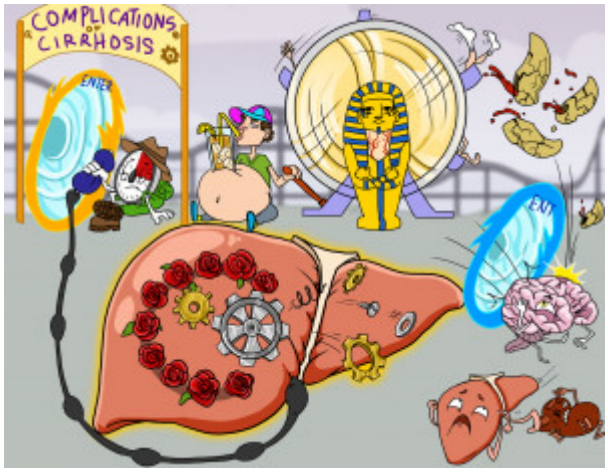
Complications of Cirrhosis

Patients with cirrhosis are at risk of developing several major complications, such as portal hypertension. This can lead to ascites and esophageal varices. Other complications include decreased liver function, which manifests as coagulation defects. Encephalopathy can occur from ammonia buildup, and hepatorenal syndrome, leading to renal failure.



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Portal Hypertension

Portal Hiker-BP

As the liver changes in structure, it begins to compress the hepatic veins and sinusoids, obstructing normal blood flow. This leads to increased venous flow in the portal circulation, known as portal hypertension.

Ascites

Ascites Iced-tea

Ascites is described as the accumulation of fluid in the peritoneal and abdominal cavity, and is commonly seen with cirrhosis. It occurs because of two reasons. First, there is increased hydrostatic pressure (because of portal hypertension), pushing this fluid out of blood vessels into the tissues. Second, there are decreased proteins in the lymph and blood vessels, which typically hold fluid in the vessels (like albumin). This decrease causes fluid to leak out of vasculature, into the tissues.

Esophageal Varices

Esophageal-sarcophagus Ferris-wheel

Esophageal varices are tortuous veins which are enlarged and swollen due to portal hypertension. Gastric varices are similar, but occur in the upper portion of the stomach. These vessels tolerate high pressure poorly, and easily hemorrhage.

Coagulation Defects

Clog Defects

With cirrhosis, patients develop decreased liver function. They are unable to normally produce clotting factors, and these coagulation defects may display as prolonged bleeding.

Portal-Systemic Encephalopathy

Portal with Altered-brain

This is a neuropsychiatric manifestation of cirrhosis, also called hepatic encephalopathy, and is a result of the neurotoxic effects of ammonia. Because of portal hypertension, ammonia cannot be deaminated normally, and excess ammonia builds up, leading to symptoms of impaired consciousness, inappropriate behavior, lethargy and coma.

Hepatorenal Syndrome

Liver-hurting-Kidney

Hepatorenal syndrome occurs from cirrhosis, and it is described as a type of renal failure with advancing azotemia, oliguria and ascites. This occurs from portal hypertension, which leads to increased systemic vasodilation and, thus, decreased arterial flow. This leads to renal vasoconstriction, leading to renal failure.

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