

Abdominal CT Findings of  
Cholecystogastric FistulaHusam Vehbi<sup>1\*</sup> and Cagri Agirgun<sup>2</sup><sup>1</sup>Department of Radiology, Istanbul Medipol University Hospital, Turkey<sup>2</sup>Department of Radiology, Bartın Government Hospital, Turkey

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## Abstract

Enteric fistulas are abnormal connections between the gastrointestinal tract and other organs, chest or skin. Fistulas between the gall bladder and the gastrointestinal system are common [1]. Cholecystoduodenal and cholecystocolic fistulas are seen frequently while cholecystogastric ones are rare [2]. In our case, we accidentally discovered a cholecystogastric fistula in a 71 years old male patient with gastric adenocarcinoma in orally and intravenous contrast enhanced abdomen CT.

## Introduction

Cholecystoenteric fistulas involve cholecystogastric, cholecystoduodenal, and cholecystocolonic fistulas [1-3]. Cholecystographic fistulas are the rarest among them which is a life-threatening condition when it occurs in elderly patient [1]. These types of fistula are usually caused by chronic cholecystitis and cholelithiasis. The necrotic inflamed wall of the stone containing gall bladder penetrates into the neighbour lumen of the duodenum; colon and stomach. Obstruction of outflow of bile through the common bile duct causing increasing in bladder pressure causing mucosal ulcerations another cause of fistula. Few cases had been reported about cholecystogastric fistulas so far. In our case oral and IV, contrast-enhanced CT showed a fistulous tract communicating the gall bladder and gastric pylorus.

The Computed Tomography (CT) shows this fistula and their complications.

## Case Report

A 71 years old male patient referred to our hospital with weight loss; indigestion; epigastric pain; nausea and vomiting. The physical examination revealed epigastric and peri-umbilical tenderness. The complete blood count was normal. Tumor markers test showed an increase in CA 19-9; CA 72-4 and CEA. Liver enzymes were increased too. An upper gastrointestinal tract endoscopy showed a necrotic exudative mass in the pylorus and the antrum of the stomach. The histopathological examination showed a gastric adenocarcinoma. US examination of the abdomen discovered a hydropic gallbladder with 11 mm thickened wall and dilation in the intra-hepatic bile ducts.

Orally and IV enhanced Abdomen CT showed an inflamed gall bladder adhering to the necrotic pyloric mass of the stomach with passage of the orally taken contrast from the stomach to the gallbladder through a cholecystogastric fistula (Figures 1A-1C). The tumor invading the portal hilus with ill-defined borders from the head of the pancreas with intrahepatic bile ducts dilatation. Total gastrectomy and cholecystectomy were done. Total gasteoectomy and cholecystectomy were performed. The patient had a rapid recovery and was discharged to complete chemotherapy treatment later.

## Discussion

Gastrointestinal fistulas are abnormal connection between the gut and epithelial lined surface. They may be congenital or acquired. Acquired ones are categorized as internal and external. They are named with respect to the communicating organs [1]. The cholecystogastric fistulas are rare compared to cholecystoduodenal and cholecystocolic fistulas [3,4]. Most of these fistulas are caused by cholecystitis, however, trauma; Crohn's disease; ulcerative colitis; peptic ulcer gastrointestinal tract and pancreas malignancies are among the causes [1].

Neimeier (1934) first proposed a classification of gallbladder perforation into three categories: to the peritoneal cavity (type I); into the gallbladder bed (type II); into the adjacent hollow organ causing fistulas (type III) [5]. Mirizzi syndrome is a rare complication of cholelithiasis that may cause cholecystoenteric fistulae [6]. RF ablation of the liver lesion may cause biliary gastric fistula too [7].



**Figure 1:** Oral and IV contrast enhanced CT scan showing a thickened stomach wall with intrahepatic bile ducts dilatation (A);(B); (C)coronal reformatted CT image showing passage of the orally ingested contrast from stomach to gall bladder demonstrating a cholecystogastric fistula (white arrow) (A-C) .

Diagnosis of these fistulas is very important and challenging for the surgeon since clinical signs and symptoms are not specific and unclear [4]. Patients may suffer from dyspepsia; abdominal pain; malabsorption melena and diarrhea. In patients with chronic cholecystitis, a symptoms free period followed by recurrence of these symptoms suggests fistula [8].

If the cholecystitis is caused by gallstone it may pass into the stomach leading to an intermittent pyloric stenosis and intestinal obstruction. Obstruction is mostly at terminal ileum. Rarely patient may vomit stones that passed from the bladder to stomach through the fistula [9]. Cholangitis; peritonitis; cholecystitis intestinal obstruction gastrointestinal hemorrhage and malignancy are important complications of these fistulae [9,10].

These types of fistula were associated with high mortality in the past and now are diagnosed and treated successfully due to the advance in diagnostic, endoscopic modalities and surgical intervention [4].

Abdominal plain film; USG; barium studies; biliary scintigraphy; and ERCP are used for diagnosis. Transhepatic cholangiography and MRCP may play a role in diagnosis as well. Plain films and barium studies show gas and barium in the gall bladder and the biliary tree [2].

The radiologic findings as mentioned by Rigler; visualisation of a calculus outside the gallbladder; air or contrast media in the biliary tree and change of position of the previously observed calculus especially if these findings are associated with an intestinal obstruction [10].

In our case, intravenous and oral contrast-enhanced abdominal CT showed the passages of contrast from the stomach to the inflamed bladder demonstrating a fistula. The invasion of the portal hilus by carcinoma caused obstruction of the bile flow and formation of a fistula due to necrosis of both stomachs and the gallbladder walls.

It's the first case in the literature showing cholecystogastric fistula by orally contrast-enhanced abdomen CT (Figure 1A-1C).

CT scanning allows identification as well as guided drainage of associated abscesses or fluid collection. CT scanning with oral

contrast can also identify the site of the fistula. Gastric, duodenal, and proximal small bowel fistulas can be readily identified. The presence or absence of distal bowel obstruction can be revealed; if intraluminal contrast passes distal to the fistula site, then distal obstruction is unlikely. Passage of the oral contrast, as well as the early presence of contrast within the gallbladder, is diagnostic for cholecystogastric fistula. CT may show fistulas and its complications, but yet it's not the first imaging technique. Knowing the underlying cause of the fistula plays an important role in treatment. Symptomatic cases are treated by cholecystectomy and closure of the fistula.

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