

# Chilaiditi's syndrome with pancreatic malignancy

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## ABSTRACT

Hepatodiaphragmatic interposition of the intestine is a rare anomaly. It was first described by Demetrius Chilaiditi. This disorder may be associated with a variety of disorders. Though it is frequently asymptomatic with incidental radiographic sign Chilaiditi's syndrome may combine with imperative clinical problems requiring surgical treatment. Some symptoms mimicking the one occurred in pancreatic malignancy which was defined in this report may be the presenting finding in the aged patient with this syndrome. Even though Chilaiditi's syndrome is not listed among causes of pancreatic cancer, we present the first known report in the literature about the Chilaiditi's syndrome associated with pancreatic malignancy. [Turk J Cancer 2007;37(3):117-119]

## KEY WORDS:

Chilaiditi's syndrome, subdiaphragmatic colonic interposition, pancreatic carcinoma

## INTRODUCTION

Chilaiditi's syndrome known as the interposition of the intestine between liver and right diaphragm (Hepatodiaphragmatic interposition, HDI) is a rare entity. It is frequently experienced in aged people, particularly in men. The incidence in the general population ranges from 0.025 to 0.28). An increased prevalence in elderly suggests that the disease is an acquired condition. Chilaiditi's syndrome is usually asymptomatic. In a clinical condition this disorder can be encountered with an incidental radiographic entity. However several cases with acute pain in right upper abdomen which was misdiagnosed with subphrenic abscess and/or pneumoperitoneum were reported (1-3). In English literature, several clinical conditions associated with the Chilaiditi's syndrome including colonic and gastric cancer, colonic volvulus and obesity were reported (2-7). No literature data exists regarding the association of the Chilaiditi's syndrome along with pancreatic malignancy. In this report the coexistence of the Chilaiditi's syndrome with pancreatic cancer was evaluated.

## PATIENTS AND METHODS

During the retrospective analysis of the database of the Department of General Surgery from 1985 to 2002 4 cases of Chilaiditi's syndrome (3 male and 1 female) have been revealed. The patients all had abdominal pain, digestive complaints such as bloating, flatulence, obstructive jaundice and significant weight loss. The patients were all classified as ASA III in relation to ASA classification. Chilaiditi's syndrome was detected incidentally throughout the evaluation of patients for possible causative reason of

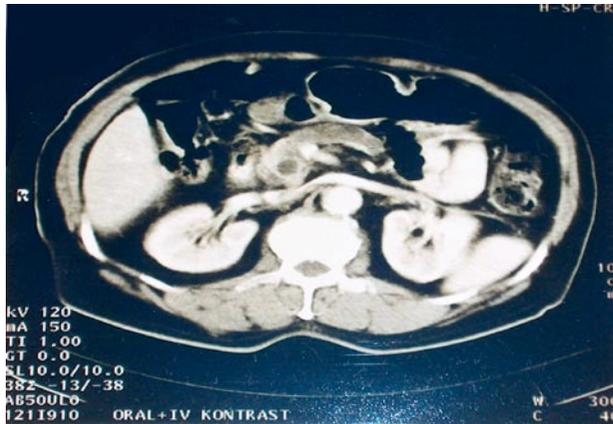


Fig 1. CT feature of the pancreatic mass and HDI

jaundice by abdominal computed tomography (CT). Plain X-rays also revealed remarkably dilated colonic loops with air-fluid levels locating transversally below the diaphragm extending up to the right (Figures 1 and 2). In all patients a pancreatic mass causing to jaundice was found on the CT. Preoperative fine needle aspiration cytology of the mass revealed an adenocarcinoma of the pancreas. Gastroduodenopancreatectomy (Whipple's procedure) was performed in three patients. Hepaticojejunostomy + T tube bile diversion was made in the remaining one due to the mass invaded to portal vasculatures and adjacent tissues with proved lymphatic invasion. During the surgery of these patients hepatodiaphragmatic interposition of the proximal transverse colon was detected. Hepatopexy was performed by suturing the falciforme ligament on the anterior margin of liver up to the diaphragm to prevent further interposition of the colon. One of the patients undergoing Whipple procedure died on postoperative 3<sup>rd</sup> day. The patient undergoing hepaticojejunostomy also

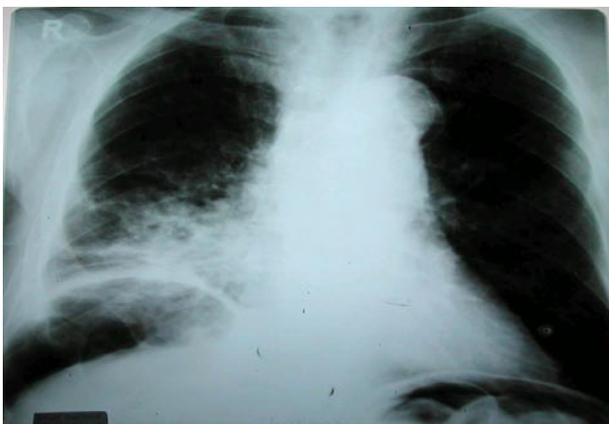


Fig 2. Plain roentgenogram of the chest shows hepatodiaphragmatic interposition of the colon; elevation of the right hemidiaphragm and distended, fixed interposed colon

died three months after surgery owing to the complications of the unresolved jaundice. The remaining two patients with Whipple procedure have been still doing well in follow up.

## DISCUSSION

Hepatodiaphragmatic interposition of the bowel is frequently an asymptomatic and rare clinical condition which remains as an undiagnosed entity during whole life time. In a period of time when the literature was reviewed, we have found 110 articles reporting approximately 150 cases of Chilaiditi's syndrome since 1965. Most of them associated with various disorders including the colonic volvulus, supra-hepatic appendicitis, scleroderma, congenital hypothyroidism, melanosis coli, salmonellosis and obesity, which seem to be reasonably related or without clear relationship to the disease. Also there were a few articles about Chilaiditi's syndrome associated with mammary, colonic, gastric and pulmonary malignancies (2-4, 8).

Although frequently an asymptomatic clinical event Chilaiditi's syndrome combine with symptoms such as abdominal pain, nausea, vomiting, distention, flatulence, substernal pain, incomplete intestinal obstruction, and the condition consisting with cardiac arrhythmias and even difficult respiration (7,9). In plain X-ray of the chest, the appearance of air collection marking with haustral signs in the subdiaphragmatic area gives a strong hint to diagnose. However subdiaphragmatic abscess show characteristics similar to the hepatodiaphragmatic interposition of the colon. If doubts still remain after plain X-ray of the chest CT combined with radio contrast media will be suggested to make a certain diagnosis (10). If diagnosed in first step required treatment is usually a conservative one with bed-rest and nasogastric decompression. When the symptoms give a processing course to acute intestinal obstruction, surgical treatment then can be a requisite (11). In addition, a few articles about colonic volvulus with Chilaiditi's syndrome were found in literature (10,12,13). One case was about gastric volvulus and the other was about recurrent colonic volvulus (2,14).

Some intestinal, diaphragmatic and hepatic factors induce progression of Chilaiditi's syndrome. Absence of peritoneal attachments and redundant colon with a long mesentery, abnormal colonic motility are the intestinal factors. A possible diaphragmatic factor is the location of abnormal upright position of diaphragm due to muscular

degeneration of phrenic nerve injury. Hepatic factors incorporate small liver (cirrhosis), relaxation of suspensor ligaments.

In our four cases of Chilaiditi's syndrome, we realized the colonic elongation and indulgent suspensory ligament of the colon as predisposing factors. But we could not

find any relationship between the factors and pancreatic malignancy. The accompaniment of the pancreatic cancer with the Chilaiditi's syndrome in those cases may possibly be coincidental, but the similar dyspeptic symptoms of each disease especially in the early stage of pancreatic cancer may mimic each other.

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