SAS Journal of Surgery
Abbreviated Key Title: SAS J Surg
ISSN 2454-5104
Journal homepage: https://www.saspublishers.com

OPEN ACCESS

Anesthesia

Pyogenic Liver Abscess Due to Klebsiella Pneumoniae Complicated by Endogenous Endophthalmitis: A Case Report of Invasive Klebsiella Syndrome

Kamal Khadija[1], Benzidane Kamal[1], Mekkaoui Oussama[1*], Bouali Ichrak[1], Ettaoussi Abdelhak[1], Majd Abdessamad[1], Bouali Mounir[1], El Bakouri Abdelilah[1], Khaleq Khalid[2], El Hattabi Khalid[1]

[1]Visceral Emergency Department P35, Ibn Rochd University Hospital Center, Casablanca, Morocco, Hassan II University, Ain Chock, Casablanca, Morocco
[2]Departement of Anesthesia and Resuscitation, CHU Ibn Rochd, Casablanca, Morocco

DOI: https://doi.org/10.36347/sasjs.2026.v12i05.026 | **Received:** 02.04.2026 | **Accepted:** 19.05.2026 | **Published:** 23.05.2026

***Corresponding author:** Mekkaoui Oussama
Visceral Emergency Department P35, Ibn Rochd University Hospital Center, Casablanca, Morocco, Hassan II University, Ain Chock, Casablanca, Morocco

Abstract **Case Report**

Pyogenic liver abscess due to *Klebsiella pneumoniae* is increasingly recognized as a distinct clinical entity because of its potential for hematogenous spread and metastatic septic complications. We report the case of a 59-year-old woman admitted for fever and right upper quadrant pain, in whom imaging revealed multiple hepatic abscesses. Surgical drainage was performed, and bacteriological analysis identified *Klebsiella pneumoniae*. On postoperative day 2, the patient developed acute left ocular inflammation, and cranio-orbital MRI findings were consistent with endogenous endophthalmitis. Antibiotic therapy was intensified, leading to favorable clinical, biological, and ophthalmological outcomes. This case highlights the importance of early recognition of ocular complications in patients with *Klebsiella* liver abscess, as prompt multidisciplinary management may improve prognosis.

Keyword: Pyogenic liver abscess; Klebsiella pneumoniae; Endogenous endophthalmitis; Invasive Klebsiella syndrome.

1. INTRODUCTION

Liver abscess [LA] is a medico-surgical emergency whose incidence is increasing [1]. Historically associated with biliary diseases, its etiological profile has evolved with the emergence of *Klebsiella pneumoniae*, particularly in Asia and now increasingly in Europe [2]. This pathogen is feared for its ability to spread hematogenously, leading to secondary metastatic infections [3]. Endogenous endophthalmitis [EE] is the most severe metastatic complication, rapidly threatening visual prognosis [4].

We report the case of a 59-year-old woman presenting with multiple *Klebsiella pneumoniae* liver abscesses, whose course was marked by a severe inflammatory ocular complication on postoperative day 2.

2. CASE REPORT

A 59-year-old woman, with no notable past medical history, was admitted for right upper quadrant pain associated with nausea and vomiting, evolving over a 15-day period. This clinical presentation occurred in a febrile context. On initial examination, the patient was hemodynamically and respiratory stable, with a Glasgow Coma Scale score of 15/15. Abdominal examination revealed localized tenderness in the right hypochondrium, without any palpable mass or clinically detectable hepatomegaly.

Laboratory investigations showed a marked inflammatory syndrome, with leukocytosis of 29,120/mm³ and a C-reactive protein level of 224.9 mg/L. Severe anemia was noted, with a hemoglobin level of 7.5 g/dL, along with moderate biological cholestasis, with gamma-glutamyl transferase at 132 IU/L and alkaline phosphatase at 153 IU/L. Computed tomography and magnetic resonance imaging revealed multiple hepatic collections, the largest located in segment VII and measuring 80 mm in greatest diameter. These lesions were associated with calcified hydatid cysts in segment II, classified as type V according to Gharbi.

Figure 1: CT scan section showing multiple hepatic lesions

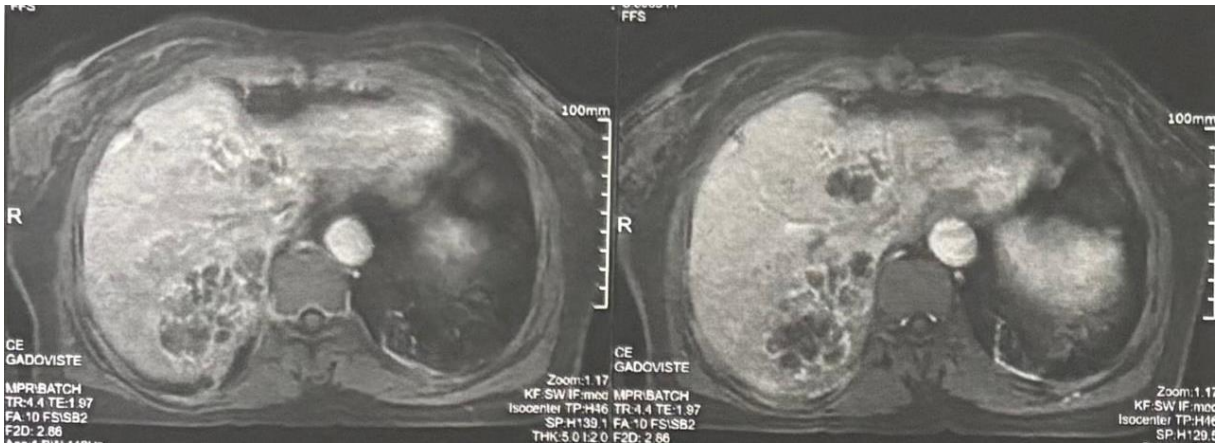

Figure 2: MRI images showing multiple hepatic lesions

Management consisted of surgical drainage of the abscesses. The abdominal cavity was approached through a right subcostal incision. Exploration revealed a hepatic abscess located between liver segments VI and VII, containing 100 cc of frank pus, and a second collection between segments II and III, from which 50 cc of pus was drained. One Salem sump drain was placed in the interhepato-diaphragmatic space, and a second one in the subhepatic region.

The patient was started on Ceftriaxone 2 g/day and Metronidazole 500 mg/day. Bacteriological analysis of the pus isolated *Klebsiella pneumoniae* ssp. *pneumoniae*, sensitive to the antibiotics already initiated.

Figure 3: Image showing samples obtained from the hepatic abscess contents

The immediate postoperative course was marked, on postoperative day 2, by the sudden onset of a 360° inflammatory subconjunctival infiltration.

Figure 4: Image showing the left inflammatory subconjunctival infiltration

An urgent cranio-orbital MRI was performed, showing marked thickening of the left ocular coats, intense scleral enhancement, and infiltration of the intra- and extraconal soft tissues, resulting in grade I exophthalmos. The diagnosis of endogenous endophthalmitis was retained.

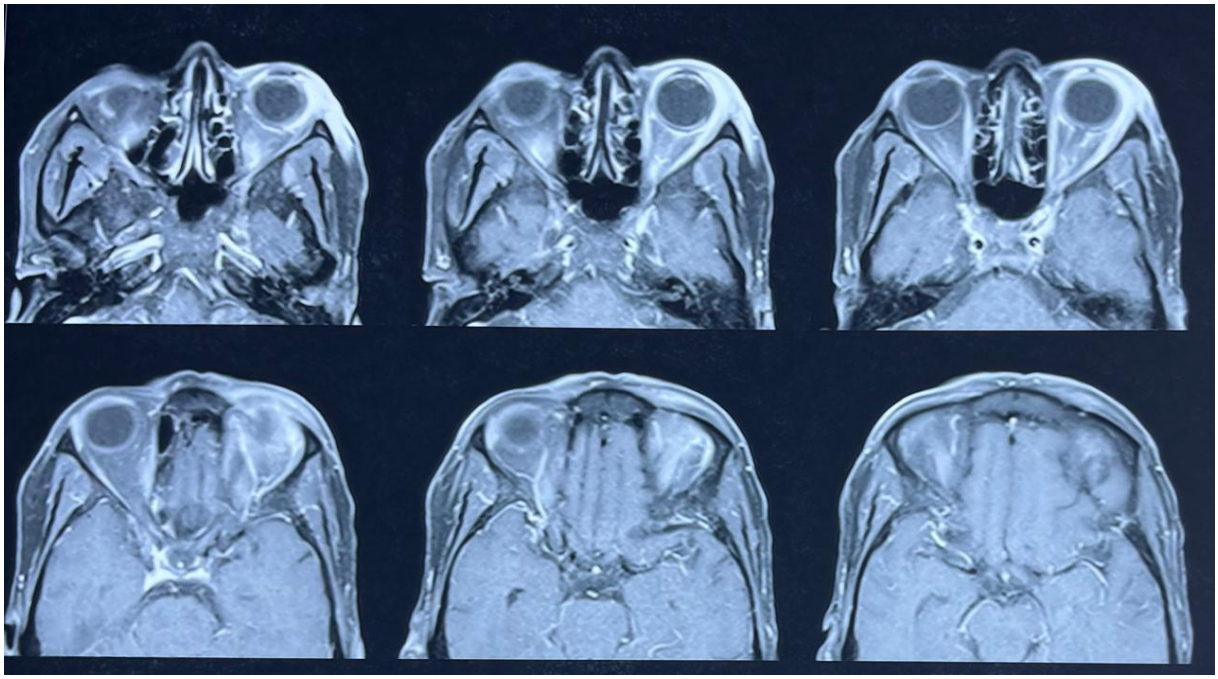

Figure 5: MRI images showing left orbital involvement suggestive of inflammatory pseudotumor.

A triple-antibiotic regimen combining Ceftriaxone [2 g/day], Metronidazole [500 mg three times daily], and Gentamicin [according to the antibiogram] was initiated. Under this treatment, the clinical condition improved, with favorable ophthalmological and biological evolution, including a decrease in inflammatory markers. The patient was discharged on postoperative day 6 with oral antibiotic therapy and was re-evaluated by the ophthalmologist

after 10 days and again after 15 days, with good clinical outcome.

3. DISCUSSION

Klebsiella pneumoniae liver abscess has become a distinct clinical entity [5]. Unlike polymicrobial abscesses, commonly related to *E. coli* or *Bacteroides*, *Klebsiella* abscesses are often monomicrobial and frequently occur de novo, without preexisting biliary disease [6]. Diabetes mellitus is the main identified risk factor, although our patient did not have diabetes, highlighting the intrinsic virulence of certain strains [7].

Endogenous endophthalmitis occurs when bacteria cross the blood-retinal barrier through hematogenous dissemination [8]. In the case of *K. pneumoniae*, this dissemination is facilitated by specific virulence factors, particularly the hypervirulent phenotype [hvKP], characterized by a prominent polysaccharide capsule, especially in serotypes K1 and K2 [9]. This capsule protects the bacterium against phagocytosis and complement-mediated killing in the systemic circulation.

Once bacteria reach choroidal capillaries, they cause septic microembolization. Disruption of the blood-retinal barrier allows invasion of the vitreous humor, an environment rich in nutrients and lacking effective immune defenses, thereby promoting rapid bacterial proliferation [10]. The resulting inflammation is mediated by the release of bacterial toxins and pro-inflammatory cytokines, leading to irreversible retinal tissue destruction within hours to days [11].

This patient perfectly illustrates invasive *Klebsiella pneumoniae* syndrome [IKPS]. This syndrome is defined by PLA associated with at least one extrahepatic metastatic focus, such as endophthalmitis, meningitis, brain abscess, or nephritis [12]. Ocular involvement is reported in approximately 3% to 10% of *Klebsiella* PLA cases [13]. The rapid onset of ocular signs after hepatic symptoms warrants systematic ophthalmological surveillance in any PLA caused by this organism.

Treatment relies on drainage of the primary infectious focus combined with broad-spectrum systemic antibiotic therapy [14]. Third-generation cephalosporins, particularly Ceftriaxone, are the cornerstone of treatment due to their good tissue penetration. The addition of an aminoglycoside such as Gentamicin may be beneficial because of its initial synergistic effect [15]. In severe forms of endogenous endophthalmitis, intravitreal antibiotic injections or early vitrectomy are often required in an attempt to preserve vision, although the functional prognosis generally remains poor [4, 11].

4. CONCLUSION

Klebsiella pneumoniae liver abscess is a specific clinical entity that requires particular vigilance. Any ocular complaint or orbital inflammatory sign in a patient with a liver abscess should raise suspicion for endogenous endophthalmitis and requires immediate imaging evaluation and therapeutic intensification.

REFERENCES

1. Mavilia MG, *et al.,* The evolving nature of hepatic abscess: a review. *J Clin Transl Hepatol* [2016].
2. Chiche L, *et al.,* Abcès à pyogènes du foie. *Gastroentérologie Clin Biol* [2008].
3. Zhang Y, *et al.,* High prevalence of hypervirulent Klebsiella pneumoniae infection in China. *Antimicrob Agents Chemother* [2016].
4. Sng CC, *et al.,* Endogenous Klebsiella pneumoniae endophthalmitis: a 10-year experience. *Ophthalmology* [2008].
5. Siu LK, *et al.,*Klebsiella pneumoniae liver abscess: a new invasive syndrome. *Lancet Infect Dis* [2012].
6. Shi S, *et al.,* Unique characteristics of pyogenic liver abscesses of biliary origin. *Surgery* [2016].
7. Lee SS, *et al.,* Predictors of septic metastatic infection in Klebsiella pneumoniae liver abscess. *Clin Infect Dis* [2008].
8. Jackson TL, *et al.,* Endogenous endophthalmitis: 10-year experience at a tertiary referral centre. *Eye* [2014].
9. Shon AS, *et al.,* Hypervirulent Klebsiella pneumoniae [hvKP]. *Virulence* [2013].
10. Widmer A, *et al.,* Pathophysiology of endophthalmitis. *Current Opinion in Infectious Diseases* [2005].
11. Ang M, *et al.,* Endogenous Klebsiella pneumoniae endophthalmitis: an emerging problem. *Ophthalmology* [2011].
12. Eltawansy SA, *et al.,* multi-organ failure secondary to a gaseous liver abscess. *Am J Case Rep* [2015].
13. Chung DR, *et al.,* Emerging invasive Klebsiella pneumoniae liver abscess syndrome worldwide. *Expert Rev Anti Infect Ther* [2012].
14. Solomkin JS, *et al.,* Diagnosis and management of intra-abdominal infection. *Clin Infect Dis* [2010].
15. Kristich CJ, *et al.,* Enterococcal infection-treatment and antibiotic resistance. *Enterococci* [2014].