LETTER TO THE EDITOR

Glycogenic hepatopathy: An underdiagnosed and undertreated condition

Syeda Rabab Fatima

Dear Editor, Glycogenic hepatopathy (GH) is a benign yet significant liver disorder that predominantly affects individuals with poorly controlled type 1 diabetes mellitus (T1DM). The pathogenesis of GH involves recurrent fluctuations in glucose level, including hypoglycaemia and hyperglycaemia, and repeated insulin administration, which lead to rapid glycogen deposition in the liver, a process facilitated by glycogen synthase upregulation. Clinically, GH presents with hepatomegaly, abdominal pain, nausea, vomiting, elevated liver enzymes with hepatocellular predominance, and occasionally fatigue. Histologically, GH is characterised by hepatocellular swelling due to glycogen accumulation and steatosis, with varying degrees of fibrosis reported in a minority of cases. While liver biopsy remains a gold standard diagnostic tool, dual-echo MRI/CT can help establish a diagnosis, with ultrasound and serologic tests necessary for ruling out alternative liver diseases.[1,2]

Recent insights into understanding GH tell us that it is reversible with tight glycaemic control using insulin,[2] underscoring the importance of early diagnosis. Mertens et al. discussed the potential for misdiagnosis with NAFLD, as both conditions present similarly with liver enlargement and elevated transaminases but differ markedly in pathology and treatment.[3] This differentiation is crucial as NAFLD can lead to advanced liver disease and cirrhosis. Other conditions seen with GH include dumping syndrome after gastrectomy, anorexia nervosa, high-dose glucocorticoid use, azathioprine use, and insulin overdose.[2]

In Pakistan, GH remains largely undiagnosed, often due to limited awareness among healthcare providers. According to the International Diabetes Federation (IDF), the incidence of T1DM in children in Pakistan was 0.5 cases per 100,000 per year as of 2019[4] and diabetes prevalence in the adult population was estimated at 26.7% as of 2021, which is higher than in previous years.[5] As GH is a complication of poorly controlled diabetes mellitus (DM), these alarming statistics highlight the need for specific clinical protocols—such as criteria for differentiating GH from NAFLD in diabetic patients—to streamline the diagnosis of GH and improve patient outcomes. An algorithm for diagnosing GH, proposed by Khoury et al., emphasises the importance of considering GH in differential diagnoses of liver abnormalities associated with poorly controlled DM.[1] Regular follow-ups for glycaemic management and liver health could not only prevent GH but also alleviate the long-term healthcare burdens on the system such as reduced reliance on costly, repetitive tests and therapies, alongside a decrease in the frequency of hospital visits and admissions. A proactive approach to monitoring the GH can enhance the quality of life for diabetic patients, reduce liver-related symptoms, and ultimately improve overall healthcare outcomes. Physicians should diagnose and report cases of GH so that patient data can be collected and used to further our understanding of the disease.

Department of Medicine, Mayo Hospital, Lahore, Pakistan.

Correspondence: Syeda Rabab Fatima. e-mail: srababfatimaz@gmail.com

ORCID ID: 0000-0002-4495-8339

Submission completed: 11-12-2024 **1st Revision received:** 18-12-2024

Acceptance: 15-01-2025 **Last Revision received:** 14-01-2025

Disclaimer: None.

Conflict of Interest: None.

Funding Sources: None.

DOI: https://doi.org/10.47391/JPMA.22840

References

1. Khoury J, Zohar Y, Shehadeh N, Saadi T. Glycogenic hepatopathy. Hepatobiliary Pancreat Dis Int 2018;17:202-9. doi: 10.1016/j.hbpd.2018.02.006.
2. Sherigar JM, De Castro J, Yin YM, Guss D, Mohanty SR. Glycogenic hepatopathy: a narrative review. World J Hepatol 2018;10:172-85. doi: 10.4254/wjh.v10.i2.172.
3. Mertens J, De Block C, Spinhoven M, Driessen A, Francque SM, Kwanten WJ. Hepatopathy associated with type 1 diabetes: distinguishing non-alcoholic fatty liver disease from glycogenic hepatopathy. Front Pharmacol 2021;12:768576. doi: 10.3389/ fphar.2021.768576.
4. International Diabetes Federation (IDF). IDF Diabetes Atlas, 9th ed. Brussels, MD: International Diabetes Federation (IDF); 2019. [Online] 2019 [Cited 2024 November 13]. Available from URL: https://diabetesatlas.org/en/resources/.
5. International Diabetes Federation (IDF). IDF Members in Pakistan. [Online] 2021 [Cited 2024 November 13]. Available from URL: https://idf.org/our-network/regions-and-members/middle-east-and-north-africa/members/pakistan/.

Author Contribution:

SRF: Concept, literature search, drafting, final approval and agreement to be accountable for all aspects of the work.