Hepatic Abscess Complicated by DIC in a Diabetic Patient: A Diagnostic and Therapeutic Challenge

Abstract

Hepatic abscess, although rare, constitutes a medical emergency that can be fatal in the absence of rapid management, especially in diabetic patients. These individuals are at increased risk of severe infections and complications such as disseminated intravascular coagulation (DIC). We report the case of a type 2 diabetic patient admitted for a hepatic abscess complicated by DIC, requiring complex management in the intensive care unit. Through this case, we highlight the pathophysiological mechanisms, diagnostic challenges, and therapeutic approaches of complicated hepatic abscesses in diabetic patients.

Introduction

Hepatic abscesses, whether pyogenic or amebic in origin, are rare but potentially life-threatening if not diagnosed and treated promptly. In diabetic patients, immunosuppression associated with metabolic disturbances promotes the development of such infections and severe complications like disseminated intravascular coagulation (DIC). DIC is a systemic hemostatic disorder triggered by severe infection, involving uncontrolled activation of the coagulation cascade [1].

Case Presentation

A 37-year-old man, with a 5-year history of type 2 diabetes treated with Diamicron, was admitted for diabetic ketoacidosis complicated by a hepatic abscess and disseminated intravascular coagulation (DIC). Three days before admission, the patient presented with high fever (40°C), vomiting, and diarrhea. Upon arrival at the emergency department, the patient was febrile at 39°C, tachycardic at 140 bpm, hypotensive (BP = 90/50 mmHg), and tachypneic. Capillary blood glucose was 3.5 g/L with two positive crosses for acetone on urinalysis. Laboratory tests revealed leukocytosis (WBC = 16,500/mm³), highly elevated CRP at 320 mg/L, and procalcitonin at 62 ng/mL, along with severe thrombocytopenia (platelets = 37,000/mm³) and reduced prothrombin time (PT = 26%). Liver function tests showed elevated transaminases (AST = 204 U/L, ALT = 384 U/L), cholestasis (GGT = 235 U/L, ALP = 235 U/L), and mixed hyperbilirubinemia (total bilirubin = 17.5 mg/L).

Abdominal ultrasound revealed a hepatic cystic mass associated with acalculous cholecystitis. Abdominal CT confirmed a large liver abscess (figure1,2,3), thrombosis of the right hepatic vein, and a small fluid collection in the right paracolic gutter and the pouch of Douglas. The patient was admitted to the intensive care unit for insulin therapy, rehydration, and correction of electrolyte disturbances. Empirical antibiotic therapy with third-generation cephalosporins, metronidazole, and gentamicin was initiated. Due to the associated DIC, a platelet transfusion was required before any abscess drainage.

After stabilization and percutaneous drainage of the abscess (figure5,6), microbiological cultures identified Escherichia coli as the causative pathogen. Antibiotic therapy was adjusted with ceftriaxone and ciprofloxacin, resulting in gradual clinical and biological improvement. The patient showed favorable progress with resolution of fever, improvement of hemodynamic parameters, and normalization of infection markers.

Discussion

Pyogenic liver abscess (PLA) in diabetic patients represents a complex clinical entity, often associated with severe prognosis due to immunosuppression and frequent metabolic complications. In our case, the association of a large hepatic abscess with disseminated intravascular coagulation (DIC) in a type 2 diabetic patient illustrates the severity of this condition, requiring rapid and multidisciplinary management.

Diabetic patients are more susceptible to severe infections due to altered immunity, involving neutrophil dysfunction, chronic hyperglycemia, and microcirculatory changes [2]. This immunosuppression promotes bacterial proliferation and hepatic abscess formation. In most cases, the etiological agent is Escherichia coli or Klebsiella pneumoniae, the latter being particularly frequent in Asian diabetic patients [3, 4]. In our case, abscess cultures identified Escherichia coli, a pathogen commonly involved in intra-abdominal and hepatobiliary infections in diabetic patients.

The pathophysiology of hepatic abscess often involves bacteremia secondary to gastrointestinal infection, ascending cholangitis, or portal vein dissemination in underlying intestinal diseases [5]. In our case, associated acalculous cholecystitis likely facilitated bacterial spread to the liver. Additionally, the observed thrombosis of the right hepatic vein may be related to local bacterial infection, causing septic phlebitis, a mechanism described in several series of complicated PLA cases [6].

DIC is a major complication of severe infections, such as hepatic abscesses. It is characterized by systemic and uncontrolled activation of the coagulation cascade, with consumption of platelets and clotting factors, leading to severe thrombocytopenia and diffuse bleeding syndrome [1]. In our case, DIC with reduced PT (26%) and thrombocytopenia (37,000/mm^3) complicated management, requiring platelet transfusion before abscess drainage. This phenomenon has been previously reported in severe pyogenic infections, where persistent inflammation and delayed drainage contribute to worsening DIC [7].

Management of hepatic abscesses relies on a combined approach, including broad-spectrum empirical antibiotic therapy and rapid abscess drainage. Imaging, particularly abdominal CT, plays an essential role in diagnosis and treatment planning. Percutaneous drainage guided by imaging is currently the gold standard for large single abscesses or those with significant liquid content [8]. In our case, percutaneous drainage enabled rapid improvement of infectious signs with fever resolution. Subsequently, antibiotic therapy was adjusted to ceftriaxone and ciprofloxacin, achieving favorable outcomes.

Recent guidelines suggest that the duration of antibiotic therapy should be tailored to clinical evolution and follow-up imaging results. A minimum duration of 4 to 6 weeks is generally required to prevent recurrences [9]. Furthermore, it is crucial to evaluate underlying predisposing factors, especially in diabetic patients, to prevent recurrence of hepatic abscess and its complications [10].

Conclusion

Our observation highlights the complexity of hepatic abscesses complicated by DIC in diabetic patients. Early recognition of symptoms, rapid identification of the causative pathogen, and implementation of multidisciplinary management, including abscess drainage and tailored antibiotic therapy, are essential to improve prognosis. The particularity of this case lies in the association of a pyogenic hepatic abscess with severe DIC, complicating the therapeutic approach but underscoring the effectiveness of coordinated intervention.

Références

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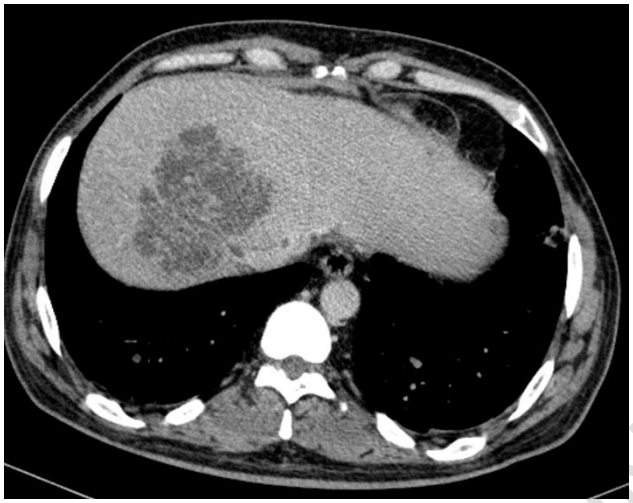

Figure 1: axial CT scan showing a large hepatic abscess

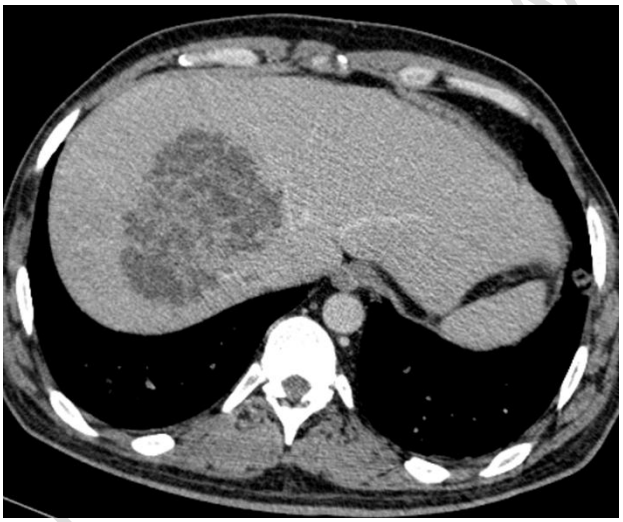

Figure 2: axial CT scan showing a large hepatic abscess

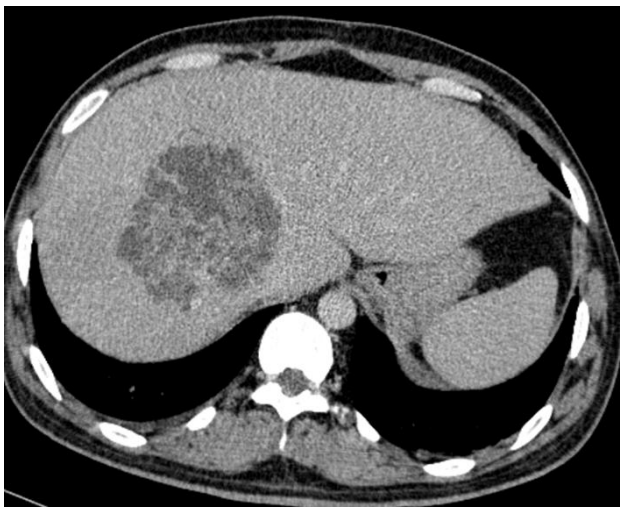

Figure 3: axial CT scan showing a large hepatic abscess

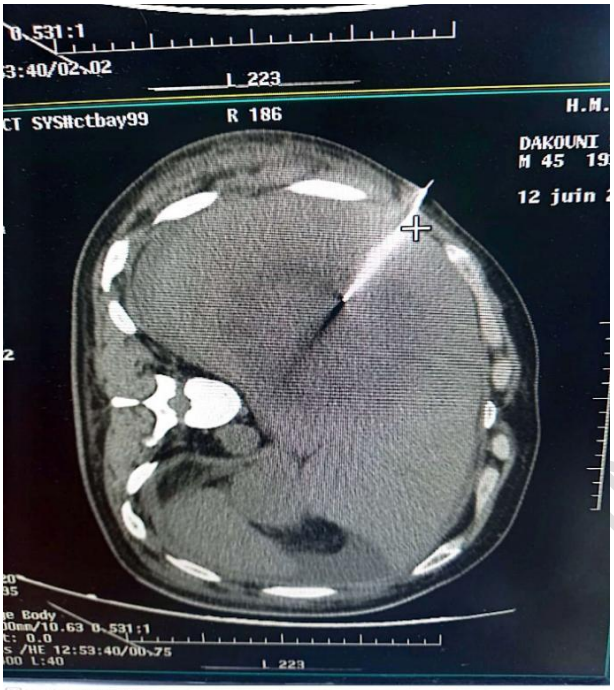

Figure 4: CT-guided aspiration and drainage of the hepatic abscess

Figure 5: CT-guided aspiration puncture

Figure 6: Placement of a drain in the hepatic abscess