



CASE REPORT

HIATAL HERNIA AND ACUTE PANCREATITIS

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ARTICLE INFO

Article History:

Received 14th January, 2018

Received in revised form

28th February, 2018

Accepted 20th March, 2018

Published online 30th April, 2018

Key words:

Pancreatitis, hiatal hernia, herniation.

ABSTRACT

The hiatus hernia is defined by the permanent or intermittent protrusion of elements of the abdominal cavity into the chest through the diaphragmatic esophageal hiatus. The migration of the stomach may be accompanied by various other abdominal organs such as colon, splenic flexure, small intestine, omentum, pancreas. Although the majority of hiatal hernias are asymptomatic and incidentally discovered, life-threatening complications may occur. Pancreatitis is one of the complications. Its pathogenesis results from the obstruction of the distal pancreatic duct after the sliding of the pancreas into the thorax. In general asymptomatic hernia are treated supportively and symptomatic hernia are treated surgically according to the recommendations. We describe a case of 24 year old symptomatic patient who was admitted with acute pancreatitis secondary to a massive incarcerated paraoesophageal hernia with pancreatic herniation. Following laparotomy and adequate therapy, she has recovered and has been discharged.

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Citation: Elias Makhoul, Joe El Mir, Tania Loutfi and YaraAssaf, 2018. "Hiatal hernia and acute pancreatitis", *International Journal of Current Research*, 10, (04), 68298-68300.

INTRODUCTION

Diaphragmatic hernias have a wide spectrum of presentation according to the position of the gastroesophageal junction and the herniated stomach (Boyce *et al.*, 2014). It can vary from sliding hiatus hernia (type I) which is the most common and generally asymptomatic type (Shieman and Grondin, 2009) to paraoesophageal hernia (type IV) which is rare (Shieman and Grondin, 2009; Mitiek and Andrade, 2010; Awais and Luketich, 2009). Paraoesophageal hernia resulting from large defects in the diaphragmatic membrane can become larger with time (Boyce *et al.*, 2014). Elective surgical repair, traditionally, is the best recommended approach when the patient is symptomatic (Chevallier *et al.*, 2001). We describe the case of 24 year-old symptomatic woman who was found to have type IV paraoesophageal hernia with herniation of the stomach, the omentum, the body and the tail of the pancreas and the duodenum and who has presented acute pancreatitis secondary to this phenomenon.

Case report

A 24-year-old woman without past medical history, was admitted for abdominal pain associated with multiple episodes of vomiting that started one day before admission.

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On clinical exam she had normal blood pressure, HR of 100 /min, 38.8C temperature, with soft abdomen and mild epigastric pain. The rest of the physical exam was unremarkable. Blood exams showed elevated white blood cells 15000U/L with 85 % of neutrophils, SGOT 75 U/L and lipase 3000 U/L. CT scan of chest/abdomen/pelvis with contrast showed a large hiatal hernia containing the stomach and the pancreas with peripancreatic fluid associated with acute pancreatitis without evidence of necrosis and a normal gallbladder (Fig:1). Esophagogastroduodenoscopy was done few days after admission and confirmed the presence of a big hiatal hernia. A surgery was performed after the resolution of the acute pancreatitis. During laparotomy, the stomach, duodenum and the pancreas were mobilized from the hiatal hernia. The diaphragmatic defect was repaired. No complications were noted post-surgery and the patient was discharged after two weeks.

DISCUSSION

Transhiatal herniation is the migration of the stomach into the thoracic cavity (Wang *et al.*, 2017). Sex and age are risk factors (Wang *et al.*, 2017; Jäger *et al.*, 2013; Patel *et al.*, 2016). It is more common in women (Patel *et al.*, 2016). The etiology of hiatal hernia may remain unknown in most patients (Patel *et al.*, 2016). Congenital weakness or large hiatus and any cause that induce an increased pressure in the intraabdominal cavity such as coughing, pregnancy, delivery, ascites, obesity may contribute to the pathogenesis of this condition (Patel *et al.*, 2016).

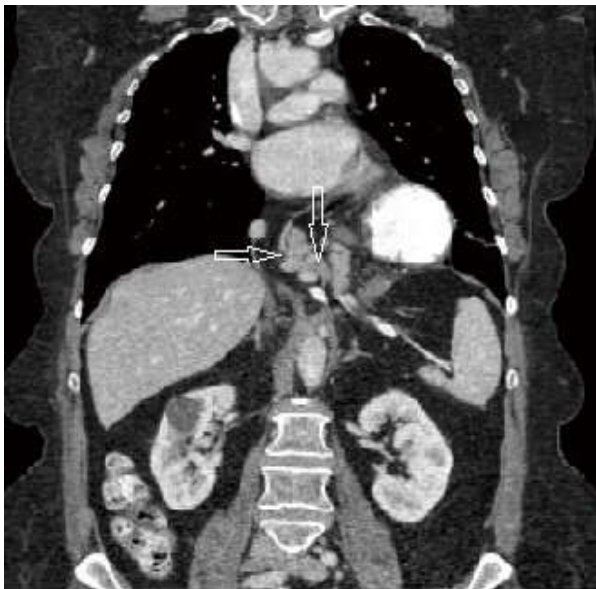


Figure 1. An intrathoracic herniation of the stomach and pancreas through the hiatus

Iatrogenic or traumatic hernias are rare (Patel *et al.*, 2016). Western countries have higher incidence of hiatal hernia because of the fiber-depleted diet. In fact, it leads to a chronic constipation and straining during the defecation (Patel *et al.*, 2016; Burkitt and James, 1973). Type IV paraesophageal hiatal hernia involving defects in the phrenoesophageal membrane allows other intraabdominal organs to herniate into the chest. The most commonly involved organs are the colon, small bowel, and omentum (Boyce *et al.*, 2014; Shieman and Grondin, 2009). When 30% of the stomach herniates into the chest the hernia is considered large (Patel *et al.*, 2016). Pancreatic herniation in type IV hiatal hernia is extremely rare and can compromise the viability and function of the herniated organs (<http://www.sages.org/meetings/annual-meeting/abstracts-archive/giant-hiatal-hernia-with-pancreatic-prolapse-report-of-a-case/>; Cuschieri and Wilson, 1981; Kafka *et al.*, 1994; Lu *et al.*, 2015).

Hiatal hernia is a frequent finding in upper gastrointestinal endoscopy (Loffeld and Van der Putten, 2002). In contrast, transhiatal herniation of the pancreas is rare because the pancreas is located in the retroperitoneum (Chevallier *et al.*, 2001). It maintains his location and anatomic contiguity with peritoneal organs in the abdomen due to its close relationship with peritoneal reflections and ligaments (Wang *et al.*, 2017; Patel *et al.*, 2016). The fixation of the pancreas is maintained by the suspensory *ligament* of the duodenum also known as ligament of Treitz which limits his movement and herniation (Chevallier *et al.*, 2001; Wang *et al.*, 2017). Once the transverse mesocolon is overly stretched it leads to increased laxity of the posterior adhering fascia hence mobilization of pancreas (Patel *et al.*, 2016). Many complications may occur: bleeding episodes due to esophagitis, ulcers, anemia, occlusion, volvulus and even perforation (Mitiek and Andrade, 2010; Patel *et al.*, 2016; Rade and Lefevre, 2012). It's important to note that herniation of the pancreas without pancreatitis has also been described (Rade and Lefevre, 2012; Gremmels *et al.*, 2003; Katz *et al.*, 2002). 16 cases were described in the literature in the period of 1958 to 2017 and only 7 cases with acute pancreatitis were reported (Wang *et al.*, 2017). Many hypotheses explaining the pancreatitis in such herniation are proposed:

Parenchymal repetitive micro trauma from transhiatal sliding, intermittent stretching and traction of the vascular pedicle, volvulus or folding of the pancreatic duct and intraductal hypertension resulting in inflammation, incarceration and anoxic injury (Chevallier *et al.*, 2001; Kafka *et al.*, 1994; Rozas and González, 2010). Inflammatory changes suggestive of pancreatitis include presence of peripancreatic fluid and mesenteric stranding. (Oliver *et al.*, 1990; Bawahab *et al.*, 2009; Khanna and Finch, 2011). Patients may remain asymptomatic (Katz *et al.*, 2002) or complain of symptoms such as: nausea, vomiting, dyspnea, cough, epigastric or chest pain, dyspepsia and symptoms of mechanical cholestasis such as jaundice, pruritis and diarrhea (Wang *et al.*, 2017; Jäger *et al.*, 2013). Laboratory exams and computed tomography of chest, abdomen and pelvis where necessary to confirm the diagnosis.

The use of manometry and ambulatory pH testing does not influence the management and therapeutic approach (Bawahab *et al.*, 2009; Khanna and Finch, 2011). Management of acute pancreatitis secondary to pancreatic herniation is not well established because of limited cases (Wang *et al.*, 2017; Patel *et al.*, 2016). Generally supportive treatment is indicated for asymptomatic patients and surgical correction is reserved for symptomatic younger patients with low perioperative risk (Chevallier *et al.*, 2001; Wang *et al.*, 2017; Patel *et al.*, 2016; <http://www.sages.org/meetings/annual-meeting/abstracts-archive/giant-hiatal-hernia-with-pancreatic-prolapse-report-of-a-case/>). Many approaches are available: transthoracic, transabdominal, and laparoscopic (Patel *et al.*, 2016). Serious sequelae resulting from hiatal hernia type IV may occur and it's recommended to surgically repair all type IV hiatal hernia after the diagnosis. Choosing a conservative approach may also be underlined by the fact that the rate of recurrence is low and affected patients are mostly old and tend to have many comorbidities.

The therapeutic decision should be taken on a case by case basis (Wang *et al.*, 2017; Patel *et al.*, 2016). The purpose of surgery is to reduce the hernia and its contents into the subdiaphragmatic position without tension, then to excise the hernia sac, closure of the defect and finally an antireflux procedure (Bawahab *et al.*, 2009). The surgery, if delayed, may become more difficult because of advanced age and increased size of hernia (Boyce *et al.*, 2014; Burkitt and James, 1973). Elective repair is the preferred approach to treat type IV hernias to prevent the development of serious complications in the future (Boyce *et al.*, 2014; Patel *et al.*, 2016). If the hernia is fixed emergently the surgery burden may induce a higher mortality rate (Boyce *et al.*, 2014). Our patient has been evaluated with laboratory tests, computed tomography of chest, abdomen and pelvis and esophagogastroduodenoscopy. Despite the exclusion of all aetiological factors, establishing the sole mechanism of pancreatitis in pancreatic herniation remain challenging as any condition obstructing the pancreatic ducts can lead to acute pancreatitis. After medical treatment of the acute pancreatitis, the patient was successfully treated with a surgical repair of her paraesophageal hernia.

Conclusion

Large hiatal hernias with herniation of the pancreas are an uncommon condition. Acute pancreatitis is a rare complication of this pathology. Pancreatitis should be considered in patients with unexplainable abdominal and or chest pain associated with a large hiatal hernia.

Biology and CT scan must be performed to establish the diagnosis. After medical treatment of the acute pancreatitis, elective surgery is the treatment of choice for pancreatic herniation.

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