Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Medical Imaging

Ultrasonographic Assessment of Non-Alcoholic Fatty Liver Disease in Patients with Type 2 Diabetes Mellitus

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DOI: https://doi.org/10.36347/sjmcr.2026.v14i03.025 | **Received:** 25.12.2025 | **Accepted:** 01.02.2026 | **Published:** 18.03.2026

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Abstract | **Original Research Article**

Background: Non-alcoholic fatty liver disease (NAFLD) is the most prevalent chronic liver disorder worldwide and is strongly associated with type 2 diabetes mellitus (T2DM). ***Objective:*** To evaluate ultrasonographic features of NAFLD in patients with T2DM and examine their association with clinical and metabolic parameters. ***Methods:*** A descriptive cross-sectional study was conducted on 100 patients with T2DM. Abdominal ultrasonography was performed using a 3.5-MHz curvilinear transducer to assess liver echogenicity, echo texture, and liver size. ***Results:*** Moderate hepatic steatosis was the most frequent finding (39%) and showed statistically significant associations with older age, higher body weight, increased liver size, and longer duration of diabetes ($p < 0.001$). ***Conclusion:*** Ultrasonography provides a reliable and accessible modality for early detection and risk stratification of NAFLD in patients with T2DM.

Keywords: Non-alcoholic fatty liver disease; Type 2 diabetes mellitus; Ultrasonography.

INTRODUCTION

Non-alcoholic fatty liver disease (NAFLD) represents a hepatic manifestation of metabolic syndrome and is highly prevalent among patients with type 2 diabetes mellitus (T2DM). The coexistence of NAFLD and T2DM accelerates disease progression and increases the risk of cardiovascular and liver-related morbidity.

MATERIALS AND METHODS

This cross-sectional study was conducted at Al-Mak Nimr Hospital, Nile River State. A total of 100 patients with confirmed T2DM were enrolled. All participants underwent abdominal ultrasonography after at least six hours of fasting using a 3.5-MHz curvilinear transducer.

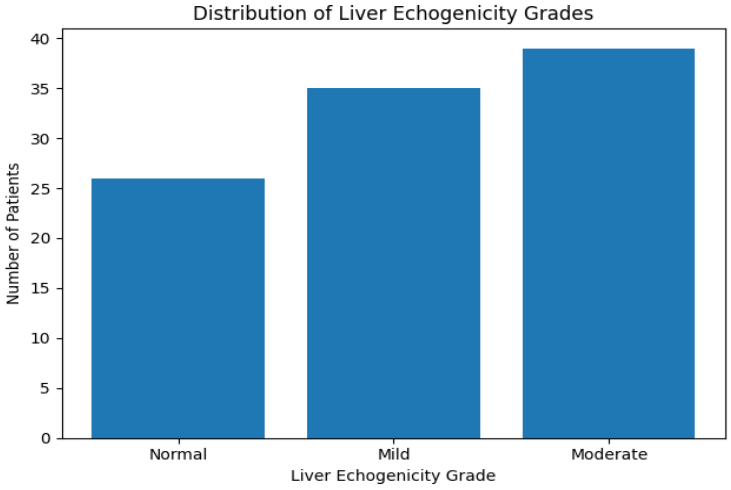

Figure 1. Distribution of liver echogenicity grades among patients with type 2 diabetes mellitus.

RESULTS

Moderate hepatic steatosis was identified in 39% of patients, followed by mild steatosis in 35% and normal echogenicity in 26%. Increasing liver echogenicity was significantly associated with advancing age, higher body weight, larger liver size, and longer duration of diabetes mellitus ($p < 0.001$).

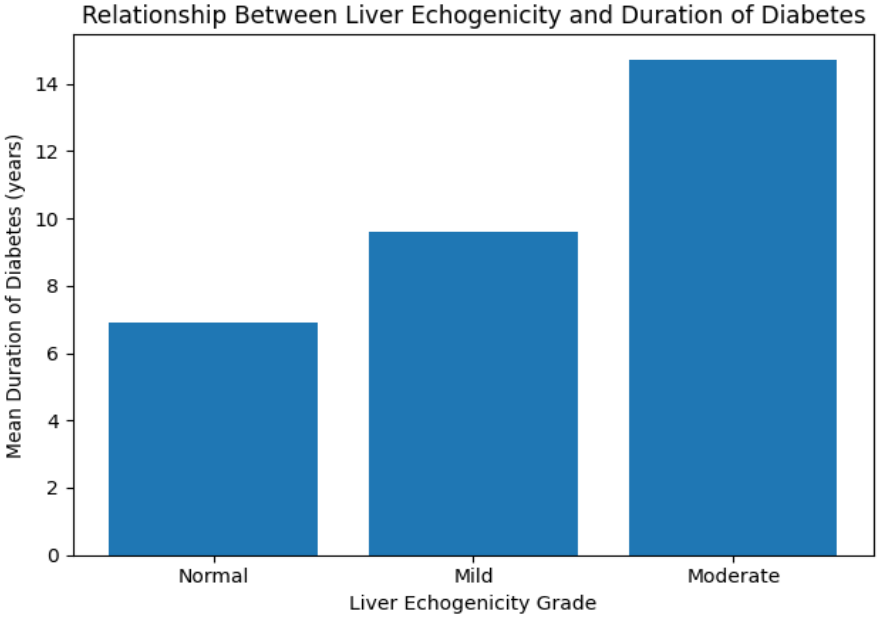

Figure 2. Relationship between liver echogenicity grades and duration of diabetes mellitus.

DISCUSSION

This study demonstrates a high prevalence of NAFLD among patients with T2DM, consistent with previous international reports. The significant association between liver echogenicity and duration of diabetes highlights the cumulative impact of chronic metabolic dysfunction.

STRENGTHS AND LIMITATIONS

Strengths include standardized ultrasonographic assessment and evaluation of multiple clinical parameters. Limitations include the single-center design and cross-sectional nature of the study.

CONCLUSION

NAFLD is highly prevalent among patients with T2DM. Routine ultrasonographic screening may facilitate early detection and improved clinical management.

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