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Case report

Annular pancreas causing duodenal obstruction in a 23 year old women managed surgically for gastrojejunostomy; a case report

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ABSTRACT

Introduction: Annular pancreas is an uncommon congenital abnormality characterized by a ring of pancreatic tissue around the duodenum descending part. It is exceptionally rare in adults and is increasingly detected after the investigation of symptoms caused by its consequences, which include recurrent pancreatitis, duodenal stenosis at the site of the annulus, or duodenal or gastric ulcers.
In this study, we present a case report of symptomatic annular pancreas in an adult patient.
Presentation of case: A 23-year-old woman hospitalized for epigastric pain and recurrent vomiting. Radiological examination was consistent with an annular pancreas. At operation, a partial obstruction of the second part of the duodenum was found, caused by an annular pancreas. No other congenital anomaly of the intra-abdominal organs was noted. A gastrojejunostomy was performed and she was discharged after 8 days with good recovery.
Conclusion: Because annular pancreas in adults is a rare clinical scenario, it should be included in the differential diagnosis of adult patients with gastrointestinal obstructive symptoms for a prolonged period of time, given that surgical intervention has a reliable outcome.

1. Introduction

Annular pancreas (AP) is an uncommon congenital aberrant pancreatic rotation characterized by a ring of ectopic pancreatic tissue partially or completely encircling the duodenum. At autopsy, the prevalence rate is 0.005 %–0.015 % [1].

The ring-shaped pancreas is most common in newborns, causes bilious vomiting due to duodenal obstruction [2], and is frequently associated with other congenital defects such as Down syndrome, tracheoesophageal fistula, intestinal atresia, pancreaticobiliary malrotation [3,4].

Adults are rarely affected by AP, which manifests as symptoms of chronic pancreatitis and biliary obstruction, and some patients have no clear clinical manifestations [1]. However, because AP is linked to pancreatic and ampullary cancers, detecting and treating AP are critical [5,6].

Surgical correction with a duodenoduodenostomy, gastrojejunostomy, or duodenojejunostomy is required for treatment. Because of the risks of annular resection, such as pancreatitis, pancreatic fistula formation, and insufficient blockage relief, these bypass operations are preferred [5].

We present a case of a 23-year-old female patient who presented with a 4-month history of persistent abdominal pain, vomiting and dyspepsia in the context of an extensive negative workup and was found to have an annular pancreas encircling partially the second portion of the duodenum.

2. Case report

A 23-year-old female presented with a 4-month history of upper abdominal pain and recurrent episodes of vomiting. The pain was burning in nature, mild to moderate in intensity, and poorly localized in the upper abdomen.

On examination, the general condition was good and the patient was

Abbreviations: AP, ANNULAR PENCREAS.

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of thin build. The abdominal examination didn't reveal organomegaly and contributed insignificantly to the clinical diagnosis.

The patient was subsequently assessed using laboratory studies and radiological imaging. Routine biochemical and hematological tests were normal.

An upper gastrointestinal endoscopy revealed a moderate narrowing of the second part of the duodenum related to an external compression.

An abdominal CT with oral and iv contrast revealed the pancreas wrapping around the second part of the duodenum (Fig. 1).

The patient underwent exploratory laparotomy, which revealed that a band of pancreatic tissue completely encircled the second portion of the duodenum, causing partial obstruction and confirming the diagnosis of annular pancreas (Fig. 2).

A retrocolic gastrojejunostomy was done, using an inner continuous vicryl and an outer interrupted sero-muscular layer with 3/0 silk.

The patient experienced a typical and uneventful recovery. On the 8th postoperative day, she was discharged with a full oral diet. On follow-up, the patient was fully asymptomatic and had gained weight.

3. Discussion

AP is a rare condition in the adult population, but if not recognized early, it can cause substantial morbidity. Importantly, both men and women can get AP as adults, with the average age of diagnosis being between 20 and 60 years.

The most common symptoms in adults are abdominal pain (75 %), vomiting (24 %), pancreatitis (22 %), or abnormal liver tests (11 %), the strength of which varies according to the structural characteristics of the annular ring [7].

Patients with partial duodenal obstruction can typically tolerate liquids but report bloating and distention when consuming solids [8].

Although these symptoms are not unique to AP, they are key indicators of this diagnosis in the appropriate clinical setting. Effective medical evaluation and examination are essential diagnostic tools. In the above case, the patient had a number of the most common signs and symptoms of AP in adults.

Laparoscopy enables direct observation of the annular ring, which is the diagnostic gold standard for AP [9]. However, imaging studies are safer and more efficient. The preferred diagnostic methods include the upper GI series, CT scan, and MRI. Noting that 40 % of diagnoses can only be made by laparotomy is crucial [10].

A computed tomography (CT) scan revealed that the head of the pancreas was enlarged and that pancreatic tissue extended from the back of the duodenum to its second part. The texture, density, and enhancement of the AP tissue, which totally or partially surrounds the duodenum, are comparable to those of normal pancreatic tissue. In this study, during the operation, a portion of the pancreas was detected around the duodenum. Hence, surgical intervention is the gold standard for diagnosing AP.

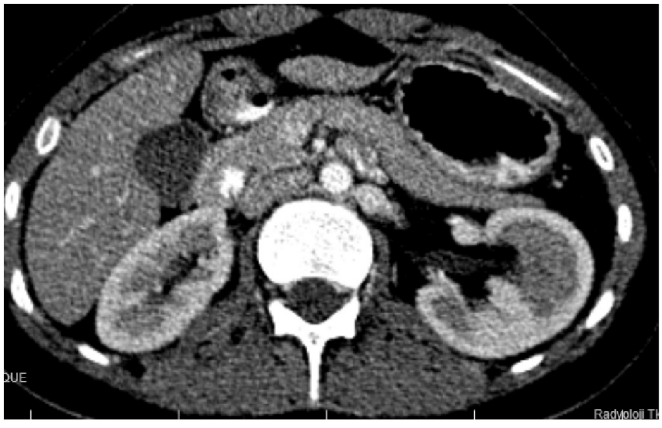

Fig. 1. Contrast filled narrowed second part of duodenum encircled by pancreas.

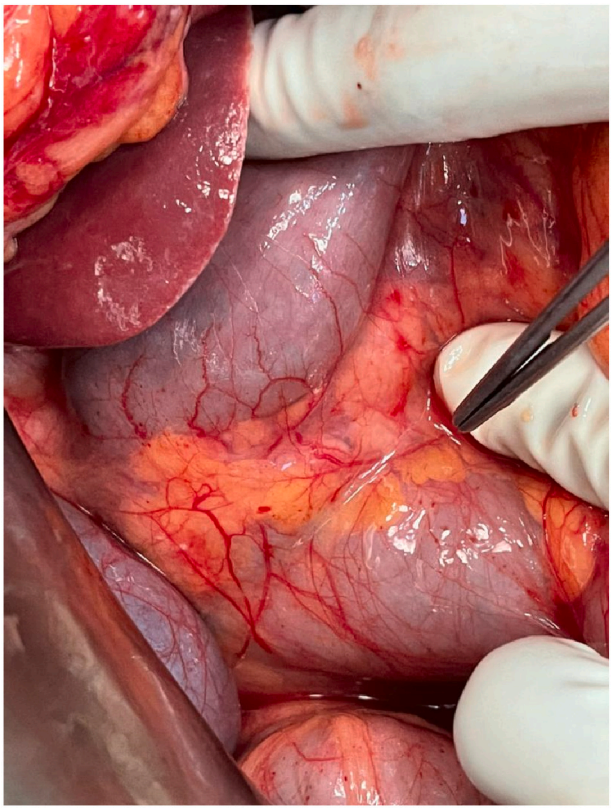

Fig. 2. Duodenum filled with methylene blue with the constricted part of duodenum compressed by pancreatic tissue.

When a lesion is accompanied by symptomatic duodenal obstruction, the most effective treatment is surgical bypass, such as gastrojejunostomy, duodenoduodenostomy, or duodenojejunostomy [11].

Resection of annular pancreatic tissue is performed less frequently due to its association with complications such as fistula formation, pancreatitis, and duodenal stenosis.

The medical therapy of symptomatic patients has minimal significance. In this instance, AP was found on a CT scan, and following surgical treatment, overall symptoms disappeared.

This work has been documented as per the SCARE 2020 criteria [12].

4. Conclusion

Annular pancreas is an uncommon abnormality that should be considered even among adults.

The majority of affected patients have symptoms of proximal intestinal obstruction. Following assessment, symptomatic patients can be managed safely with surgical bypass of the annulus to overcome the obstruction.

Abbreviation

AP annular pancreas

Ethics approval

Ethical approval was waived by the ethical committee of Mogadishu Somali Turkey, Recep Tayyip Erdogan Training and Research Hospital.

Consent

Written informed consent was obtained from the patient for the publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Availability of data and materials

The data that support the findings of this study are available in Mogadishu Somali Turkey, Recep Tayyip Erdogan Training and Research Hospital information system. Data are however allowed to the authors upon reasonable request and with permission of the education and research committee.

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Author contribution

Nuradin Mohamed Nur: Conceptualization, Data Curation, Visualization, Investigation Writing, Original draft preparation
Abdinasir artan: Writing, Reviewing, and Editing
Abdirahman Ahmed Omar: Supervision, Validation
Mohamed Rage ahmed: Writing, Reviewing

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N/A.

Guarantor

Nuradin Mohamed Nur.

Declaration of competing interest

This manuscript has not been submitted to, nor is it under review at, another journal or other publishing venue.

The authors have no affiliation with any organization with a direct or indirect financial interest in the subject matter discussed in the manuscript.

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