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Laparoscopic treatment of pyogenic liver abscess complicating Crohn's disease: A case report*

Crohn hastalığına bağlı gelişen piyojenik karaciğer apsesinin laparoskopik tedavisi: Bir olgu sunumu

Bilgi BACA[1], İsmail HAMZAOĞLU[1], Tayfun KARAHASANOĞLU[1], Hülya Över HAMZAOĞLU[2]

Department of [1]General Surgery, İstanbul University Cerrahpaşa Medical School, Istanbul

Department of [2]Gastroenterology, Marmara University Medical School, Istanbul

Pyogenic liver abscess in patients with Crohn's disease is not common, but the mortality has been reported to be high if diagnosis or treatment is delayed. Herein, we report the case of a 42-year-old man in whom multi-locular liver abscess was encountered in the right lobe of the liver as a complication of Crohn's disease. On his admission to the emergency unit, he had right upper quadrant pain, fever of 39°C and hepatomegaly. Ultrasonography and abdominal computerized tomography demonstrated multi-locular pyogenic liver abscess in the right lobe of the liver. Percutaneous drainage failed because of the density of the pus; laparoscopic exploration was subsequently performed and 1500 ml pus was successfully drained. The patient became clinically stable without fever and with a decreasing white blood cell count on the third postoperative day.

Key words: Laparoscopic drainage of liver abscess, Crohn's disease

Crohn hastalığına bağlı piyojenik karaciğer absesi yaygın değildir, fakat teşhis ve tedavi geciktiğinde ölüm oranı yükselmektedir. Burada, Crohn hastalığının bir komplikasyonu olarak karaciğer sağ lobda multi-loküler abse gelişmiş, 42 yaşında bir erkek hasta sunulmuştur. Acil ünitesine başvurusunda hastada sağ üst kadran ağrısı, 39°C ateş ve hepatomegali tespit edildi. Yapılan karın ultrasonografi ve bilgisayarlı tomografisinde karaciğer sağ lobda multi-loküler piyojenik abse gösterildi. Pürülan mayinin yoğunluğunun fazla olması nedeniyle perkütan drenaj başarısız oldu, sonrasında laparoskopik eksplorasyon yapılarak 1500 ml abse başarılı bir şekilde drene edildi. Ameliyat sonrası üçüncü günde ateşi ve lökositozu düzelen hasta klinik olarak iyileşti.

Anahtar kelimeler: Laparoskopik karaciğer apse drenajı, Crohn hastalığı

INTRODUCTION

Pyogenic liver abscess in patients with Crohn's disease is rare, but the mortality has been reported to be high if diagnosis or treatment is delayed. Intraabdominal abscess, fistulous disease and steroid therapy have all been reported to be important predisposing factors in the pathogenesis of this entity. We report a case of liver abscess complicating Crohn's disease.

CASE REPORT

A 41-year-old man was admitted with 39°C fever, chills and a 15-day history of right abdominal pain. He had a history of Crohn's disease (in the terminal ileum) for three years and had been treated with prednisolone (16 mg/day) with good response. During this period, he had two attacks with serious abdominal pain. It was considered as another exacerbation of the disease and prednisolone dose was increased to 40 mg/day.

Physical examination revealed only hepatomegaly; there was no additional finding. Laboratory data showed polymorphonuclear leukocytosis (white blood cell-WBC: 15400/mm^3) and impaired liver function tests (aspartate aminotransferase-AST: 70, alanine aminotransferase-ALT: 65). Alkaline phosphatase, lactate dehydrogenase and bilirubin levels were within normal limits. Abdominal ultrasonography showed multilocular pyogenic liver abscess in the right lobe of the liver, subsequently confirmed by computerized tomography (CT) scan (Figure 1).

Address for correspondence: İsmail HAMZAOĞLU
7-8. Kısım, A-31, B Kapısı, No: 44, Ataköy 34750, Istanbul, Turkey
Phone: +90 212 559 96 83 • Fax: +90 212 559 65 77
E-mail: ihhamzaoglu@yahoo.com

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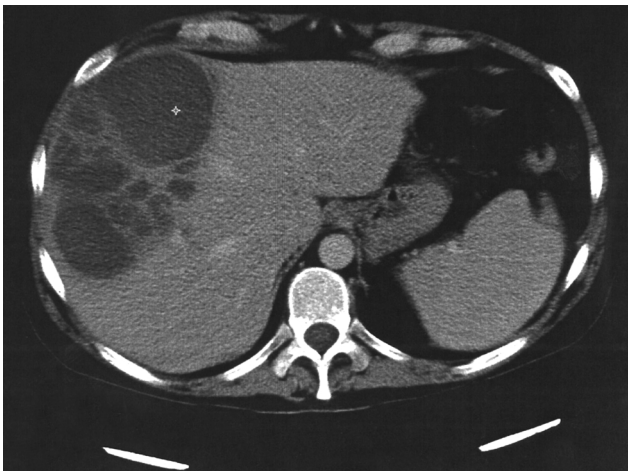

Figure 1. Multi-locular abscess in the right lobe of the liver

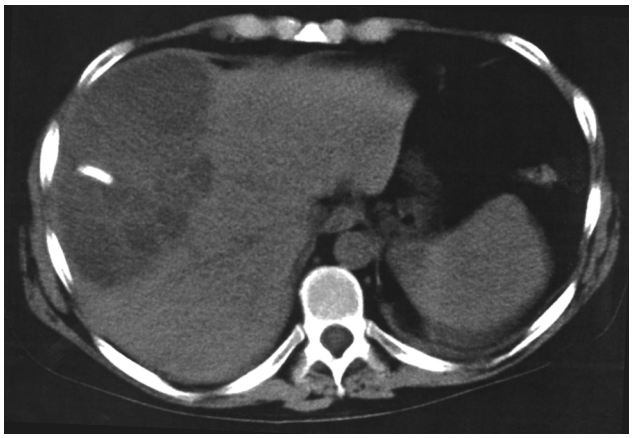

Figure 3. Failure of percutaneous drainage; liver abscess could not be drained effectively

On the second day of admission, he underwent percutaneous abscess drainage. The abscess was firstly aspirated via 8F catheter (percutaneous biliary drainage catheter, Navarre C.R. Bard, Inc. USA), but it was difficult to aspirate, so a 14F catheter was used (Figure 2). Initial drainage volume was 150 ml. The purulent material was thick and yellow. Serological tests for *Amoeba* and *Echinococcus* were negative. Gram stain showed many polymorphonuclear leukocytes and a few gram-positive *Streptococci* in clusters. The culture specimen of the purulent material grew *Streptococcus intermedius* (in the group of viridans). Antibiogram was determined for the isolate, and it was susceptible to all antibiotics. Initial treatment was hydrocortisone, metronidazole, ticarcillin-clavulanic acid and parenteral fluids. Drainage output decreased to 10 ml/day on the third day. CT scan was planned to evaluate the abscess on the fourth day. The catheter was in the cavity, but the abscess could not be drained effectively (Figure 3). In this period (3^{rd} – 8^{th} day), fever was usually between 37°C and 38°C, except on one occasion when it reached 38.5°C. Because of the high fever (40°C) and leukocytosis (WBC 16000/mm^3), the patient underwent an operation on the ninth day. Multilocular abscess in the right lobe of the liver was drained via laparoscopic approach. There was no perforation in any bowel segment.

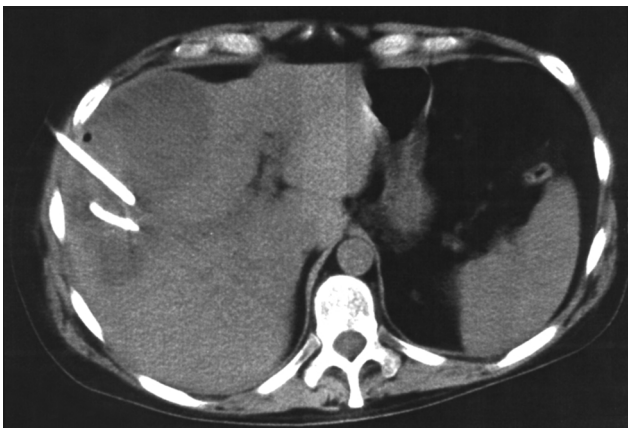

Figure 2. Percutaneous drainage catheter is seen within abscess cavity

During exploration, we realized that initial necrosis had begun in the wall of the abscess and that the abscess had not been drained sufficiently via percutaneous route. 1500 ml pus was drained from the liver abscess. At the time of surgical procedure, no peritoneal contamination developed during aspiration and irrigation. Membranous septums of the abscess were effectively removed and the entire abscess was drained. Two drainage catheters were inserted into the abscess cavity and the operation was ended. Antibiotic therapy was continued with ticarcillin-clavulanic acid. Drains were removed when the drainage was minimal (10 ml/day).

The patient became clinically stable without fever and with a decreasing WBC count on postoperative day three. He was discharged with oral ampicillin-sulbactam and oral hydrocortisone (30 mg/day) therapy on postoperative day four. Twelve months after discharge, the patient was asymptomatic with completely healed liver abscess (Figure 4). The patient has no evidence of recurrent liver abscess 36 months after laparoscopic drainage.

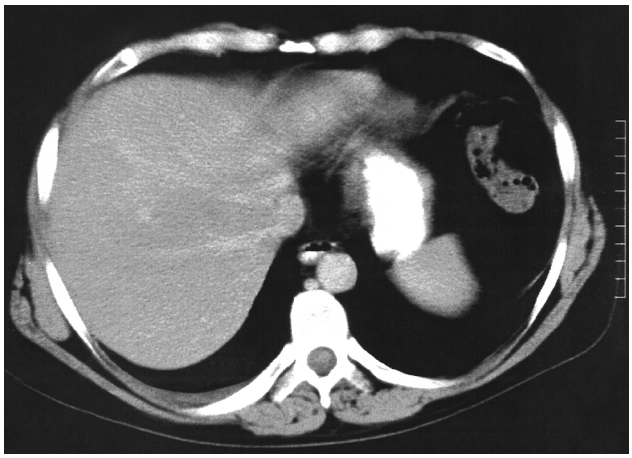

Figure 4. Complete resolution of the abscess after laparoscopic drainage

DISCUSSION

Crohn's disease presenting as liver abscess is rare (1-4). Infections elsewhere in the body and steroid therapy during the treatment of the disease have been considered as predisposing factors of liver abscess (3). Steroid therapy has been suggested to deteriorate this entity with its immunosuppressive effect (5, 6). In our case, the patient received high dose steroid therapy for two weeks for a presumed exacerbation of Crohn's disease.

The diagnosis of liver abscess was made promptly with CT scan, but the reason for the abscess was not found until microbiologic investigation was done. Streptococci were isolated from the cultures in our study, similar to previous reports (3, 4).

The mechanisms of abscess formation in patients with Crohn's disease include direct extension from involved bowel, remote hematologic seeding from diseased bowel and peritoneal contamination at the time of previous surgery (2-5). The accepted pathogenesis of abscess formation in this setting is initial transmural penetration by a deep fissure in a diseased segment of the bowel that leads to chronic perforation. The other cause of this abscess as presented in our case could be remote hematologic seeding from pylephlebitis (1).

Liver abscess in Crohn's disease mostly occurs in the active periods. Crohn's disease could be diagnosed with a pyogenic abscess in the liver even as a first manifestation (3, 4). Abdominal pain and fever have been described as symptoms of this kind of liver abscess, making the diagnosis difficult to distinguish from the chronic disease.

Because Crohn's disease is a fistulous disease, the cause of the abscess is usually considered as a perforation of the diseased bowel segment. Steinberg et al. (7) reported a 70% association between abscess and spontaneous fistula in Crohn's disease. Liver abscess with or without perforation in Crohn's disease can be successfully managed by percutaneous catheter drainage combined with antibiotic therapy. Garcia et al. (8) reported the overall success rate as less than 50% in the nonsurgical treatment group. Other investigators have revealed success rates by percutaneous catheter drainage of 38–50% (9,10). After the percutaneous drainage, these patients can eventually undergo elective resection of the diseased bowel (1). Lee et al. (11) reported that the overall success rate of nonsurgical treatment was 66.7%. The cumulative recurrence rate at seven months was 12.5%. In our case, the percutaneous drainage was the first treatment choice of liver abscess, but it failed to drain the thick pus. In order to drain the liver abscess, laparoscopic approach was performed.

Nonsurgical treatment may be an initial therapy of Crohn's disease-related abscess in selected cases. Hence, it is necessary to choose a modality of treatment according to information about the presence of relevant fistula and steroid therapy (8).

The symptoms of the exacerbation of Crohn's disease are confused with the symptoms of liver abscess and this may lead to inappropriate treatment options. The European Cooperative Crohn's Disease Study (ECCDS) recommended that the presence of abscess should serve to contraindicate steroid treatment (12). Felder et al. (13) dictated that high-dose steroid led to elimination of abdominal mass associated with Crohn's disease. However, steroid treatment did not prevent the liver abscess in our present case.

Liver abscess complicating Crohn's disease may be identified as a different pathophysiologic behavior of the disease. Pyogenic liver abscess formation may be caused by remote hematologic seeding from pylephlebitis (1).

If percutaneous drainage fails, laparoscopic drainage may be the second choice. It is a minimally invasive surgical procedure, multi-loculated abscess can be effectively evacuated, and surgical site infection rate will be lower. The patient has an acceptable degree of scarring and returns to a productive life as rapidly as possible.

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