

Ascending Cholangitis Complicated by Pyogenic Liver Abscess

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THE DEVELOPMENT OF single or multiple liver abscesses is a common complication of ascending cholangitis. Many end fatally. Despite repeated reports, this is still often missed because the signs and symptoms of liver abscess do not differ greatly from that of cholangitis. Along with this case report, a review of the current line of management is presented.

Case Report

The patient, a 60 year old Chinese man, was returning home after a banquet when he suddenly had chills and fever, and pain in the right hypochondrium. There was no similar past history. He does not drink. He had pulmonary tuberculosis 35 years previously, treated with left sided artificial pneumothorax. He was ill, febrile (temperature 38°C), pale and jaundiced. The liver was 7 cm below the right costal margin, and tender. Pulse rate was 84/min. and blood pressure 120/70 mm Hg. Other systems were normal. Urine was positive for albumin and bilirubin. Haemoglobin 10.0 gm/100 ml, total white count 47,800/ul (neutrophils 94%), erythrocyte sedimentation rate 108 mm, serum albumin 2.5 gm/100 ml, globulin 5.0 gm/100 ml, serum bilirubin 10.6 mg/100 ml (conjugated 3.8 mg/100 ml, unconjugated 6.8 mg/100 ml), serum alkaline phosphatase 330 I.U./litre (normal values 21-91 I.U./litre), blood urea 154 mg/100 ml, plasma creatinine 4.5 mg/100 ml.

A diagnosis of ascending cholangitis was made, and he was given parenteral ampicillin, vitamin K and intravenous fluids. His condition deteriorated. He was toxic and febrile (temperature 39°C), pulse rate 114/min. The abdomen was grossly distended.

Bowel sounds were sluggish. The right hypochondrium was markedly guarded. Total white count 45,000/ul (neutrophils 89%). Laparotomy was performed, but no cholecystitis or gall stone was found while the bile duct seemed patent. Liver biopsy showed cholangitis. Blood culture was negative. He was given gentamicin and erythromycin (he developed hypersensitivity to ampicillin), and later kanamycin was used instead of gentamicin.

His general condition improved. Jaundice and right hypochondral pain subsided. Serum bilirubin 1.1 mg/100 ml (conjugated 0.8 mg/100 ml, unconjugated 0.3 mg/100 ml), total white count 11,300/ul (neutrophils 71%).

However, progress was slow. Appetite remained poor. Low grade fever persisted. Liver was enlarged but not tender. Chest radiology showed elevation of the right hemidiaphragm. Liver scan showed a large area of poor uptake in the posterior aspect of the right lobe. On needling this area, 500 ml of foul smelling yellowish pus was aspirated. Smear showed gram positive cocci in clusters, and culture grew staphylococcus aureus in both aerobic and anaerobic media. He was given cloxacillin and cephaloridine. He improved.

Discussion

Sudden pain in the right hypochondrium, with chills, fever, jaundice and polymorphonuclear leucocytosis make the diagnosis of acute cholangitis (3); a condition associated with high mortality and morbidity. 7 of the 15 cases of acute suppurative cholangitis reported by Hauptert et al (4) died. Salk et al (2)

reported 8 deaths in a series of 36 cases of acute cholangitis.

The most frequent complication of cholangitis is septicaemia, progressing to hypotension and death (2, 3, 4). Early diagnosis and rigorous treatment with antibiotics are essential to avert this. Operation is mandatory when septicaemia and hypotension are present et al (2,3,4). In the series by Dow et al(3) and Hauptert et al (4), all such cases died when treated non-operatively.

Another common complication is pyogenic liver abscess. 5 of the 10 cases of cholangitis reported by Dow et al(3) had evidence of liver abscess, and 2 of the 7 deaths in Hauptert's series (4) were found at autopsy to have miliary abscesses.

Recent reviews (5, 7, 8 and 9) on pyogenic liver abscess show a changing pattern in the aetiology, and an increase in the incidence of pyogenic liver abscess secondary to cholangitis (7). Ascending cholangitis is now the leading cause of pyogenic liver abscess, ranging from 40 to 50% (5, 7, 8 and 9). Other sources include spread from the hepatic portal vein and the hepatic artery.

Pyogenic liver abscess usually presents as a short illness with fever and chills, jaundice, and tender enlarged liver; symptoms not unlike those of cholangitis. There is frequently polymorphonuclear-leucocytosis, elevated serum alkaline phosphatase, hyperbilirubinaemia, and hypoalbuminaemia. Useful radiological findings are elevation of the hemidiaphragm and pleural effusion, more commonly on the right. The abscess may be single or multiple, and the solitary liver abscess is often detected on liver scan (9).

There has also been a change in the pattern of organisms isolated (5, 6, 7 and 9). Gram negative organisms, particularly *E. coli*, have predominated since the introduction of antibiotics. Anaerobic organisms have also been increasingly isolated, though streptococcal and staphylococcal organisms continue to be cultured. Various combinations of antibiotics are used, and a change of bacterial flora during the course of antibiotic therapy often necessitate a change in chemotherapy.

Pyogenic liver abscess is almost uniformly fatal in those in whom the disease is not diagnosed and appropriately treated (5, 9). The high mortality has been attributed to failure or delayed recognition of the illness, the inability to obtain adequate surgical drainage, the failure to perform adequate bacterial studies, and the lethal nature of the underlying disease process (9).

Treatment must be instituted immediately, and involves a combination of antibiotics and drainage. Solitary liver abscesses are more easily drained and carry a more favourable prognosis (5, 8, 9). Drainage

of the abscess may be done either by percutaneous needle aspiration (10) or by open drainage or aspiration (11). In a series of 61 cases reported by Joseph et al (8) there were 4 deaths out of 26 cases with drainage of the abscess, whilst 30 cases out of 35 cases not drained died. McFadzean et al(10) successfully treated 14 cases of solitary pyogenic liver abscess by close aspiration and antibiotics instilled into the cavity.

Conclusion

Both ascending cholangitis and pyogenic liver abscess carry grave prognosis. The presence of cholangitis should be suspected in any middle aged person presenting with chills and fever, jaundice, right hypochondrial pain and a polymorphonuclear leucocytosis. Culture and sensitivity studies must be made and appropriate antibiotics administered, together with treatment of shock and fluid deficit. In those failing to respond to these measures, laparotomy is mandatory (2) for the purpose of drainage of the common bile duct. An operative cholangiogram should be done. If the improvement following treatment is not satisfactory, the presence of a pyogenic liver abscess should be suspected.

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References

1. Longmire W.P. (1975). Cholangitis: an abstract Postgraduate Medicine, 57: 163.
2. Salk R.P., Greenburg A.G., Farris J.M. and Peskin G.W. (1975). Spectrum of cholangitis. American Journal of Surgery, 130: 143-150.
3. Dow R.W. and Lindenauer S.M. (1969). Acute obstructive suppurative cholangitis. Annals of Surgery, 169: 272-276.
4. Hauptert A.P., Carey L.C., Evans W.E. and Ellison E.H. (1967). Acute suppurative cholangitis. Archives of Surgery, 94: 460.
5. Pitt H.A. and Zuidema G.D. (1975). Factors influencing mortality in the treatment of pyogenic liver abscess. Surgery, Gynaecology and Obstetrics, 140: 228-234.
6. Sabbaj J., Sutter V.L. and Finegold S.M. (1972). Anaerobic pyogenic liver abscess. Annals of Internal Medicine, 77: 629-638.
7. de la Maza L., Naeim F. and Berman L.D. (1974). The changing etiology of liver abscess. JAMA, 227: 161-163.
8. Joseph W.L., Kahn A.M. and Longmire W.P. (1968). Pyogenic liver abscess: changing patterns in approach. American Journal of Surgery, 115: 63-68.
9. Lazarchick J., de Souza N., Nichols D.R. and Washington J.A. (1973). Pyogenic liver abscess. Proceedings of the Mayo Clinic, 48: 349.
10. McFadzean, A.J.S., Chang K.P.S. and Wong C. (1953). Solitary pyogenic abscess of the liver treated by closed aspiration and antibiotics.
11. Patterson H.C. (1970). Open aspiration for solitary liver abscess. American Journal of Surgery 119: 326.