An Unusual Cause of Liver Abscess — *A Case Report*

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A 65-year old male presented with a three week history of weakness, dyspnoea, dry cough and right sided lower chest pain. He had spikes of temperature of 100-102° F. The patient had been prescribed various antibiotics during this period but their effect was short - lived. His past medical history was unremarkable except that hypertension was diagnosed 8 years before and was well controlled on propranolol.

The patient had emigrated to Australia in his youth and had now returned for a holiday. His former occupation was as a pump-fitter. The patient smoked 20 cigarettes daily for the last 40 years and drank a bottle of wine every day.

Physical Examination

On examination the patient's general condition appeared satisfactory. He was afebrile. The blood pressure was 110/70 and there were no signs of heart failure. Further examination revealed an area of dullness over the base of the right lung with decreased air entry, respiratory crepitations and expiratory rhonchi. In the abdomen a smooth, firm, non-tender liver edge was felt 4 finger breaths below the costal margin. There were no splenomegaly, ascites or lymphadenopathy; signs of hepatocellular failure were absent.

Basic Investigations

A chest X-Ray showed increased lung markings over the right base. The ESR was 110 mm/1st hour and the white cell count 14×10^9/l predominantly neutrophils. Liver function tests showed an alkaline phosphatase and γ -GT at more than double the normal values. Serum bilirubin and ALT were normal. The haemoglobin, urea, creatinine and electrolytes were within the normal limits.

A provisional diagnosis of right sided chest infection was made and the patient given parenteral Ampicillin to which he responded well. He remained afebrile, the chest signs cleared and the chest X-ray features showed signs of improvement. Above all the patient felt well and was allowed to go home for the weekends while investigations regarding his hepatomegaly were being performed.

Further Investigations

An ultrasound study of the upper abdomen showed a well encapsulated mass (9.4×7.8 cm) in the right lobe of the liver suggestive of hydatid disease. A Casoni test revealed a strongly positive immediate reaction but no delayed reaction. A C.T. Scan and hepatic angiography were interpreted by a radiologist as almost diagnostic of hydatid disease of the liver.

Tests for α-fetoprotein and Australia antigen were negative.

Progress

While these investigations were being carried out, the patient's condition varied from day to day. At

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It must be ensured that tobacco products marketed in Malta do not contain higher levels of toxic substances than those marketed under the same brand designation in the country of origin.

It will be necessary to regularly revise levels of taxation on tobacco in order to discourage further cigarette consumption.

The rights of the non-smoker should be emphasised by adopting regulations to protect non-smokers from exposure without their consent. Smoke-free areas must be provided or extended in public places and special attention must be given to protect infants, children and pregnant women from contact with persons who are smoking.

All health and most educational facilities should be declared smoke-free areas and mechanisms instituted to enforce these provisions.

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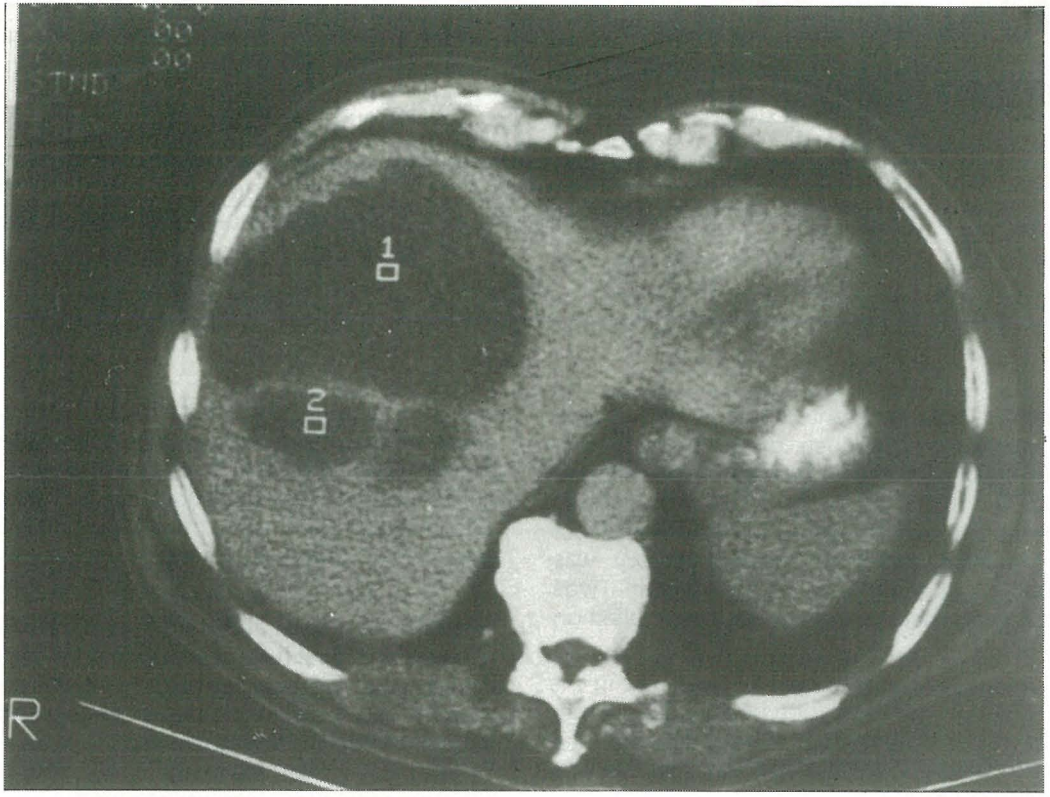

Fig. 1. CT Scan at level of T12

times he felt very well. There were 3-4 day periodsin which the patient developed spikes of temperature (up to 102°F) with rigors and right sided lower chest pain felt mostly on deep inspiration and often radiating to the right shoulder. On physical examination the only positive finding was tenderness on deep palpation in the right subcostal area. The chest remained clear.

Repeated blood and urine cultures were negative as were serological tests for brucella, salmonella and rickettsiae. The white count reached 15.5×10^9/L (with 71% neutrophils). Liver function tests showed mild fluctuations of enzyme levels around the normal values.

After three weeks of variations in the patient's condition a right sided pleural effusion developed with rapid deterioration in the general condition. A laparotomy, previously judged undesirable in the light of the radiological findings, was performed.

Operative Findings

The abdomen was opened through a right paramedian incision. A large intrahepatic collection of pus was found in the right lobe. A search for a primary cause for this liver abscess lead to the discovery of an inflammatory mass with multiple diverticula in the sigmoid colon. The hepatic abscess was drained, the inflammatory sigmoid mass resected and a temporary end-colostomy was performed.

Gram positive cocci including obligate and facultative anaerobes were cultured from the pus drained from the liver. During histological studies on the resected colon, a matchstick was found in one of the diverticula. The microscopic features were typical of diverticular disease with no evidence of malignancy.

Post-operative Progress

The patient's condition improved gradually. The temperature, ESR, LFT's and white blood count returned to normal. He was discharged 20 days after the operation. A re-anastomosis was planned for 3 months after.

Abscesses of the Liver

There are three types of abscesses usually encountered in the liver.

1) Pyogenic Abscesses: The source of infection in these cases is usually either from a bile duct infection with ascending cholangitis or from a pylephlebitis resulting from any infectious process in the abdomen but especially from complicated diverticulitis. Less commonly hepatic abscesses are the result of a generalised septicaemia, a suppurating cholecystitis, penetrating peptic ulcer, subphrenic abscess or as a complication of trauma to the liver. Histologically these abscesses contain areas of hepatic cell necrosis surrounded by a white cell infiltrate. Eventually a fibrous capsule forms around the pus. Antibiotic treatment frequently results in a solid mass of inflammatory cells, dead hepatocytes and fibroblasts and may easily be confused with a tumour.

2) Amoebic Abscesses: This is a complication of amoebic dysentery but a clinical history of intestinal amoebiasis is not always present. Ulceration in the bowel wall allows the protozoa to reach the liver via the portal vein. Most amoebae lodge in the interlobular veins and degenerate while others invade the portal tracts leading to hepatic necrosis and eventually abscess formation. At first the abscess is solid with pus appearing later. This typically resembles anchovy paste. Occasionally amoebic abscesses become secondarily infected with pyogenic bacteria.

3) Hydatid Cysts: The liver is the most common site for these cysts but they may occur practically anywhere in the body. The causative organism is a tapeworm *Echinococcus*, the most common species being *E. granulosus*. The natural life cycle of this parasite involves sheep and dogs. Man is a secondary host and becomes infected by ingesting vegetables or water fouled by dogs or by handling parasite infested dogs. After ingestion the shell of the egg is destroyed by gastric acid and hatching occurs within the duodenum. The liberated embryos migrate through the gut wall, into the mesenteric circulation and lodge within the liver where each embryo is converted into a small vesicle which as it grows establishes a germinative epithelium eventually evolving brood cysts. As with amoebic abscesses secondary bacterial infection may occur in these cysts.

An interesting point about this patient is that the root of his evil was the matchstick found in one of the diverticula. This appeared to have provoked the diverticular complication which spread to the liver and eventually caused the liver abscess. This matchstick must have been swallowed inadvertently with food, possibly even months before. It was a whole, used matchstick found anchored in a diverticulum. The patient did not have the habit of chewing matchsticks.

Prognosis following operation is good. Infact the patient continued to progress well, remained afebrile and had put on weight steadily 3 months after the operation. A foreign body reaction followed by stasis caused by the obstructing matchstick could be enough to start the process which could have had fatal consequences.

It is worthy to note the similarity to Hydatid disease. The patient coming from an endemic area, having a multilocular cystic swelling in the liver and having a positive Casoni Test left very little doubt about the diagnosis of Hydatid disease. In fact the laparotomy was intended to remove surgically the infected part of the liver - the best treatment for hydatid disease of the liver. At laparotomy the abscess of the liver was unlike the classical hydatid abscess and the inflammatory mass involving multiple diverticula and particularly the matchstick in one of the diverticula were certainly unexpected findings.

References:

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