ISSN: 2581 – 3633

*International Journal of Medical Science and Advanced Clinical Research (IJMACR)*

*Available Online at: https://www.ijmacr.com*

*Volume – 9, Issue – 4, August – 2026, Page No.: 313 – 316*

# Fatal Drug-Induced Liver Injury Associated with Abe maciclib

[1]Amita Kasar, Virginia Mason Medical Center, Seattle, WA,

[2]Mala Jain, Westchester Medical Center, Valhalla, NY,

[3]Bright Nwatamole, Zucker School of Medicine At Hofstra / North Well Medical Center, Pouhkeepsie, NY

[1]Asma Siddique, Virginia Mason Medical Center, Seattle, WA

**Corresponding Author:** Amita Kasar, Virginia Mason Medical Center, Seattle, WA,

**How to citation this article:** Amita Kasar, Mala Jain, Bright Nwatamole, Asma Siddique, "Fatal Drug-Induced Liver Injury Associated with Abe maciclib", IJMACR– August – 2026, Volume – 9, Issue –4, P. No. 313 – 316.

**Open Access Article:** © 2026 Amita Kasar, et al. This is an open access journal and article distributed under the terms of the creative common's attribution license (http://creativecommons.org/licenses/by/4.0). Which allows others to remix, tweak, and build upon the work non- commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

## Abstract

Abemaciclib, a cyclin-dependent kinase 4/6 (CDK4/6) inhibitor used for hormone receptor–positive, HER2-negative metastatic breast cancer, is associated with mild, reversible hepatotoxicity. We are reporting a rare case of fatal drug-induced liver injury in a 63-year-old woman with metastatic breast cancer with underlying Metabolic Dysfunction–Associated Steatotic Liver Diseas (MASLD) related cirrhosis receiving letrozole and Abemaciclib. Patients used medication over two years without any side effects except transient Trans am in it is on initiation of treatment. She stopped taking Abemaciclib for two months due to elevated liver function tests. During this period, her health gradually started to decline and she developed progressive trans am in it is, cholestatic liver injury, portal hypertension, jaundice, and acute hepatic decomposition. Despite discontinuation of Abemaciclib and hospitalization for decompensated liver cirrhosis, she developed refractory ascites, hepatic encephalopathy, coagulopathy, and ultimately died from multi-organ failure. This case highlights the potential for severe Abemaciclib-associated hepatotoxicity in patients with underlying chronic liver disease and emphasizes the need for vigilant hepatic monitoring and early recognition of drug-induced liver injury.

**Keywords:** MASLD, CDK, DILI.

## Introduction

Abemaciclib, a cyclin -dependent kinase 4/6 (CDK4/6) inhibitor used for hormone receptor–positive metastatic breast cancer. Compared to other agents from this class, Abemaciclib is known to cause hepatic enzyme abnormalities. Drug-induced liver injury (DILI) associated with CDK 4/6 inhibitors is typically mild, transient, and reversible. But, severe hepatotoxicity leading to hepatic failure is seldom reported. Patients with underlying chronic liver conditions may be at increased risk for decomposition while exposed to

hepatotoxicity drugs. Our patient presents with underlying cirrhosis with DILI associated with Abemaciclib resulting in rapid hepatic decomposition and death.

**Case Presentations**

A 63-year-old female with a past medical history significant for hypertension, hyperlipidemia, metastatic breast carcinoma to bone, metabolic dysfunction-associated steatotic liver disease (MASLD)-related cirrhosis, and fibromyalgia was initiated on systemic therapy with Abemaciclib and letrozole two years ago. At baseline, she was diagnosed with hepatic steatosis with mild modularity consistent with early cirrhosis. At the time of initiation of Abemaciclib, mild transaminase elevation was noted but subsequently resolved, and therapy was continued. She had regular follow up with a hepatologist and oncologist.

Three months before, the patient was referred for evaluation of abnormal liver function tests. LFT were mildly elevated with AST 126 U/L, ALT 98 U/L, ALP 197 U/L. There was no history of viral hepatitis or alcohol use. With gradually trending upwards LFT both medications Abemaciclib and letrozole were discontinued within a week. MRI performed in July 2025 showed portal hypertension with development of varices, spleenomegaly, ascites. Upper GI endoscopy was negative for esophageal varices. Over the next 2-3 months the patient gradually developed fatigue, nausea, poor appetite, worsening of ascites, progressive jaundice and was admitted for acute chronic liver failure. LFT elevated to AST 697 U/L, ALT 337 U/L, Total bilirubin > 25 mg/dL, along with worsening of coagulopathy.

All other non-essential medications were also discontinued. The patient underwent a liver biopsy and diagnostic paracentesis. Histopathology demonstrated features consistent with drug-induced liver injury, including heap to cellular injury with cholestatic features and no evidence of metastatic disease or alternative etiology.

Despite hospitalization and aggressive supportive care, the patient developed progressive jaundice and liver decomposition leading to refractory ascites, hepatic encephalopathy, coagulopathy. She gradually deteriorated clinically over the next one- two weeks leading to multi-organ failure secondary to hepatic failure leading to death.

**Discussion**

Abemaciclib, a cyclin-dependent kinase 4/6 (CDK4/6) inhibitor, is a well-established treatment for metastatic breast cancer. Abemaciclib is associated with a higher incidence of hepatotoxicity compared with palbociclib or ribociclib. Most reported cases are mild and reversible aminotransferase elevations[1,2]. Severe hepatotoxicity with liver failure remains rare[2,3].

CDK4/6 inhibitor–associated DILI is generally idiosyncratic and may present with heap to cellular, mixed, or cholestatic patterns of injury. The mechanism is not fully understood but is hypothesized to involve mitochondrial dysfunction, bile acid transporter interference, and immune-mediated hepatotoxicity[2,4]. Among all drugs from the same class, abemaciclib showed a stronger association with hepatic adverse events[2].

Our patient has underlying MASLD associate early cirrhosis. Patient with chronic liver conditions are known to have low hepatic reserve, thus makeing them more susceptible for clinically significant injury with mild hepatotoxic insult[4,5]. The transition from compensated to decompensated cirrhosis in this case likely reflects a synergistic effect between chronic liver



©2026, IJMACR

disease and drug-induced injury. After transient elvation of LFT, subsequent development of progressive cholestatic and heap to cellular injury with severe jandiced (total bilirubin > 34 mg/dl) is consistent with severe DILI. Abemaciclib is known for delayed and cumulative patterns of hepatotoxicity[1-3]. Liver biopsy findings confirmed drug-induced liver injury and excluded alternative etiologies such as malignant infiltration or autoimmune hepatitis.

Acute-on-chronic liver failure precipitated by DILI is associated with high short-term mortality despite drug withdrawal and supportive management[4,5]. In this case, continued clinical deterioration after cessation of abemaciclib suggests that irreversible hepatic injury had already occurred at the time of diagnosis. The present case adds to the literature describing fatal outcomes associated with CDK4/6 inhibitors–induced heap to toxicity. A small subset progresses to severe hepatic failure requiring intensive care or resulting in death[2--4].

This case also highlights the importance of close liver function monitoring while receiving CDK4/6 inhibitors, particularly those with pre-existing liver dieases. Current oncology guidelines recommend periodic monitoring of liver enzymes, but standardized thresholds for discontinuation in high-risk cirrhotic populations remain insufficiently defined[1,5].

Finally, this case underscores the need for heightened vigilance when treating patients with underlying chronic liver disease with systemic oncologic therapies. Early recognition of hepatotoxicity, prompt drug cessation, and multidisciplinary management involving hepatology and oncology teams are essential to mitigate progression to liver failure[4,5].

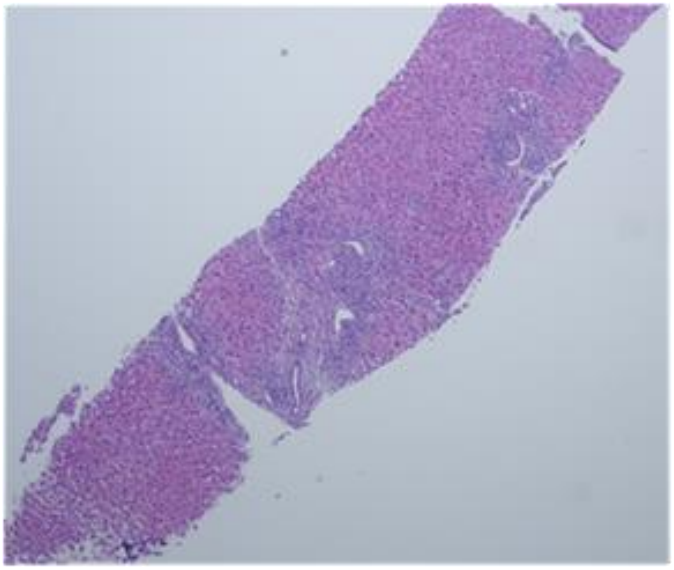

Figure 1: Drug induced liver injury (H&E ,10X)

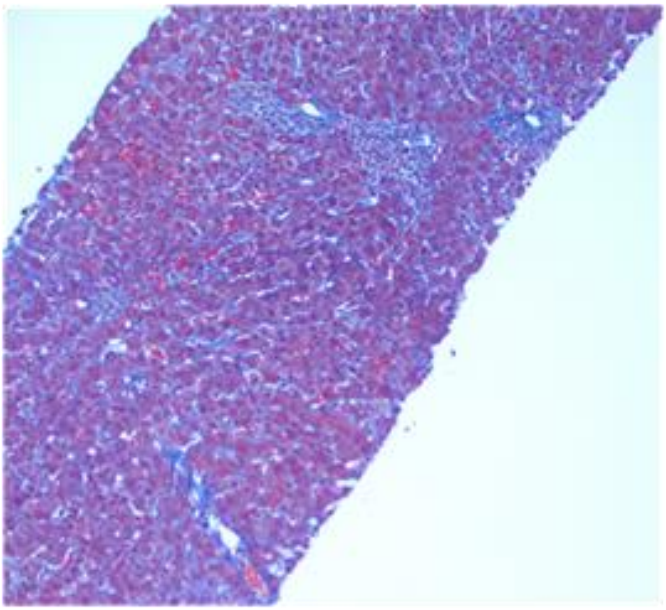

Figure 2: Masson trichrome stain.

**Conclusion**

This case highlights a rare and fatal presentation of Abemaciclib-associated drug-induced liver injury leading to fulminant hepatic decomposition in a patient with underlying MASLD-related cirrhosis. This emphasizes the importance of continuous and close monitoring of Liver function tests in patients receiving CDK4/6 inhibitors, especially in those with pre-existing liver disease.



*©2026, IJMACR*

**References**

1. Sledge GW Jr, Toi M, Neven P, et al. MONARCH 2: Abemaciclib in combination with fulvestrant in women with HR-positive, HER2-negative advanced breast cancer who had progressed while receiving endocrine therapy. J Clin Oncol. 2017; 35(25):2875-2884.

2. Chen J, et al. CDK4/6 inhibitors and drug-induced liver injury: a pharma co vigilance analysis based on the FDA Adverse Event Reporting System (FAERS). Front Pharmacol. 2024. PMID: 38633610.

3. Ozawa Y, et al. Severe Abemaciclib-induced hepatotoxicity and successful switching to another CDK 4/6 inhibitor: a case report. Anticancer Drugs. 2024. PMID: 37578747.

4. Björnsson ES. Drug-induced liver injury: an overview. Hepatology. 2019; 69(6):2481-2493.

5. European Association for the Study of the Liver (EASL). EASL Clinical Practice Guidelines: Drug-induced liver injury. J Hepatol. 2019; 70(6):1222-1261.



*©2026, IJMACR*