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Duodenal duplication cyst extending into the posterior mediastinum

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ABSTRACT

INTRODUCTION: Duodenal duplication is a rare congenital malformation. Although more frequent in childhood, it is rarely observed in adulthood. Preoperative diagnosis can be difficult.
PRESENTATION OF CASE: We report a case of 42 year-old woman with duodenal duplication cyst situated in the posterior mediastinum, who was misdiagnosed even after a primary surgery. Detailed diagnostic workup and a second operation was done.
DISCUSSION: This article discusses the incidence of duodenal duplications, their types and clinical presentations, the radiologic and diagnostic features with different therapeutic options.
CONCLUSION: Duodenal and the other intestinal duplication cysts should be considered in the differential diagnosis of oral contrast enhanced intrathoracic lesions in thorocoabdominal computerised tomography imaging.

1. Introduction

Duplications of duodenum are rare congenital malformations observed 1 out of 100,000 deliveries, representing only 2–12% of gastrointestinal tract (GIT) duplications [1,2]. These abnormalities are usually diagnosed in infancy and childhood. In rare cases, they remain asymptomatic until adulthood, and 38% of patients are diagnosed after age of 20 [3]. Although duplication cysts can be seen at any level of alimentary tract from mouth to anus, with varying types,shapes and sizes; they mostly appear in distal ileum, followed by the esophagus, colon and jejunum [2,4,5]. They are usually located in the second or the third parts of duodenum, communicating with duodenal lumen in 25% of cases [6,7]. However, any cases of duodenal duplication cysts extending into the posterior mediastinum were not reported in the literature.

Because the lesion is rare and symptoms are nonspecific, duodenal duplications can represent a diagnostic challenge. Treatment is mainly surgical and total excision, if possible, is the procedure of choice. Because of extensive size or critical location, alternative procedures such as subtotal removal or digestive derivations are required [1,3,8].

In this article, we report an incidentally diagnosed duodenal duplication cyst placed in the posterior mediastinum in a 42 year-old woman. The diagnosis was confirmed by operative findings and subsequent histopathologic examinations. So we reviewed the literature by the way of this rare and complicated case.

2. Presentation of case

42 year-old female patient had right upper abdomen and thoracic pain with no other associated symptoms since the age of 7. Her pain was not related with eating in the earlier. In the last 15 years, the patient had daily pain, specially after eating and the pain was localised to the right upper abdomen,around stomach, right half of the back and specially in the right thoracic cage with nausea, vomiting and burping with bad odor. She had a weight loss of 10 kg because of eating fear in the last 3 months.

She had been hospitalised several times since the age of 7; but she had no accurate diagnosis and she had been treated symptomatically until 42 years old. Recently, a contrast enhanced thoracoabdominal computerised tomography (CT) demonstrated that intestines were placed in thoracic cavity so diaphragmatic hernia was thought. In the middle of the diaphragm, there was a defective area of 2.5 cm in diameter between the aorta and inferior vena cava, jejunal segments were herniated into the thoracic cavity from this defected area and compressed the esophagus.

According to another radiologist: Proximal duodenum was dilated and the other parts of duodenum were herniated into the posterior mediastinum. (Picture 1) Also there were other remarkable findings that lower cervical and upper thoracic 1st, 2nd, 3rd vertebrae were seen as hemivertebrae creating a vertebral block, and cecum was not in normal position, it was seen in hepatic flexura region.

Stomach and duodenum graphy: An intestinal segment of 16×5 cm in dimensions extending to thoracic cavity from the midline of abdomen was compatible with diaphragmatic hernia. Also duodenum 3rd and 4th parts were located laterally in an opposite direction according to normal location (Picture 2).

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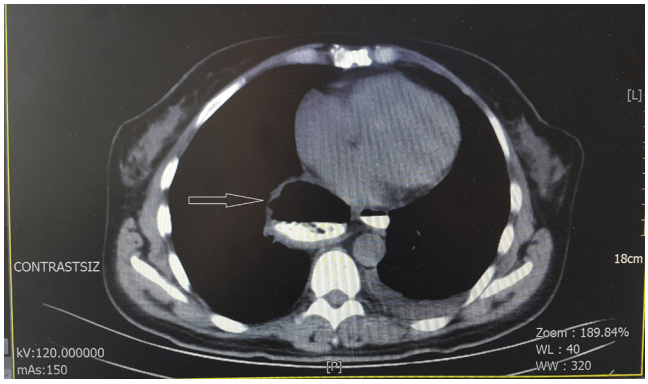
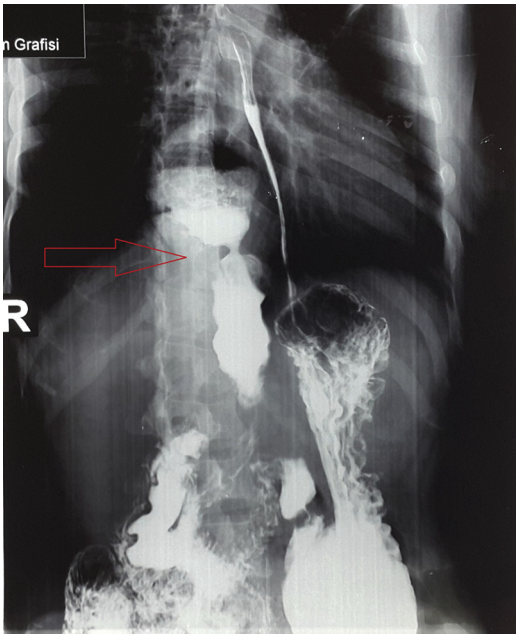
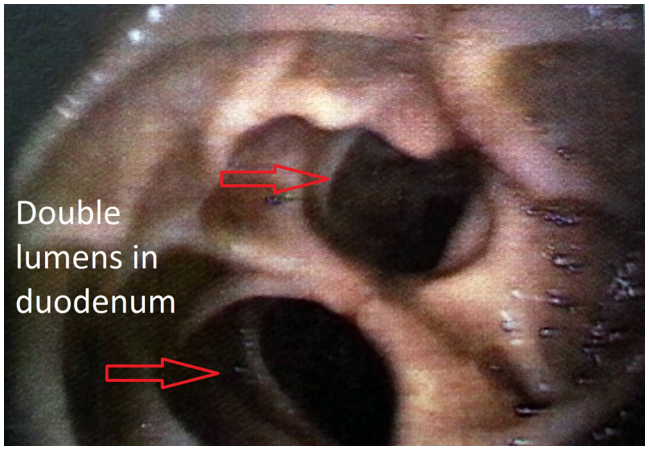


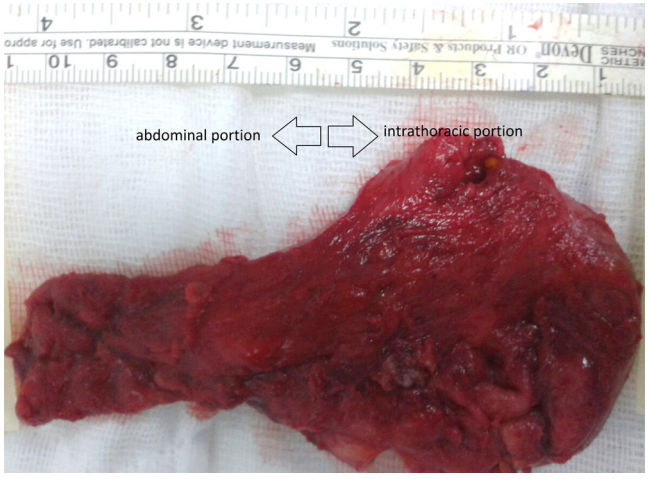
Picture 1. Herniation in the posterior mediastinum.



Picture 2. Intestinal segment extending into thoracic cavity.



Picture 3. Double lumens in the 3rd part of duodenum.



Picture 4. Specimen.

Esophagogastroduedonoscopy: Double lumens were seen in the third part of duodenum; one of them was covered with normal mucosa and advancing with endoscope was possible but in the other lumen, there were intestinal contents, and luminal continuity was not seen, endoscope could not be advanced (Picture 3).

With all these findings the patient was operated by a team in Haseki Research and Training Hospital with the preoperative diagnosis of diaphragmatic hernia. In this operation, the diaphragm was evaluated as normal, diaphragmatic hernia was not identified but 3rd and 4th parts of duodenum were not found in normal location, and Treitz ligament was not seen, these parts were placed laterally in an opposite direction. Cecum and ascending colon were not seen in normal location, cecum was in the location of hepatic flexura, also a recessus was identified in the area of Treitz ligament. Through the recessus, transvers colon was internally herniated. This hernia was repaired and the operation was finished.

On the 6th day postoperatively, the patient was unrest with fever, abdominal tenderness and the same complaints before the operation. Another contrast enhanced thoracoabdominal CT was done. The findings were the same as preoperative CT. Also inflammatory changes and fluid collection were identified. The patient was reoperated by another surgical team. Exploration did not reveal any herniation into diaphragm initially and the colonic segment brought to normal location in the first operation was ischemic. The ischemic segment was resected and anastomosed end to end. Then, the diaphragm was re-examined and subdiaphragmatically, connective tissue between the aorta and the inferior vena cava was explored with the guidance of CT findings. A tubular structure about 1.5 cm in diameter extending retroperitoneally was identified at the superior border of the pancreas. This structure was extending to pancreas inferiorly, and to diaphragm posterosuperiorly, finally reaching to thoracic cavity between the aorta and the inferior vena cava. The tubular structure was aspirated by a fine needle. Some fluid stained with bile was collected in the syringe. The puncture site was incised 2 mm, bile containing fluid was recollected. Number 3 and 4 Bake's dilators were inserted through the incision. The lumen of tubular structure was connected inferiorly to the third part of duodenum behind pancreas and superiorly extending about 15 cm into the thoracic cavity with a blind end. Then, 12F Foley catheter was inserted and by giving contrast media, direct graphies were taken. Inferiorly, duodenum was seen with contrast media and superiorly in thoracic cavity, a saccular cystic structure of 8 cm in diameter was seen. It was thought that removal of this saccular cyst would not be possible from the abdomen. Therefore a right anterior thoracotomy was performed through the 6th intercostal space. The cyst was located in the posterior mediastinum and with careful dissection, upper end of the cyst conjoined with vertabrae was divided. The lesion was 15 cm in length. Intraabdominal portion was divided by a linear stapler from the upper border of pancreas (Picture 4).