

This worksheet is solely for the purpose of recording preliminary data and does not constitute a final report of any kind.

ABDOMINAL HEPATIC DOPPLER ULTRASOUND WITH TIPS (TIPS)

PATIENT NAME: _____ MR#: _____ DATE: _____
TECH INITIAL: _____ EXT: _____ FACILITY: MWH / MIF / ICW / MILH / MINS / MIKG / SH

INDICATION: ☐ TIPS evaluation ☐ Elevated Liver Function Tests ☐ Cirrhosis ☐ Hepatitis B
☐ Hepatitis C ☐ Portal Hypertension ☐ Hepatic Transplant ☐ OTHER: _____

COMPARISON: ☐ None ☐ _____

TECHNIQUE: Transabdominal grayscale, color, and pulsed duplex sonography of the liver were performed to evaluate the TIPS shunt in place.

FINDINGS:

LIVER:

- ☐ The liver appears normal in size and echotexture. No focal mass.
☐ ABNORMAL [ADD DICTATION]
☐ Fatty infiltration of the liver suggested by loss of periportal echoes/ increased echogenicity compared to the right kidney/ loss of through transmission. No focal mass.
☐ Nodular hepatic contour.
☐ Subjectively (**mildly** / **moderately** / **markedly**) coarsened hepatic echotexture.
☐ Enlarged hepatic size.
☐ Relatively enlarged caudate lobe/left hepatic lobe.
☐ OTHER: _____

MAIN PORTAL VEIN: ☐ Adequately visualized ☐ Suboptimally visualized ☐ Non-visualized

☐ Patent with hepatopetal flow. Monophasic waveform with respiratory variability.

MPV diameter is _____ mm. (Normal is 8-13mm, 14-17mm borderline, >17mm abnormal)

MPV velocity: _____ cm/s (normal velocity is 40-60 cm/s for post-TIPS procedure)

- ☐ ABNORMAL [ADD DICTATION]
☐ Narrowed secondary to thrombus.
☐ Medium to low level internal echoes with lack of demonstrable flow consistent with occlusion.
☐ Adjacent collateral vessels.
☐ Hepatofugal flow.
☐ Pulsatile waveform pattern.
☐ OTHER: _____

LEFT PORTAL VEIN: ☐ Adequately visualized ☐ Suboptimally visualized ☐ Non-visualize

☐ Patent with hepatopetal flow. Monophasic waveform with respiratory variability.

Left portal vein velocity: _____ cm/s

- ☐ ABNORMAL [ADD DICTATION]
☐ Narrowed secondary to thrombus.
☐ Medium to low level internal echoes with lack of demonstrable flow consistent with occlusion.
☐ Adjacent collateral vessels.
☐ Hepatofugal flow.
☐ Pulsatile waveform pattern.
☐ OTHER: _____

RIGHT PORTAL VEIN: ☐ Adequately visualized ☐ Suboptimally visualized ☐ Non-visualized

☐ Patent with hepatopetal flow. Monophasic waveform with respiratory variability.

Right portal vein velocity: _____ cm/s

- ☐ ABNORMAL [ADD DICTATION]
☐ Narrowed secondary to thrombus.
☐ Medium to low level internal echoes with lack of demonstrable flow consistent with occlusion.

PATIENT NAME: _____

MRN: _____

☐ Adjacent collateral vessels.

☐ Hepatofugal flow.

☐ Pulsatile waveform pattern.

☐ OTHER: _____

TIPS SHUNT: ☐ Adequately visualized ☐ Suboptimally visualized ☐ Non-visualized

☐ Flow within the shunt is patent with flow towards the draining hepatic vein.

Velocities within shunt: Proximal TIPS (MPV end) _____ cm/sec

Mid TIPS _____ cm/sec

Distal TIPS (Hepatic Vein end) _____ cm/sec

(Normal TIPS velocity is 60-270 cm/s)

HEPATIC VEINS: ☐ Adequately visualized ☐ Suboptimally visualized ☐ Non-visualized

☐ Patent with hepatofugal flow and tri-phasic waveform pattern.

☐ ABNORMAL [ADD DICTATION]

☐ Narrowed in caliber.

☐ Narrowed secondary to visualized thrombus.

☐ Medium to low level internal echoes with lack of demonstrable flow consistent with occlusion.

☐ Adjacent collateral vessels.

☐ Hepatopetal flow.

☐ Monophasic waveform pattern.

☐ OTHER: _____

Velocity for Right Hepatic Vein: _____ cm/s

Velocity for Left Hepatic Vein: _____ cm/s

Velocity for Middle Hepatic Vein: _____ cm/s

HEPATIC ARTERY: ☐ Adequately visualized ☐ Suboptimally visualized ☐ Non-visualized

☐ Patent with hepatopetal flow toward the liver.

Hepatic artery PSV: _____ cm/s

☐ ABNORMAL. [ADD DICTATION] _____

☐ Abnormal focal hepatic artery velocity >200cm/sec associated with turbulence

☐ OTHER: _____

INFERIOR VENA CAVA: ☐ Adequately visualized ☐ Suboptimally visualized ☐ Non-visualized

☐ Patent with normal phasic flow towards the heart.

IVC velocity: _____ cm/s

☐ ABNORMAL [ADD DICTATION]

☐ Narrowed in caliber.

☐ Narrowed secondary to visualized thrombus.

☐ Medium to low level internal echoes with lack of demonstrable flow consistent with occlusion.

☐ Adjacent collateral vessels.

☐ Abnormal flow direction away from the heart

☐ Monophasic waveform

☐ OTHER: _____

SPLenic VEIN: ☐ Adequately visualized ☐ Suboptimally visualized ☐ Non-visualized.

☐ Patent with hepatopetal flow

Splenic vein velocity: _____ cm/s

PATIENT NAME: _____

MRN: _____

☐ ABNORMAL [ADD DICTATION]

☐ Narrowed in caliber.

☐ Narrowed secondary to visualized thrombus.

☐ Medium to low level internal echoes with lack of demonstrable flow consistent with occlusion.

☐ Adjacent collateral vessels.

☐ Hepatofugal flow.

☐ Turbulent waveform

☐ OTHER: _____

SPLEEN:

☐ Normal in size measuring _____ cm in maximum dimension.

☐ ABNORMAL. [ADD DICTATION]

☐ Enlarged, measuring _____ cm in maximum dimension.

☐ Other: _____

INTRAPERITONEAL FLUID:

☐ No evidence of ascites.

☐ ABNORMAL [ADD DICTATION]

☐ A (**mild** / **moderate** / **large**) amount of ascites is present.

ADDITIONAL EXTRAHEPATIC FINDINGS:

☐ No additional extrahepatic findings visualized

☐ ABNORMAL [ADD DICTATION]

☐ Recanalization of the umbilical vein is identified.

☐ Abdominal collateral vessels are identified.

IMPRESSION: *Preliminary findings/impression subject to radiologist review.*

☐ Patent shunt with no evidence for stenosis. Patent portal veins, hepatic veins, and hepatic artery with normal flow direction. **No discrete hepatic lesions.** Continued hepatic surveillance per your algorithm is advised. CT and MR are more sensitive for the detection of hepatocellular carcinoma, and can be incorporated as you feel clinically necessary.

☐ Patent shunt with no evidence for stenosis. Patent portal veins, hepatic veins, and hepatic artery with normal flow direction. **Chronic hepatic disease.** Continued hepatic surveillance per your algorithm is advised. CT and MR are more sensitive for the detection of hepatocellular carcinoma, and can be incorporated as you feel clinically necessary.

☐ Patent shunt with no evidence for stenosis. Patent portal veins, hepatic veins, and hepatic artery with normal flow direction. **Cirrhotic hepatic morphology.** Continued hepatic surveillance per your algorithm is advised. CT and MR are more sensitive for the detection of hepatocellular carcinoma, and can be incorporated as you feel clinically necessary.

☐ **ADD DICTATION**

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Table: Mallinckrodt Data – Suggested Doppler Criteria for TIPS Malfunction

Doppler Parameter	Vel. (cm/sec)	Sensitivity	Specificity	PPV	NPV
Peak Shunt Velocity	Overall Impression	84%	70%	82%	72%
Change in Peak Shunt Velocity	Decrease > 40 or Increase > 60	71%	88%	89%	67%
Main Portal Vein Velocity	< 30	82%	77%	86%	71%
Overall Impression	Not Applicable	92%	72%	84%	86%