Original Article

Endoscopic biliary drainage in patients with amebic liver abscess and biliary communication


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Background: Percutaneous drainage or surgery is required when amebic liver abscess (ALA) fails to respond to medical management. In some of these patients, non-response may be due to communication of ALA with the biliary tree. This report describes our experience with the use of endoscopic biliary draining in such patients. Methods: Medical records of patients with ALA undergoing either needle aspiration or percutaneous pigtail drainage were retrieved; the indications for drainage were: abscess volume exceeding 250 mL, a thin rim of tissue (<1 cm thick) around the abscess, systemic toxic features, and failure to improve on medical treatment. Patients with abscess drain output >25 mL/day persisting for 2 weeks or presence of bile in the drain fluid underwent endoscopic biliary drainage. Results: A total of 115 patients with ALA underwent percutaneous treatment. None of the 25 patients with needle aspiration needed any further treatment. Of the 90 who underwent catheter drainage, the catheter could be removed within one week in 77 patients; the remaining 13 patients (median age 42 years, range 24-65; all men) had an abscess-biliary communication. In them, the median catheter output was 88 mL/day (range 45-347) and 54 mL/day (28-177) at 2 days and 2 weeks after catheter placement. The drain fluid contained bile in all 13 patients, and in addition contained pus in 10 patients. Eleven patients had a solitary abscess and two had multiple abscesses. Cholangiogram showed biliary communication in all 13 patients. All patients were treated with placement of 10F biliary endoprosthesis or 10F nasobiliary drain. Pigtail catheter was removed within 1 week in 11 of 13 patients. Conclusion: In patients with amebic liver abscess communicating with the biliary tree, biliary stenting may hasten clinical recovery and allow early removal of liver abscess catheter drain.

Indian Journal of Gastroenterology 2006 Vol 25 May - June 125

Liver is the most common extraintestinal site of involvement in amebiasis, with amebic liver abscess (ALA) occurring in 3%-9% of patients with Entamoeba histolytica infection.1 ALA usually improves within 5-7 days on treatment with metronidazole. Some patients need percutaneous drainage or surgery, particularly for complications like rupture into the pericardium, pleura or peritoneum, thoracobiliary fistula and secondary bacterial infection.2 Biliary communication of ALA has been reported in up to 27% of cases; however, this may not affect the cure rate or alter the treatment.3,4

Data on endoscopic intervention in the management of biliary communication in ALA are limited. We report our experience with the use of therapeutic endoscopic retrograde cholangiopancreatography (ERCP) in the management of patients with ALA with biliary communication.

Methods

Between June 2002 and December 2003, all patients with ALA who required percutaneous drainage as an adjunct to medical therapy were studied. Data on symptoms, signs, laboratory investigation results, amebic serology and ultrasound characteristics were retrieved from medical records. The diagnosis of ALA was made based on ultrasonographic findings and positive amebic serology using indirect hemagglutination test (cut-off titer >1:256). All patients had received metronidazole in adequate doses (800 mg PO tid for 10-14 days). Patients with abscess volume >250 mL, thin rim of liver tissue (<1 cm) around the abscess, systemic toxic symptoms, or no response or deterioration on medical treatment underwent pigtail drainage under ultrasound guidance. The daily drain output was recorded and presence of bile or evidence of infection (using culture) in the drain fluid was looked for. Patients with secondary bacterial infection received antibiotics based on culture sensitivity report. Those who had bile in the drain or persistent drain output (>25 mL/day) after 2 weeks were referred for ERCP.

After obtaining a cholangiogram, therapeutic ERCP was done (TGF V-70; Olympus, Japan) in the event of biliary communication (leak). This included sphincterotomy followed by placement of either a pigtail biliary stent or a nasobiliary drain. Technical and clinical success was assessed and complications were
looked for. The pigtail catheter was removed when the drain output was <10 mL/day for 2 consecutive days. Ultrasonography was done at 72 hours after the therapeutic ERCP, 1 week after pigtail removal, and at 6 weeks. The biliary stent was removed after 6 weeks. Patients were followed up to look for recurrence of abscess.

Statistical analysis was done using the Wilcoxon sign rank test for paired data.

**Results**

During the study period, 115 patients with ALA underwent percutaneous drainage (pigtail catheter drainage 90, single needle aspiration 25) as adjunct to medical treatment. None of the patients with needle aspiration needed repeat aspiration or drainage. Among those who underwent pigtail catheter drainage of the abscess, the catheter could be removed within one week in 77 patients; in the remaining 13 patients (median age 42 years [range 24-65]; all men), bile was noticed in the drainage fluid. They were diagnosed to have abscess-biliary communication, and underwent ERCP and biliary drainage.

All the 13 patients needing ERCP had a long duration of symptoms (median 45 [25-60] days); in addition, nine had fever exceeding >38°C, six had anemia (median hemoglobin 9.1 [6.8-11.2] g/dL) and four had jaundice. Investigations showed leukocytosis (>12,000 cells/dL) in 10 patients, hyperbilirubinemia (median serum bilirubin 3.6 [2.5-8.0] mg/dL) and hypoalbuminemia (median serum bilirubin 1.8-3.2] g/dL) in eight patients each; six patients had both hyperbilirubinemia and hypoalbuminemia. Eleven patients had a solitary liver abscess (right lobe 7, left lobe 4) and two had abscesses in both the lobes.

The median abscess drain output was 88 mL/day (range 45-347) 48 hours after the abscess drainage and 54 mL/day (range 28-177) two weeks after drainage. The drain fluid contained bile in three patients and bile with pus in 10 patients. Culture of the fluid showed *Escherichia coli* in two patients and *Pseudomonas aeruginosa* in one patient; all were sensitive to ceftazidime.

ERCP was done median 21 days (range 16-30) after placement of the pigtail catheter. Cholangiogram showed a communication of the biliary tree with the abscess cavity in all patients. A 10F plastic biliary endoprosthesis (19 cm length; 2, 15 cm: 2, 12 cm: 6) or 10F nasobiliary drain (n=3) was placed; the latter were replaced with 10F stent after one week. At 48 hours after the biliary drainage, the output from the drain showed significant decrease (Table). By the end of one week, the drain catheter could be removed in 11 of 13 patients; in the remaining two patients (Table; patients #1 and #11) the drain output decreased progressively and the catheter was removed on day 10. One week after biliary drainage, the patients showed clinical improvement and significant decrease (p=0.001) in the volume of the cavity (median 78 [55-165] mL). Cholangiogram obtained at the time of stent removal did not show any biliary leak. On follow up for 9-25 months, there has been no recurrence of abscess in any patient.

**Discussion**

A majority of patients with ALA respond rapidly to treatment with metronidazole, though a cavity may persist on ultrasonography for a long time. Poor prognostic factors include serum bilirubin >3.5 mg/dL, hypoalbuminemia (<2 g/dL), low hemoglobin (<8 g/dL), large abscess (>500 mL), multiple abscesses, encephalopathy, pleural effusion and diabetes mellitus. All our patients had long duration of illness and large abscess, and several had jaundice, anemia and/or hypoalbuminemia; none had encephalopathy, pleural effusion or diabetes.

The conventional indications for percutaneous drainage include deterioration in clinical condition on adequate treatment, bacterial superinfection and a high risk of abscess rupture, whereas surgery is reserved for patients with ruptured abscess, impending rupture or inadequate drainage through a catheter. Studies have shown that percutaneous needle aspiration is a safe approach, and accelerates resolution.
and prevents complications.\textsuperscript{10-13} Rajak et al showed that catheter drainage is more effective than needle aspiration (100\% vs 60\%) in the treatment of ALA.\textsuperscript{14} In our study, 13 patients had no reduction in drain output even 2 weeks after percutaneous drainage, and the drain fluid contained bile, even though fluid culture grew organisms in only two of them. Saraswat et al\textsuperscript{15} found that the percutaneous catheter could be removed after a mean period of 7 days (range 3-20), when the patient was afebrile, catheter drainage had come down to <10 mL/day and cavitogram showed a negligible cavity size. Agarwal et al\textsuperscript{3} showed presence of abscess-biliary communication in 27\% of cases requiring percutaneous catheter drainage; this subgroup had more frequent jaundice, longer duration of illness, and larger lesions, and required catheter drainage for longer periods (median 17 vs 6.5 days).

Standard therapy of ALA does not differ in patients with associated biliary fistula, except for need for prolonged drainage and, in a few cases, surgery.\textsuperscript{3,4,16} In our study, all patients with ALA and biliary fistula had persistently large and bile-stained drain output even after 2 weeks of drainage. After placement of biliary stents, the drain output decreased rapidly within 48 hours and the catheter could be removed. Thus, ERCP and stent placement seemed to hasten resolution of the abscess and clinical improvement. This may have prevented complications of prolonged percutaneous drainage like secondary infection, fistula formation and loss of bile. Further, it may have shortened the hospital stay, reduced the need for antibiotics and hence treatment costs.

Our study is limited by the fact that it was an observational study and lacked control subjects with ALA and biliary communication who had not undergone ERCP.

In conclusion, biliary stent placement may be a useful adjunct in patients with ALA with biliary communication. It appears to hasten resolution of the abscess and may obviate the need for prolonged catheter drainage. Future studies should focus on determining parameters that may appear early in the course of the disease and predict the need for ERCP and biliary drainage.

References

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Received July 18, 2005. Received in final revised form September 26, 2005. Accepted June 2, 2006