A CASE REPORT OF EMPHYSEMATOUS CHOLECYSTITIS ASSOCIATED WITH PNEUMOBILIA IN A DIABETIC PATIENT

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ABSTRACT

Background: Emphysematous cholecystitis is an uncommon variant of acute cholecystitis that could be life threatening if not promptly diagnosed and managed.

Case report: We report a 65 year old male diabetic who wasadmitted through the surgical emergency unit of Trauma and Surgical Centre, Ondo City on account of eleven day history of right sided upper abdominal pain and vomiting. Investigation showed elevated randomblood glucose of 24mmol/l, glycated hemoglobin of 9.5% , hematocrit of 20% and white blood count of 6,700 cells/mm^3.Abdominal computerized tomography scan showed air in the wall and lumen of gallbladder and common bile duct thereby confirming a diagnosis of emphysematous cholecystitis associated with pneumobilia.He was transfused andtreated with intravenous

antibiotics and insulin. Hethereafter had an emergency open cholecystectomy without any postoperative complication.

Conclusion:This case highlights an unusual presentation of this rare condition and the need for high index of suspicion in order to prevent associated morbidity and mortality.

Keywords: Emphysematous ,Cholecystitis, Diabetes mellitus

INTRODUCTION

Emphysematous cholecystitis (EC) is an acute infection of the gallbladder caused by gas forming organisms in the absence of abnormal connection between the gastrointestinal tract and the biliary tree. It is characterized by the presence of gas in the gall bladder lumen, wall or pericholecystic tissues and was first described by Stolz in 1901.[1] It is a rare variant of acute cholecystitis accounting for about 1% of the total cases. Studies from Nigeria on cholecystectomy showed that EC is very rare.[2,3]Pneumobilia which may result from extension of gas into the common bile duct is considered as an uncommon feature of EC.[4]

EC is associated with high morbidity and mortality of about 25% and 50% respectively due to increased risk gangrene and perforation.[5]Therefore, early diagnosis and aggressive management must be instituted to ensure patient's survival.

We report a 65 year old male diabetic who presented with upper abdominal pain and vomiting of 11 days duration. Computed tomography (CT) scan confirmed the diagnosis of emphysematous cholecystitis associated with pneumobilia. He had emergency cholecystectomy and was successfully managed without postoperative complication.

CASE SUMMARY

We report a 63 year old malewho wasadmitted through the surgical emergency unit of Trauma and Surgical Centre, Ondo City on account of eleven day history of right-sided upper abdominal pain and vomiting. Abdominal pain was sharp and colicky in character, radiating to the epigastrum and relieved on lying in recumbent position. Vomiting was non-projectile and non-bilious. There was no associated fever. He is a known diabetic of 5 years duration who has a history of poor compliance with his medications.

At presentation, he was in painful distress, pale, afebrile, anicteric, not dehydrated with no pedal swelling. His pulse rate was 80 beats per minute, regular, small volume, blood pressure was 110/60 mmHg and heart sounds were normal. Abdominal examination showed tenderness in epigastric region with a positive Murphy's sign. Other examinations were essentially normal.

Investigation Results

Urinalysis showed pH of 8.0, specific gravity of 1.005, glucose (++++), while protein, ketone and blood were negative. Random blood sugar was 24 mmol/l, glycated hemoglobin was 9.5% , Full blood count showed hematocrit of 20%, white blood count of 6,700 cells/mm^3 with 67.7% granulocytes and platelets count of 375,000 cells/mm^3. Electrolyte, urea, creatinine and liver function test were normal except hypoalbuminemia of 23.8g/l.

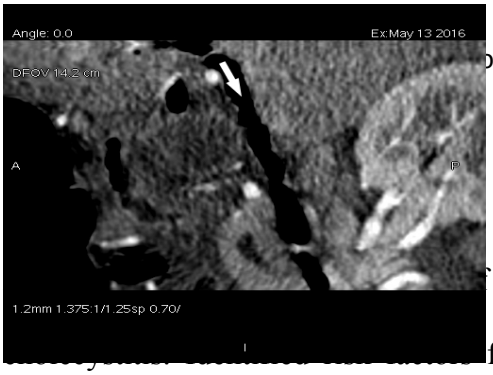
Sonographic examination revealed normal liver with mildly dilated gallbladder measuring 11.8cm in maximal length with thickened walls measuring 6.3mm. Its lumen contained bile which has copious amount of free floating and conglomerate non-shadowing echogenicities. Abdominal CT scan showed that gallbladder was distended with bile and air.[fig1] The wall was mildly thickened measuring 3.9mm with presence of gas bubble.[fig2] There was also air in the

common duct.[fig3] A diagnosis of acute emphysematous cholecystitis associated with pneumobilia in a diabetic with poor glycemic control was made. He was managed by both surgical and medical teams.

He was treated with intravenous fluids, cefuroxime, metronidazole and insulin. He subsequently received blood transfusion and had emergency open cholecystectomy. Intraoperative findings were adhesions around the gallbladder with omentum wrapped around it and the Calot's triangle. The gallbladder was distended, thickened, inflammed and fibrotic. Gallbladder aspirate culture yielded growth of *Klebsiella specie*.He had an uneventful postoperative recovery and was discharged home.

Figure 1: Abdominal CT scan showing air within the gallbladder lumen

Figure 2: Abdominal CT scan showing air within the wall of the gallbladder



rmat) scan showing air within common bile duct

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for EC in this patient were diabetes mellitus with poor glycemic control, old age and male gender which is similar to previous reports.[5,6]The pathophysiology of EC is not well understood, however established mechanisms are vascular compromise of cystic artery from embolism or atherosclerosis, impaction of stones in the cystic duct and impaired immunity.

The common clinical features of EC are fever, abdominal pain, vomiting, tachycardia, leukocytosis and positive Murphy's sign which is similar to features of acute cholecystitis, hence diagnosis may be difficult to make clinically. Fever, tachycardia and leukocytosis which are common features of infection were surprisingly absent in this patient. Absence of fever and leukocytosis have also been reported to be absent in few patients with EC.[6,7]The absence of systemic inflammatory response and normal white cell count may be due to impaired immunity in this patient who had poor glycemic control as reflected

by a glycated hemoglobin of 9.5%. Decreased mobilization of polymorphonuclear leukocytes, impaired chemotaxis and phagocytosis, reduced production of interleukin 1, 6 and tumour necrosis factors are contributory factors to impaired immunity in diabetics; especially those who have poor glycemic control.[8] *Clostridium perfringes* and *Escherichia coli* are the most common gas forming organisms implicated in EC [5,9] however, *Klebsiella specie* was the causative organism in this patient.

Abdominal computed tomography scan of this patient showed presence of gas within the gallbladder and common bile duct, therefore confirming the diagnosis of EC with associated pneumobilia. This is the imaging modality of choice in the diagnosis of ECas it has the highest sensitivity and specificity for identifying gas in gallbladder lumen in EC compared to other radiological investigations.[6,10]

This patient had pneumobilia which is uncommon in EC and may result from escape of gas from the gallbladder through the cystic duct into the biliary tract. EC usually results from spontaneous internal biliary fistula or incompetent sphincter of Oddi.

The aim of treatment is to correct dehydration and electrolytes abnormalities, ensure glycemic and infection control using broad spectrum antibiotics and emergency cholecystectomy. This involves the collaborative efforts between medical and surgical teams as deployed in the management of this patient. Prompt diagnosis and management as seen in this patient is important in reducing mortality which may be as high as 50%.[5]

In conclusion, this case highlights an unusual presentation of this rare condition and the need for high index of suspicion in order to prevent associated morbidity and mortality.

Conflict of interest: None

Financial Interest: None

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