

A Rare Cause of Postprandial Abdominal Pain

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INTRODUCTION

Median arcuate ligament is a ligament under the diaphragm that wraps around the aorta. It passes superior to coeliac trunk and connects the right and left crura of diaphragm. If the ligament lies lower than T12, it can compress on the coeliac trunk and causes abdominal symptoms. Median arcuate ligament syndrome (MALS) is defined as abdominal pain due to compression of the coeliac artery by the median arcuate ligament.

It was first described in 1960 by Dunbar *et al.*^[1] It is rare and often misdiagnosed.^[2] Prolonged investigation with existing symptoms might cause frustration to patient and relatives. Due to its rarity, reporting clinical symptoms and signs through case report might help identify and diagnose this syndrome more easily in the future.

CASE REPORT

A 49-year-old woman was admitted for postprandial epigastric pain of 3 weeks duration. She had presented to accident and emergency (A and E) 1 week previously with similar symptoms and was discharged with normal hemodynamic parameters and spontaneous resolution of symptoms. The epigastric pain was exacerbated by walking and food. It radiated to the left flank and sometimes to the back. She did not experience any weight loss. She had

ABSTRACT

A 49-year-old woman with medical history of polymyalgia rheumatica presented with 3 weeks history of epigastric pain worse after meal. Gallstones, peptic ulcer, bowel ischemia, bowel obstruction, gastroesophageal reflux disease, chest pathology, etc., were excluded from the study. Computerized tomography showed a short stenotic segment at coeliac trunk with poststenotic dilatation of 8 mm. Ultrasound scan showed peak velocity of 326 cm/s at the coeliac artery. Diagnosis of median arcuate ligament syndrome was made.

Key words: Abdominal pain, median arcuate ligament syndrome, coeliac artery

not any urinary or respiratory symptoms. This was not controlled with simple analgesia or antacids. She had a medical history of polymyalgia rheumatica and there was no significant family history. On admission, her observations were stable and she was afebrile. Abdominal examination revealed tender epigastric region without guarding. All the blood tests, including amylase, lipase, lactate, white cell count, urea, and electrolytes, liver function tests, and C-reactive protein were normal. Abdominal X-ray showed normal bowel gas pattern. Erect chest X-ray showed no abnormalities. A gastroscopy showed no hiatus hernia, ulcer, and erosive gastropathy. Ultrasound scan of abdomen showed normal gallbladder and pancreas. The inspiratory peak systolic velocity at the stenotic coeliac artery was 326 cm/s on Doppler assessment with no plaques directly identified. Computerized tomography (CT) showed a stenotic segment at coeliac trunk with a poststenotic dilatation [Figure 1]. A diagnosis of MALS was made. CT angiogram (CTA) findings confirmed stenotic segment at the coeliac axis with a lumen of 2.3 mm and a poststenotic dilatation of 8 mm. She was referred to vascular surgeons at neighboring Hospital where she was observed and will have vascular follow-up.

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Figure 1: Computerized tomography showed a short stenotic segment at coeliac trunk with poststenotic dilatation

DISCUSSION

MALS may be suspected in middle-aged female aged from 40 to 60 years with postprandial abdominal pain and weight loss may be as high as >20 pounds.^[3] Suspected cases required further imaging such as CT, magnetic resonance imaging (MRI), and ultrasound scan are needed to confirm the compression of the coeliac artery and to exclude other pathologies. Findings on advanced abdominal scans include coeliac artery stenosis with or without poststenotic dilatation or aneurysm and elevated coeliac velocities.^[4-6]

The diagnosis is definite if the stenosis or the coeliac velocities is worsen during inspiratory phase.

This is rare condition. Based on search of PubMed English language literature, only 77 cases have been reported to date on this condition.

For patients with persistent abdominal pain, surgical treatment is the definitive successful treatment.^[7,8] Surgical treatment includes coeliac artery decompression with or without coeliac artery angioplasty or reconstruction.^[9]

Postprandial abdominal pain, age between 40 – 60 years and weight loss more than 20 pounds have been shown to be predictors of better surgical outcome.^[4] Weight loss less than 20 pounds, atypical pain with periods remission and history of alcohol abuse were shown to have worse outcome.

The working diagnosis for this patient was not very straight forward. We excluded common postprandial causes such as cholecystitis, choledocholithiasis, pancreatitis, gastroesophageal reflux disease, intestinal ischemia, or gastric outlet obstruction. During the stay for monitor and investigation, patient and her relative were very

upset as all the initial investigations were negative and no diagnosis were made and the pain persisted. MALS is usually diagnosis of exclusion but can be diagnostic with investigations such as CT, CTA, USS, or MRI angiogram. Although this patient is diagnosed with MALS, due to her weight loss <20 pounds and atypical periods of remission, she has not undergone surgical operation.

Learning points

MALS is a rare cause of epigastric pain defined as coeliac artery compression by median arcuate ligament.

It is often misdiagnosis due to its rarity and diagnosis is quite challenging.

MALS should be considered as differential diagnosis in middle-aged female patients with variable clinical features including postprandial epigastric pain, weight loss, diarrhea, nausea, and vomiting. Diagnosis can be confirmed by USS, CT, CTA, or MRI scans. Surgery remains the only curative treatment for patients with MALS.

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Conflicts of interest

There are no conflicts of interest.

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