

# How Much Sugar Can the Liver Handle?

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## Background

Glycogenic hepatopathy (GH) results from excessive intrahepatic glycogen accumulation and is a rare and underdiagnosed complication of longstanding uncontrolled type 1 diabetes mellitus. However, due to the potential reversibility, greater awareness of this condition should help increase diagnosis and help further to establish guidelines concerning management, outcomes, and screening.

## Hospital Course

A 24-year-old Caucasian male with a history of type 1 diabetes mellitus with recurrent hospitalizations for Diabetic ketoacidosis (DKA) presented to the emergency department with nausea, vomiting, and decreased p.o. intake. The patient was found to be in DKA and started on an Insulin drip in the emergency department. HbA1c was >14.0, indicating medication non-compliance at home. AST and ALT were initially mildly elevated at 149 and 349, respectively, then peaked on hospital day two at 2596 and 693. Acetaminophen, acute hepatitis, AA panel, urine toxin screen were all negative. Right upper quadrant Ultrasound showed worsening hepatomegaly and findings consistent with hepatic steatosis. The patient was transitioned to subcutaneous insulin, AST and ALT were downtrending without additional intervention and discharge was prepared with outpatient follow-up. After an extensive record review from Mayo Clinic, the patient had a liver biopsy consistent with GH. Due to an otherwise negative workup, it was determined that the patient had recurring GH, which spontaneously resolved over the next month. This was the fourth visit at our facility with GH, each with worsening hepatomegaly and a higher degree of AST and ALT elevation.

## Discussion

GH results from excessive intrahepatic glycogen accumulation and is a rare and underdiagnosed complication of longstanding uncontrolled type 1 diabetes mellitus. Progression to end-stage liver disease has never been reported, but in the setting of recurrent admissions with worsening hepatomegaly and liver enzymes consistent with acute hepatitis, declining liver function is only a matter of time. Greater awareness will result in more cases helping to establish further guidelines concerning management, outcomes, and screening.

## References

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