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Amebic Abscess of the Liver: Surgical Aspects

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During the past five years, ten documented cases of hepatic amebic abscess have required surgical intervention at Olive View Hospital, Van Nuys, California. Three of the patients underwent laparotomy when an hepatic abscess ruptured into the peritoneal cavity, and two required surgical intervention when an abscess invaded adjacent organs. Another abscess continued to enlarge despite metronidazole therapy and still another became superinfected with bacteria. In the remaining three patients, surgical procedure would have been avoided if the correct diagnosis had been made. In fact, the preoperative diagnosis in five cases was acute appendicitis. All patients survived. The incidence of Entamoeba histolytica *infestation is increasing in our community. Although most patients rapidly improve with metronidazole therapy, surgical complications do arise and diagnoses are missed. This series of cases emphasizes the need for surgeons working in Southern California to familiarize themselves with the clinical features, complications and appropriate surgical treatment of amebiasis.*

INFECTION BY THE PARASITE *Entamoeba histolytica,* known as amebiasis, can be either intestinal or extraintestinal. The intestinal type is predominant, having a wide spectrum of presentations from asymptomatic carriers to patients with amebic dysentery. It is characterized by fever, colicky abdominal pain and frequent bloody stools. In a small percentage of patients, the parasite infects other organs, typically the liver. Hepatic amebic abscesses generally give symptoms of an indolent abdominal disorder with fever, malaise, vague right upper quadrant pain and tenderness, and hepatomegaly. Radioisotopic liver scans show intrahepatic filling defects and serologic testing is positive for amebiasis in 95 percent of patients.[1] Most patients respond rapidly to amebicidal drug therapy without requiring operative intervention. On rare occasions, resistance to medical therapy necessitates a surgical procedure. An hepatic amebic abscess may also have features consistent with an acute abdominal disorder requiring operative intervention.

Olive View Hospital is a small general hospital of 143 beds located in the San Fernando Valley and serving an indigent, transient patient popula-

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tion that is mainly Spanish-speaking. In 1980 several patients with hepatic amebiasis were operated on at our hospital; that recent exposure has prompted this report, which summarizes our five-year experience with the surgical treatment of ten cases of hepatic amebiasis.

Patients and Methods

Between November 1975 and November 1980 ten patients with hepatic amebic abscess underwent operation. Seven were male and three were female; their ages ranged from 18 months to 57 years. Only five had recently traveled to a region where *E histolytica* is endemic. The ten cases were divided into three categories according to their clinical presentation: (1) preoperative diagnosis of acute appendicitis, (2) complications during medical therapy for hepatic amebiasis and (3) bacterial superinfection with consequent septicemia.

The first group operated on for acute appendicitis consisted of five patients who had abdominal pain, right lower quadrant tenderness, elevated temperature above 38.5°C (101°F) and a leukocyte count greater than 12,000 per cu mm (range 12,200 to 21,000 per cu mm). At exploration, the appendix was normal in every patient. In two cases, free pus was present in the peritoneal cavity, originating from a ruptured abscess in the right lobe of the liver. There were no other intraabdominal pathological findings. Gram stain and wet mount of a specimen of the pus showed no organisms; a presumptive diagnosis of amebiasis was made (later confirmed by serology). The peritoneal cavities of the two patients were copiously irrigated and the abscess cavities drained. Metronidazole was given postoperatively for ten days and the patients recovered. The other three patients in this first group were found at exploratory laparotomy to have only enlarged mesenteric lymph nodes. Fever and abdominal pain persisted in the postoperative period. Radionuclide liver scans (Figure 1) and serologic tests confirmed the diagnosis of hepatic abscess in each case. These patients also responded to metronidazole therapy.

Three patients made up the second group. In each of these hepatic amebiasis had been diagnosed and the appropriate therapy was started. Complications then developed in each instance that necessitated surgical intervention. Two patients failed to respond to intensive multiagent therapy and continued to have severe symptoms. In one, the abscess invaded the diaphragm and adjacent pleural cavity, creating an hepatobronchial fistula (Figure 2). The third patient became asymptomatic on metronidazole therapy,

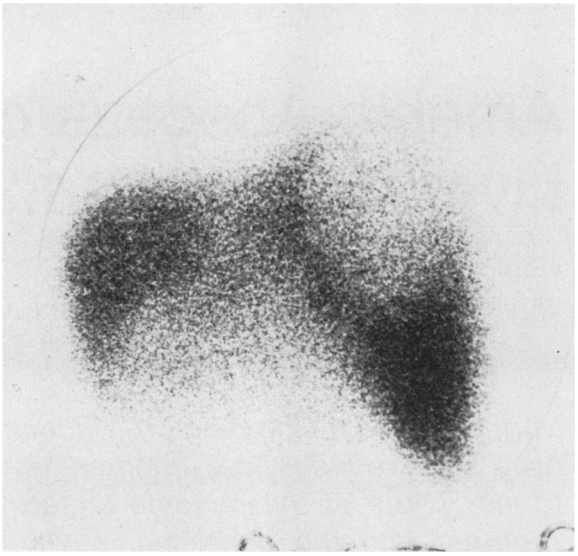

Figure 1.—Posterior view of liver scan revealing a large filling defect in the right lobe of the liver consistent with an amebic abscess.

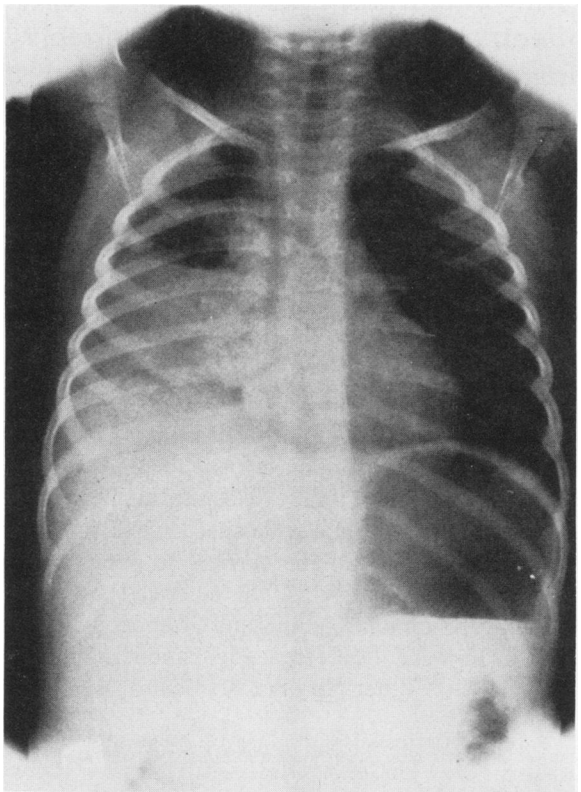

Figure 2.—Chest x-ray of a patient with an amebic liver abscess demonstrating intrathoracic extension, elevated right hemidiaphragm and an air-fluid level in the amebic empyema indicative of a communication with the bronchial tree.

but on the fifth day of treatment his abscess ruptured into the peritoneal cavity. After surgical drainage of the abscess, rapid and dramatic improvement was observed in all three patients.

The remaining two patients in this series, both of whom had hepatic amebic abscesses with bacterial superinfection, had been sick with fever and chills for more than a month. Although abdominal examination on admission was unremarkable, an extensive workup in both cases showed serology positive for amebiasis, filling defects on liver scans and polymicrobial bacteremia. At operation in one of these patients, a fistula was found between the abscess and the gallbladder. Gallstones were also present in the abscess. Contaminated bile as a consequence of cholelithiasis was the presumed source of the bacterial superinfection in this patient. In the other case, no source for the bacterial superinfection was found at laparotomy. Both patients were treated successfully with drainage of the abscess, postoperative tissue amebicides and broad-spectrum antibiotics.

Comment

Although not endemic in proportion, the prevalence of amebiasis continues to increase substantially in Southern California.[2,3] The present series of ten patients represents only the surgical cases at Olive View Hospital during a five-year period, that is, 30 percent of the patients we saw with hepatic amebiasis.

Diagnosing amebic liver abscess from clinical features can be extremely challenging. Fever (in all ten of the patients), abdominal pain (six patients) and abdominal tenderness (eight patients) were the most consistent findings. A prior illness resembling amebic dysentery had occurred in only one instance. These observations are similar to those of Adams and MacLeod[4] in their extensive series from South Africa. Travel to an endemic region could be substantiated in only five cases, but four of the remaining patients had family members who had recently arrived from Mexico. We suspect that the cysts of *E histolytica* were transmitted freely in these families.

Amebic disease masquerading as an acute abdominal emergency is not unique to our series. Other investigators have experienced the same diagnostic and therapeutic challenges.[5,6] Cognizance of the condition in an appropriate clinical setting will facilitate the correct diagnosis. Serologic tests and liver scans are the chief laboratory aids in diagnosing amebic liver abscess. Testing for the parasite in specimens of stool, from the abscess cavity or the abscess fluid, is not only difficult but seldom rewarding.[7] The indirect hemagglutination assay is a useful test and seems to be the most sensitive serologic test, though persistence of titers positive for the parasite after eradication of the clinical disease can be a problem. Several newer techniques under investigation, such as the gel diffusion precipitin test, appear promising. Radioisotope liver scans are valuable for delineating the size and location of the abscess.

Tissue amebicides are usually effective in treating amebic hepatic abscesses. The drug of choice is metronidazole (Flagyl) in a dose of 750 mg three times a day for seven to ten days.[8] In our experience, a clinical response on this regimen should occur in 48 to 72 hours. If not, the second-line drugs, chloroquine phosphate and emetine hydrochloride, should be administered. If pain, fever and tenderness persist, needle aspiration of the abscess using isotopic or ultrasonic scanning should be attempted. These techniques can be performed with few complications,[9] and in hospitals with these capabilities, blind needling of amebic abscesses is no longer necessary.

Failure of medical regimen and aspiration occurs infrequently, but when it does surgical intervention should proceed without delay. Failure to intervene appropriately at this time can increase the risk of rupture of abscess contents freely into the peritoneal cavity or into any of several contiguous organs. Other acute abdominal conditions, specifically acute appendicitis and cholecystitis, can be mimicked by amebiasis, resulting in diagnostic problems both preoperatively and postoperatively. Finally, these abscesses may infrequently become superinfected with bacteria, making drainage mandatory.

The diagnosis of amebic abscess with bacterial superinfection in two patients in this series was confirmed by positive findings on serology. It is conceivable, though, that the findings on serology represented past rather than present invasive amebiasis, and that our patients had primary pyogenic liver abscesses and not amebic abscesses. Both of these patients had a history negative for either invasive intestinal or extraintestinal amebiasis, however, and for this reason were considered to have amebic liver abscesses superinfected with bacteria.

Several large series of cases have recently been reported in the literature[10-12] in which the clinical symptomatology, diagnostic and therapeutic mo-

dalities and indications for surgical intervention are comparable to the cases reported here. Mortality has ranged from 0 to 34 percent. Our zero mortality undoubtedly reflects the good physical and nutritional status of our patients and the lack of concurrent invasive intestinal disease. These two factors contributed to the demise of those who died among the patients described in the literature.

Conclusion

In summary, a five-year experience with the surgical treatment of ten cases of hepatic amebic abscess is presented. Surgical procedures were done for complications of the disease and for diagnosis. The prevalence of the disease appears to be increasing in Southern California and it should be considered when fever and abdominal pain are present and other more obvious conditions have been ruled out. Liver scans and serologic testing facilitate the proper diagnosis and enable clinicians to begin appropriate chemotherapy without delay.

REFERENCES

1. Patterson M, Healy GR, Shabot JM: Serologic testing for amoebiasis. Gastroenterology 78:136-141, Jan 1980

2. Communicable disease statistics. Los Angeles County Department of Health Services, 1980

3. Bruckner DA, Garcia LS, Voge M: Intestinal parasites in Los Angeles, California. Am J Med Technol 45:1020-1022, Dec 1979

4. Adams EB, MacLeod IN: Invasive amebiasis. Medicine (Baltimore) 56:315-334, Jul 1977

5. Krettek JP, Goldstein LI, Busuttil RW: The symptoms of an amebic abscess of the liver simulating an acute surgical abdomen. Surg Gynecol Obstet 148:552-556, Apr 1979

6. Wallace RJ, Greenberg SB, Lau JM, et al: Amebic peritonitis following rupture of an amebic liver abscess. Arch Surg 113:322-325, Mar 1978

7. Healy GR: Laboratory diagnosis of amebiasis. Bull NY Acad Med 47:478-493, May 1971

8. Krogstad DJ, Spencer HC, Healy GR: Current concepts in parasitology: Amebiasis. N Engl J Med 298:262-265, Feb 2, 1978

9. Perez JY: The management of amebic hepatic abscess. Drugs 15(Suppl 1):49-52, 1978

10. Shabot JM, Patterson M: Amebic liver abscess: 1966-1976. Dig Dis Sci 23:110-118, Feb 1978

11. Eggleston FC, Verghese M, Handa AK, et al: The results of surgery in amebic liver abscess: Experiences in eighty-three patients. Surgery 83:536-539, May 1978

12. Verlenden WL, Frey CF: Management of liver abscess. Am J Surg 140:53-59, Jul 1980