Imaging of Pediatric Liver Transplant Complications

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Purpose
To evaluate the role of various imaging modalities in assessment of possible complications of Pediatric Liver Transplant and their impact on further management of these complications.

Method and Results
All pediatric patients who were referred to the department of Diagnostic Imaging for assessment of various immediate and late complications of living related liver transplants in children were retrospectively assessed. We came across a large varied range of complications, including hematomas, post operative collections, abscesses, hepatic artery occlusion, liver infarcts, portal vein thrombosis, intrahepatic biliary strictures, PTLD and EBV induced tumors.

PERIHEPATIC COLLECTION
Heterogenous collections with internal septations and loculations, usually along the cut surface of the liver. Other common location being subdiaphragmatic.

HEPATIC ARTERY STENOSIS
Ultrasound may give an early indication of hepatic artery stenosis with high flow velocities, which can be confirmed with CT studies.

PORTAL VEIN THROMBOSIS
Portal vein thrombosis is an important diagnosis which requires immediate attention and may lead to re-exploration. US can typically show a filling defect or loss of normal flow within the main portal vein.

PERI-TRANSPLANT BLEED
Heterogenous collection solid and cystic areas, may appear to increase on subsequent imaging which would represent active bleeding or ooze from the surgery site.

EBV RELATED TUMORS
US: Multiple hypoechoic and heterogenous lesions in the liver and spleen, confirmed on histology to be EBV related smooth muscle tumors.

BILIARY STRICTURES
US and MRI: US shows long segment dilatation of one of the intrahepatic biliary ducts. MRI shows a dilated duct with a stricture at its medial aspect.

CHOLANGITIS
US: Shows diffuse increased periportal echogenicity and thickening of the portal triad. The biliary duct wall appears thickened, consistent with cholangitis.

Conclusion
Radiology plays a major role in the diagnosis, follow up and management of liver transplant complications. Imaging modalities such as Ultrasound is usually the first investigation performed, with CT or MRI usually performed as a follow up or to confirm the diagnosis. A spectrum of various complications is presented, along with their imaging features.

References