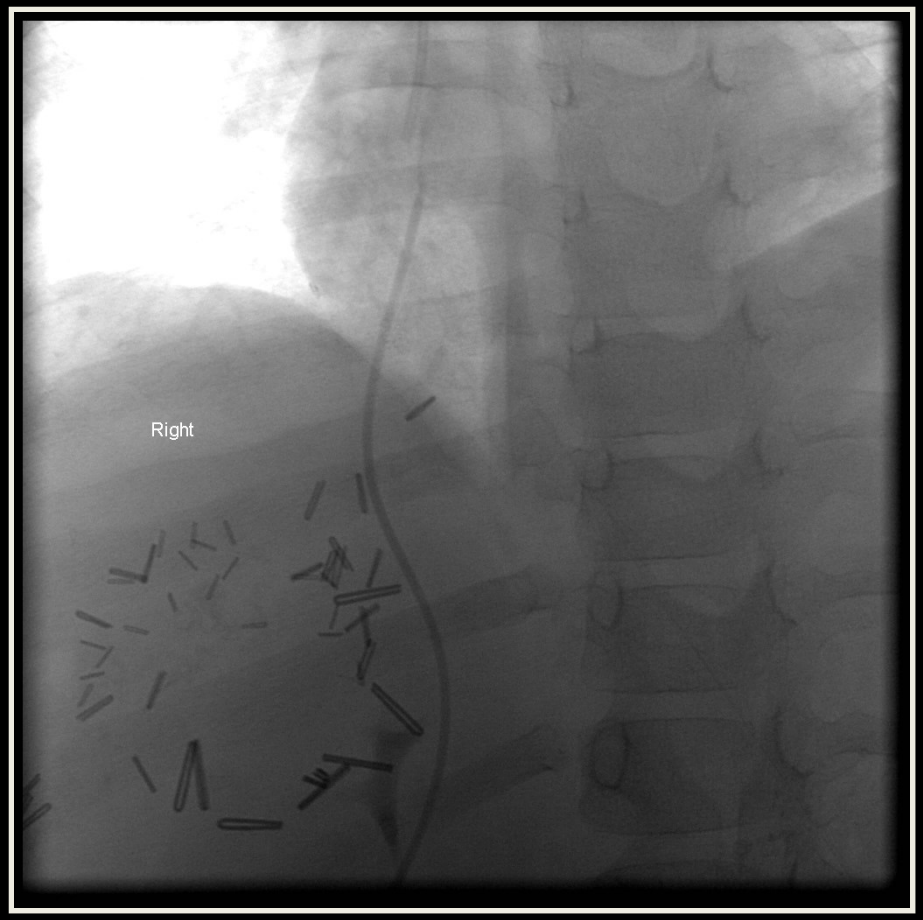
- U/S shows hepatic vein stenosis with velocity acceleration
- Normal arterial and portal vein waveforms
- No biliary duct dilatation
- Moderate ascites

- Inferior venacavogram – complete occlusion of intrahepatic IVC
- Extensive azygos collateralization
- Unable to cross via jugular approach

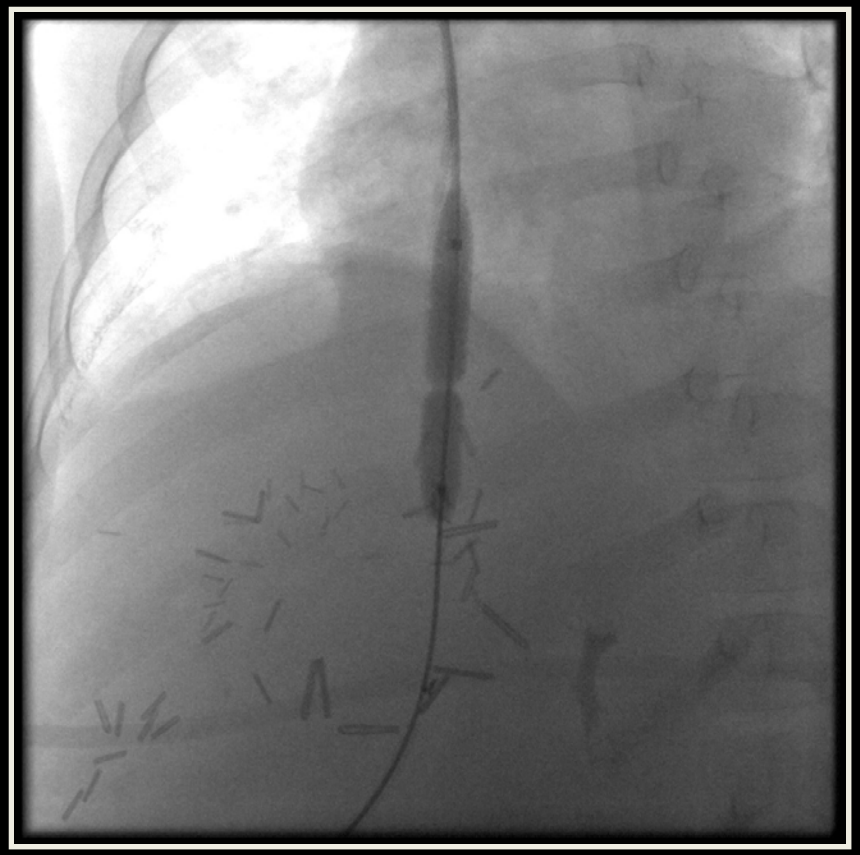
Plan

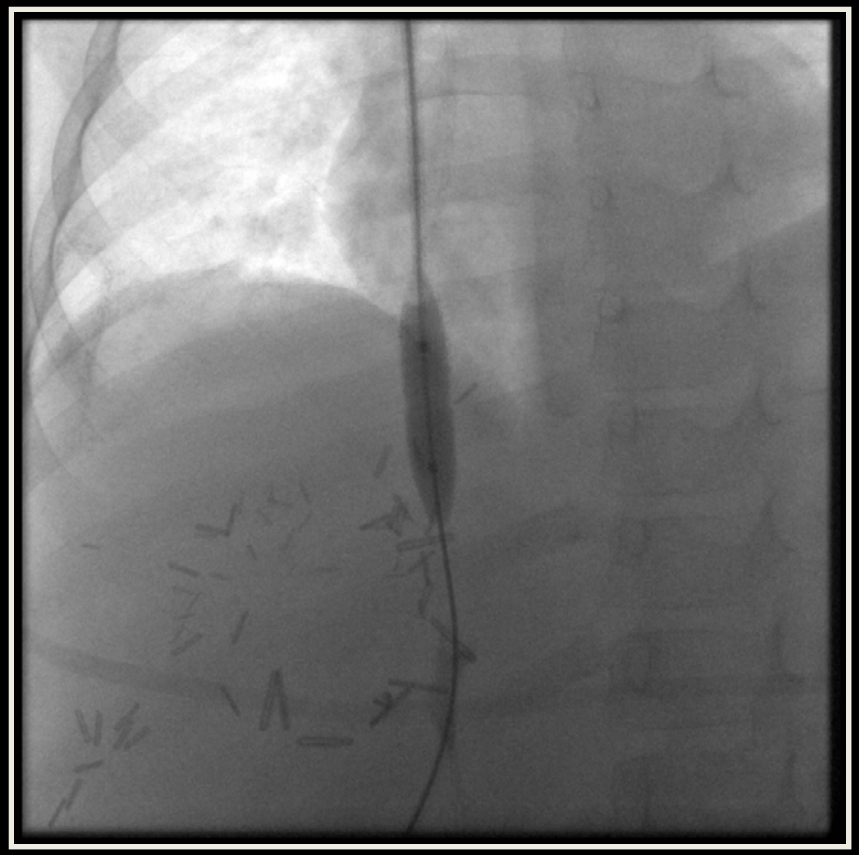
- Given the length of the case, and the GA, the decision was made to terminate the case
- She would be rebooked for an attempt at crossing the stenosis via a hepatic vein approach

- Hepatic vein access with a stiffened micropuncture set with U/S guidance
- Hepatic venogram shows complete occlusion of the inferior cavoatrial junction
- Stenosis traversed with an angled hydrophilic wire



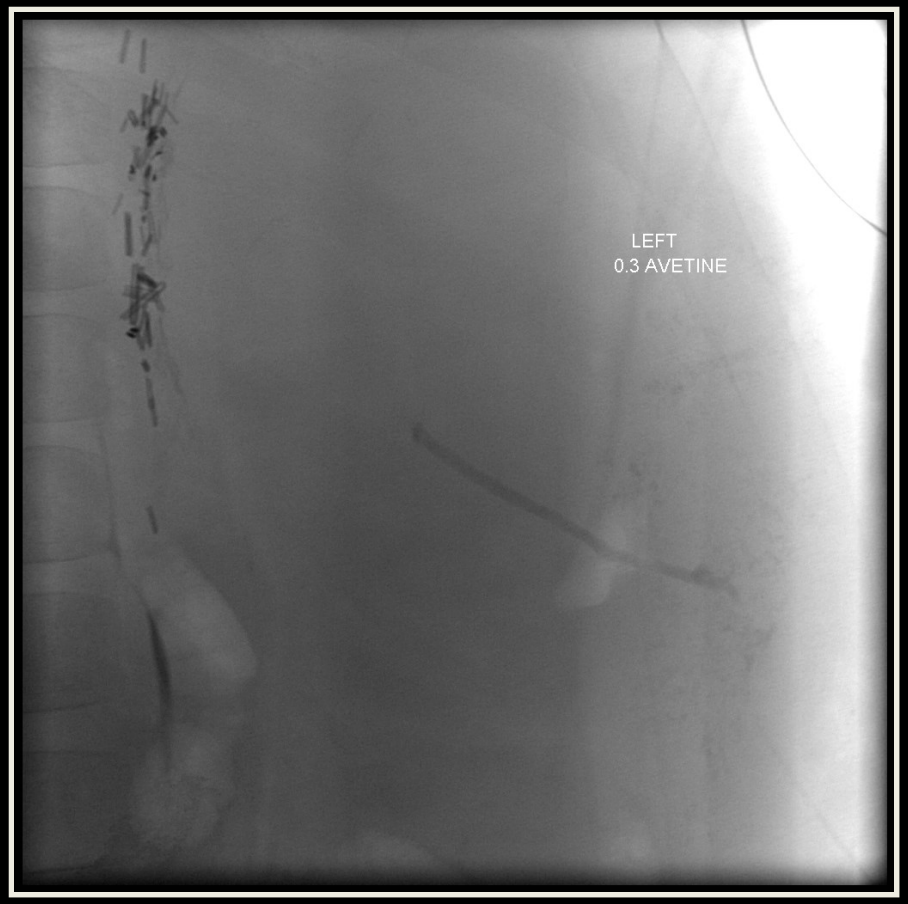
- Hydrophilic wire exchanged for a J-Wire through right atrial catheter pictured above
- J -Wire snared from above (jugular approach) and pulled through
- Through and through access established



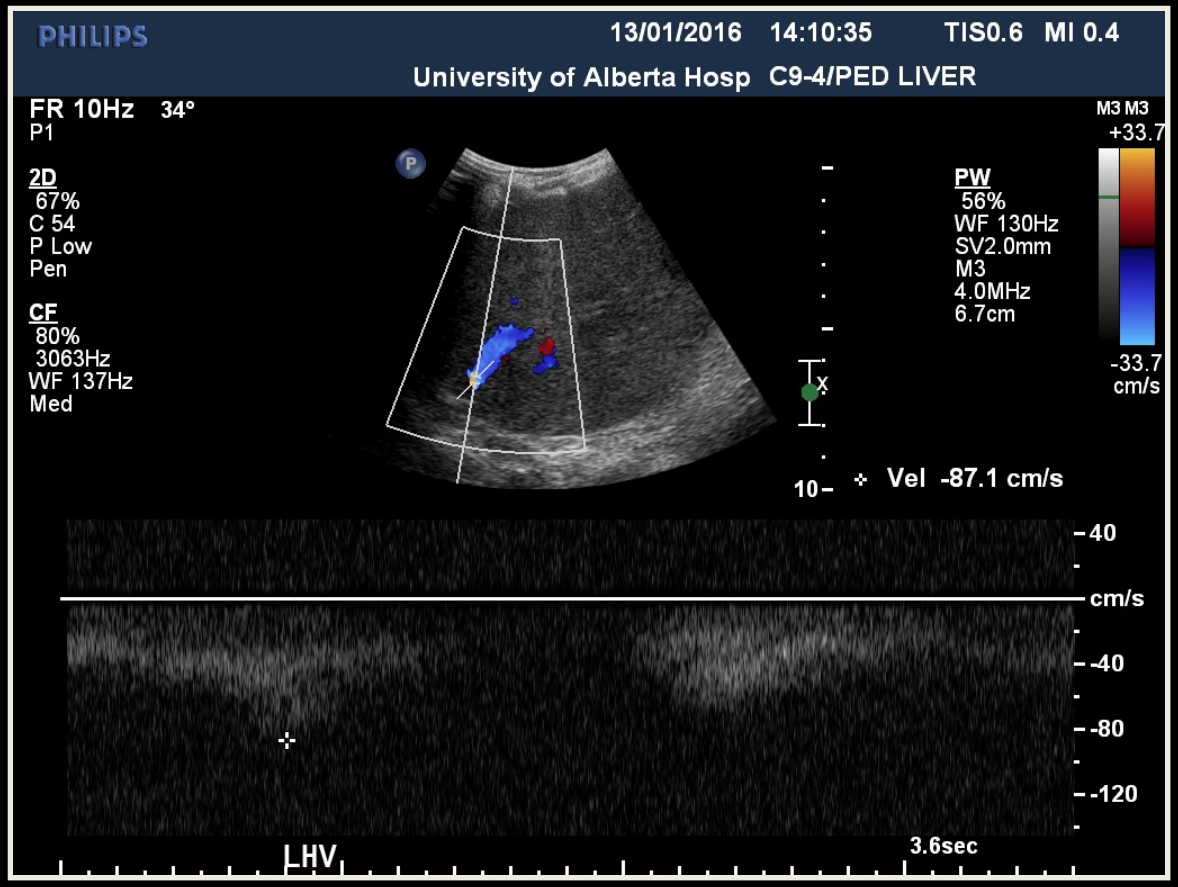


- Serial angioplasty from 4 mm to 8 mm balloons

- Pressure gradient dramatically improved from 12 mmHg to 4 mmHg



- Good result on completion hepatic venogram
- Tract embolized with collagen paste



- Follow up U/S shows some residual velocity acceleration, but substantial improvement (previously 107 cm/sec)

Follow-up

- Has had no paracentesis since the HV angioplasty
- Most recent bilirubin is 18µmol/L

Discussion

- Hepatic vein / IVC stenosis is the least common vascular compromise post transplant.[1]
- Estimated at 2-5% of transplants. [1,2]
- Can usually be treated with angioplasty.[1]
- Stenting can be considered. Be careful to understand future surgical options.[1]

References

- Buell, JF. et al. Long-Term Venous Complications After Full-Size and Segmental Pediatric Liver Transplantation. *Anals of Surgery* 2002; 236(5): 658-666.

- Ko, EY. et al. Hepatic Vein Stenosis After Living Donor Liver Transplantation. Evaluation with Doppler US. *Radiology 2003*; 229(3): 806-810.