



# Acalculous Cholecystitis Secondary to Epstein-Barr Virus Infection

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A 58-year-old woman with hypertension was referred to our hospital because of a 10-day history of a slight fever and elevated liver enzymes. Her body temperature was 37.6 °C. Physical examination revealed icteric conjunctiva, left posterior cervical lymphadenopathy (2 cm in length with tenderness), abdominal tenderness in the right upper quadrant, and a positive Murphy's sign. Laboratory findings were as follows: white blood cells,  $12.32 \times 10^3/\mu\text{l}$  with 26.0% atypical lymphocytes; aspartate aminotransferase, 614 IU/l; alanine aminotransferase, 689 IU/l; gamma-glutamyl transferase, 367 IU/l; total bilirubin, 71.8  $\mu\text{mol/l}$ ; and C-reactive protein, 4.9 mg/l. Furthermore, positive serology revealed immunoglobulins M and G for Epstein-Barr (EBV) viral capsid antigen with titers of 1:160 and 1:1280, respectively, and negative antibodies for EBV nuclear antigen. These results indicated a primary EBV infection.

Plain computed tomography revealed bilateral cervical and left supraclavicular lymphadenopathy, mild splenomegaly, and gallbladder wall thickening without gallstones (Figure 1). The patient was not obese or rapidly losing weight. She also had no history of gastric or duodenal surgery, total parenteral nutritional treatment, extreme dietary restrictions, or excessive alcohol intake. She was diagnosed with acute acalculous cholecystitis secondary to EBV infection, was admitted the same day, and experienced gradual improvement, including in jaundice, with symptomatic treatment. She was discharged 10 days later.

Acute acalculous cholecystitis accounts for 5-10% of all cholecystitis cases in adults.<sup>1</sup> Typical imaging findings include a striated gallbladder wall thickened to  $>3$  mm, gallbladder distention, gallbladder sludge, and pericholecystic fluid.<sup>1</sup> Patients who are fasting and receiving parenteral nutrition due to critical illnesses, such as extensive trauma, surgery, shock, sepsis, severe burns, cerebrovascular accident, and myocardial infarction, have a substantial risk of developing acute acalculous cholecystitis. The prognosis is often poor due to a gangrenous gallbladder, presence of necrotic tissue within the gallbladder, or sepsis, which contributes to the patient's critical condition.

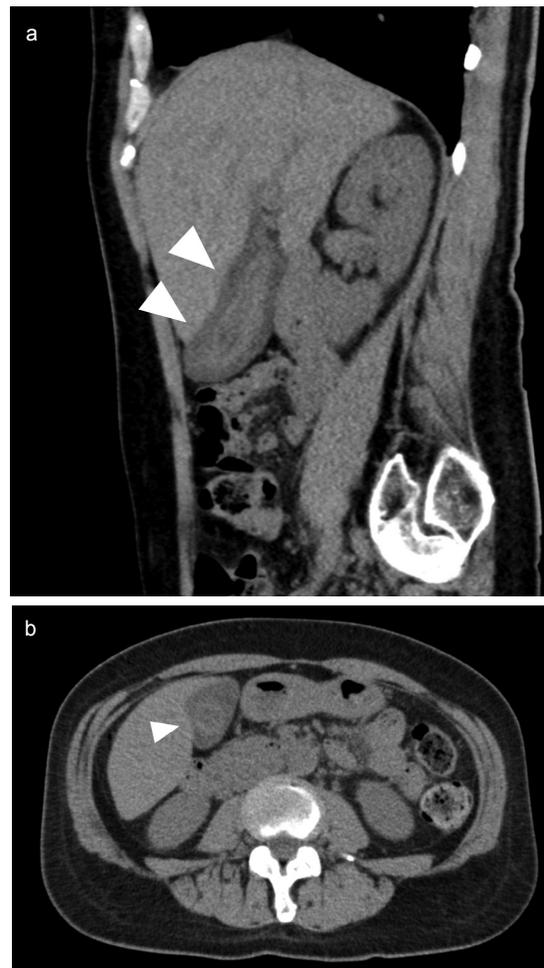


FIG.1. Abdominal computed tomography scans of the patient. a) Axial plane of plain abdominal computed tomography shows gallbladder wall thickening and gallbladder sludge (white arrowhead), b) Sagittal plane of plain abdominal computed tomography shows gallbladder wall thickening and gallbladder sludge as in the axial plane (white arrowheads)



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Acute acalculous cholecystitis is a rare complication of primary EBV infection. The average age of onset of EBV-associated acute acalculous cholecystitis is 17 years, and it occurs predominantly in women.<sup>3</sup> Acute acalculous cholecystitis can also occur secondary to viral infections such as those caused by cytomegalovirus and dengue virus.<sup>2</sup> The treatment of EBV-associated acute acalculous cholecystitis is usually symptomatic and supportive; most cases resolve spontaneously.<sup>3</sup> Researchers have not sufficiently clarified the pathogenesis of EBV-associated acute acalculous cholecystitis. However, direct gallbladder viral invasion and bile stasis have been proposed.<sup>1</sup> Furthermore, some researchers hypothesized that vasculitis and autoimmune reactions due to EBV infections are associated with this condition.<sup>4</sup>

A primary EBV infection is uncommon in adults aged >40 years and must be confirmed serologically. However, when compared with young adults, patients aged >40 years are less likely to experience peripheral lymphadenopathy, pharyngitis, and splenomegaly, which are considered characteristic findings of an acute primary EBV infection.<sup>5</sup> Fortunately, even though the patient was over 40 years, she had peripheral lymphadenopathy, splenomegaly, fever,

and jaundice, which allowed us to immediately recognize that the acalculous cholecystitis was a complication of her primary EBV infection. Considering the rare complications associated with this disease, avoiding unnecessary and invasive examinations and surgical procedures is crucial.

**Informed Consent:** Written consent for publication was obtained from the patient.

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