Medical Memoranda

Acute Pneumocholecystitis

Acute pneumocholecystitis has been recorded on 54 occasions in the world literature, but only three times from British sources, the most recent by Ellis (1961). The condition was first described by Stolz (1901) as a fulminating cholecystitis produced by gas-forming organisms, including *Clostridium welchii*. The radiological features have a characteristic appearance and were first described by Hegner (1931).

The purpose of this paper is to document a further case of acute pneumocholecystitis which was diagnosed pre-operatively and which serves to stress the importance of preliminary radiographs in acute abdominal emergencies.

CASE HISTORY

The patient, a known diabetic woman aged 68, was admitted complaining that 54 hours previously she had developed severe pain between her shoulder-blades. She vomited with the pain and continued to vomit until admission. Thirty-six hours prior to entering hospital the pain shifted to the front of the

Plain radiograph showing gas-distended gall-bladder and characteristic intramural gas halo.

abdomen. It was felt mainly on the right side and was constant in character. On the day of admission she had a bowel action which was apparently normal.

For the previous two years she had suffered from indigestion, occurring two hours after meals, relieved by alkalis, and accompanied by a lot of flatulence. She could not tolerate fatty foods. Her diabetes had been treated by diet only.

On examination she was obviously in pain and clinically dehydrated. Her temperature was 99.6° F. (37.55° C.), pulse 100, and blood-pressure 120/80. The urine contained 2% of sugar and acetone ++. Her tongue was dry and brown, and there was a marked fetor. The abdomen was distended; there were no respiratory movements; and generalized guarding and tenderness were present, especially on the right side in the right hypochondrium. Bowel sounds were heard and there was no diminution of liver dullness. No signs of free fluid were found. Per rectum she was tender on the right side. The white-cell count was 12,200/c.mm., mainly polymorphs. The haemoglobin was 18 g./100 ml. The blood sugar was 490 mg./100 ml. and the CO₂-combining power 25 m.Mol./litre.

Straight x-rays of the abdomen revealed a gall-bladder distended with air and emphysema of the wall (see Fig.). A diagnosis of pneumocholecystitis was made.

No toxæmia was present and clostridium antitoxin was withheld. Her dehydration and diabetic state were treated with intravenous fluids and insulin, and she was judged fit for laparotomy 12 hours after admission. At operation there was no generalized peritonitis, and the gall-bladder was walled off by adherent omentum. On separation of the omentum the gall-bladder was seen lying in a cavity containing some grey non-offensive fluid from which a culture was taken which later proved to be sterile. The gall-bladder itself was grossly enlarged; the fundus was gangrenous; subserosal gas bubbles could be plainly seen and a stone was palpable, impacted in Hartmann's pouch. Cholecystectomy was performed and cultures were taken from the inside of the gall-bladder immediately on its removal. The wound was closed with a Shepherd's drain to the gall-bladder bed.

There were no post-operative complications. The patient was treated with intramuscular "achromycin" (tetracycline) for 14 days. The cultures from the interior of the gall-bladder grew a *Clostridium welchii* sensitive to penicillin, streptomycin, and achromycin.

Her diabetes was rapidly controlled with diet only, and she was discharged fit three weeks after operation.

COMMENT

Gas-forming organisms may be present in the biliary tract in symptomless patients (Whipple, 1935). Gordon-Taylor and Whitby (1930, 1932) found *Clostridium welchii* to be present in 18% of surgically removed gall-bladders and in 13% removed at necropsy. In the presence of obstruction either by calculus or oedema of the cystic duct, bacterial invasion of the wall by gas-forming organisms may supervene. The clinical features in the early stages are identical with acute cholecystitis from non-gas-producing organisms. Those cases due to *Clostridium welchii*, if not recognized, may under conservative treatment proceed to perforation, localized abscess formation, or generalized peritonitis with its attendant dangers of *Clostridium welchii* toxæmia and death. Preliminary plain radiographs of the abdomen may give an assured diagnosis.

The radiological features of acute pneumocholecystitis are: (1) air within the gall-bladder and perhaps a fluid level, and (2) air within the wall of the gall-bladder.

Of the 50 cases reported by Edinburgh and Geffen (1958) 12 were diabetic, as was the present case.

In treating this condition antitoxin may be required pre- or post-operatively if toxæmia is present.

We are very grateful to Mr. A. J. Gardham for permission to publish this case.

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