

uremia, hypothyroidism, trauma, cardiac surgery, or other inflammatory/noninflammatory conditions².

A relationship between hypothyroidism and lipid abnormalities was described in the previous studies³. Therefore, hypothyroidism should be included in the differential diagnosis of unexplained pericardial effusion, especially combined with lipid abnormalities. Early tests for thyroid function are essential for the diagnosis.

Anti-thyroid peroxidase (anti-TPO) antibodies are specific for the TPO, a 105kDa glycoprotein that catalyses iodine oxidation and thyroglobulin tyrosyl iodination reactions in the thyroid gland⁴. Anti-TPO antibodies are the most common anti-thyroid autoantibody, present in approximately 90% of Hashimoto's Thyroiditis, 75% of Graves' Disease and 10-20% of nodular goitre or thyroid carcinoma⁵.

The comorbidity as shown in previous studies of the hypothyroidism and pericardial effusion, Hypothyroidism-associated pericardial effusion is sometimes massive but it rarely causes cardiac tamponade⁶.

The mechanisms of myxedematous pericardial effusion are the increased permeability of capillaries with subsequent leakage of fluid rich in protein into the interstitial space, impaired lymphatic drainage and salt and water retention. Early recognition of myxedematous pericardial effusion is important as it responds dramatically to thyroid hormone replacement and pericardiocentesis can be avoided. Patients should be followed up closely at an extended period for clinical

response because myxedematous pericardial effusion usually regressed slowly after patient was reverted to euthyroid status.

CONCLUSION

In conclusion, in hypothyroidism causing moderately large to large pericardial effusions and cautiously treated with levothyroxine, provided there no clinical signs of elevated venous pressure or pulsus paradoxus suggesting cardiac tamponade will resolve along with lipid abnormalities. However close follow up is need till euthyroid state is reached as the resolution is slow in some reported cases.

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ERCP - induced Duodenal Injury: A Rare Case Report.

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Abstract: Duodenal perforations during endoscopic retrograde cholangiopancreatography (ERCP) and stenting are rare complications, with an incidence below 2%. Traditionally, the standard treatment for traumatic or iatrogenic duodenal perforation is early surgical repair. A case of a 61 year old lady with obstructive jaundice who developed an ERCP induced duodenal injury which was managed surgically is presented. Diagnosis and management of the condition is discussed.

INTRODUCTION

Perforations during ERCP and stenting or due to migration of stents are rare complications, with an incidence of well below 2%. Moreover, direct duodenoscope-induced lateral or medial duodenal wall perforation is much less common, accounting for 0.1% of patients who undergo ERCP, but tends to be large and further away from the ampulla.¹⁻⁶ Duodenal perforations may be complicated by leakage of digestive enzymes from the pancreas, which may severely damage other organs, as a result duodenal wall perforation is one of the most feared complications of ERCP. The standard treatment for traumatic or iatrogenic duodenal perforation is early surgical closure because of a relatively high mortality rate of 16%-18%.¹⁻⁴

For patients with advanced patient age and/ or co-morbidities which may preclude surgical treatment, successful endoscopic repair of duodenal perforation has been reported.¹⁻⁵ However the best therapeutic option of these complications still remains a matter of debate.

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CASE REPORT

A 61 year old lady presented with 1 month's history of obstructive jaundice. She was found to have a dilated common bile duct (CBD) and elevated bilirubin levels. ERCP and extraction of large calculus from the CBD was done following which she complained of epigastric pain, vomiting and epigastric tenderness with an x-ray chest which showed copious free air under the right hemi diaphragm. A surgical consultation was taken and patient was posted for exploratory laparotomy with a provisional diagnosis of iatrogenic duodenal perforation. Intraoperative findings revealed an approximately 1.5 x 1.5 cm perforation in the 4th part of duodenum at ligament of Treitz with a tear at the root of mesentery adjacent to the perforated segment (Fig : 1). Bile was seen leaking through the perforation. Trapped air noted in the retro peritoneum around 2nd part of duodenum, mesocolon and omentum. Primary repair of the duodenal perforation with feeding jejunostomy and positioning of the nasogastric tube into the 3rd part of duodenum to divert the bile was done.



Figure 1 : Intraoperative photograph showing duodenal perforation.

DISCUSSION

The standard treatment for traumatic or iatrogenic duodenal

perforation is early surgical intervention because of a relative 16%-18% mortality rate.¹⁻⁴

Several researchers have classified ERCP-related perforations according to injury location or mechanism and have proposed treatment recommendations. Stapfer et al.¹ classified perforations into four types, in decreasing order of severity, with implications for management. Type I perforations are perforations of the lateral or medial wall of the duodenum with large size and remote from the ampulla, and are caused by the endoscope itself or by the stent. These perforations cause considerable spillage, either retroperitoneally or intraperitoneally, necessitating aggressive surgical intervention as seen in our case. Type II perforations are perforations of the medial wall of the duodenum, peri-Vaterian, are generally retroperitoneal, and are caused during sphincterotomies. These tend to lend themselves to conservative or minimally invasive management. Type III injuries are distal bile duct injuries caused by instrumentation and/or stenting in the proximity of an obstruction. These perforations are small and amenable to conservative management. Type IV perforations are tiny retroperitoneal perforations caused by the use of compressed air during endoscopy and can be managed conservatively. Howard et al.² classified perforations into three types according to the mechanism of injury. Group I refers to guide wire-induced perforations, group II to periampullary, and group III to duodenal perforations. Group III needs immediate surgery. Enns et al.³ classified into three categories, esophageal, gastric, and duodenal perforation which need surgical management. Sphincterotomy related perforation or guide wire-related perforation mostly needs conservative management.

The classic presentation of duodenal perforation, with severe epigastric pain, vomiting, and epigastric tenderness progressing to generalized board-like rigidity, is only seen in a minority of cases. The symptoms and signs of ERCP-related perforations are often mild when this complication is recognized early.^{1,7-9}

Type I [lateral or medial wall duodenal perforation; Stapfer et al.¹] or Group III [duodenal perforation remote from the papilla; Howard et al.²] injuries are usually large and traditionally require immediate surgical repair. In a study by Stapfer et al.¹ surgery was recommended for patients with the following criteria: large contrast extravasation on ERCP/Upper gastrointestinal endoscopy, contrast-enhanced CT scans showing intra- or retroperitoneal fluid collection, massive subcutaneous emphysema or suspected perforation in association

with retained material (i.e. stones, ERCP wire/basket).

However, recently, trials of endoscopic management have been performed and suggested.¹⁰⁻¹³

CONCLUSION

Traditionally, the standard treatment for traumatic or iatrogenic duodenal perforation is surgical closure. Recently, endoscopic trials of perforation management have increased and successful primary repair of duodenal perforation using the endoscope itself has been reported. However, there is no clear consensus for primary repair due to the limited number of cases seen. Although the surgical operation remains the standard treatment for duodenal perforation, several reports support the use of endoscopic closure of the perforation for selected cases of the injury caused by the endoscope itself. Endoscopic treatment may replace the role of surgical management in near future.

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