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Case Report

Rare Case Report On Median Arcuate Ligament Syndrome – A Surgical Approach

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Abstract

Median Arcuate Ligament Syndrome (MALS), also known as celiac artery compression syndrome or Dunbar syndrome, is a rare vascular disorder characterized by compression of the celiac artery by the median arcuate ligament. This compression can lead to a range of symptoms including postprandial abdominal pain, weight loss, nausea, and vomiting. We present a case of a 57-year-old female patient who presented with complaints of left hypochondrial and left lumbar pain. Her medical history was significant for newly diagnosed diabetes and bilateral salpingo-oophorectomy. Upon further evaluation, CT abdomen revealed narrowing of the celiac trunk due to an overlying thickened median arcuate ligament, confirming the diagnosis of MALS.

Surgical management was pursued with the laparoscopic-assisted release of the median arcuate ligament under general anesthesia. The procedure successfully decompressed the celiac trunk, alleviating the patient's symptoms. Postoperatively, the patient had an uneventful recovery and was discharged with general instructions. This case underscores the importance of recognizing MALS in patients presenting with characteristic symptoms and the efficacy of surgical intervention in providing relief and improving quality of life.

Keywords: Dunbar syndrome, Median Arcuate Ligament, celiac axis

INTRODUCTION

A vascular compression syndrome, medial arcuate ligament syndrome (MALS) is also referred to as Dunbar syndrome. Due to the compression of the celiac axis by the diaphragmatic crura and median arcuate ligament, it is medically referred to as celiac artery compression syndrome.

The origin of the celiac axis can vary greatly, but it typically arises from the abdominal aorta between T11 and L1. Where the anterior longitudinal ligament joins at the anterior and superior aspect of the celiac artery, the diaphragmatic crura emerges from L1–L4. The diaphragmatic crura encircling the aortic hiatus is connected anteriorly by a band of fibrous tissue that is known as the median arcuate ligament. A lower diaphragmatic crura insertion or a higher celiac artery origin is likely to cause MALS. The lower abdominal aorta may occasionally be compressed by the median arcuate ligament. Compression is frequently exacerbated during expiration as a

result of the vasculature, especially the celiac axis, moving upward. Thin bands or thick, fibrous tissue at or near the celiac artery's origin may be the cause of compression. [1]

The following common triad of symptoms may be brought on by the compression and narrowing of the lumen of the celiac artery, particularly during expiration: ischemia of the implicated organs. abdominal pain following a meal, weight loss, nausea, and vomiting. [2] The normal age range for the start of symptoms is between 30 and 40 years old, while cases involving pediatric patients have been documented. Women with a slim physical frame are significantly more at risk of getting MALS, and the disorder is four times more common in females than in males. Malnutrition, smoking, hypertension, hyperlipidemia, and previous abdominal operations are additional risk factors for MALS. Patients with MALS frequently have compressed celiac plexuses, which changes the neurological control of their digestive processes. These patients may experience delayed gastric emptying and an irregular stomach electrical rhythm as a result, which could result in a variety of digestive problems. Because the foregut is supplied by a large collateral circulation, many MALS patients have no symptoms. The pancreaticoduodenal arcades, splenic, common hepatic, and dorsal pancreatic arteries are a few of the arteries that are a part of this collateral circulation. However, the increased blood flow through these tiny collateral arteries greatly raises the risk of life-threatening aneurysm growth and rupture, even in patients who do not exhibit the classic signs of MALS. Although the cause of this physical deformity is unknown, it is thought that environmental and inherited variables are probably involved in the development of MALS. The MAL compresses the celiac plexus and the celiac artery as a result of this aberrant anatomical configuration. MALS is an exclusionary diagnosis. To rule out further disorders, a variety of imaging modalities, including CT, MRA (magnetic resonance angiography), and ultrasound, may be used. Imaging will show a stenosed celiac artery with arterial dilatation distal to the stenosed area if the patient does indeed have MALS. Following diagnosis, the MAL is often excised surgically, which decompresses the celiac trunk and plexus.[3]

CASE REPORT

A 57-year-old female patient presented with complaints of abdominal pain more in the left hypochondrium and left lumbar pain with a medical history of newly diagnosed diabetes with high HbA1c of 14 % which was controlled with minimal doses of insulin and a surgical history of bilateral salpingo-oophorectomy for ovarian cyst 12 years ago, other medical causes of abdominal pain was ruled out and the blood lead levels and porphyrin levels were normal. She was then further evaluated with a CT abdomen in which incidental findings of narrowing of the celiac trunk by overlying thickened median arcuate ligament were noted.

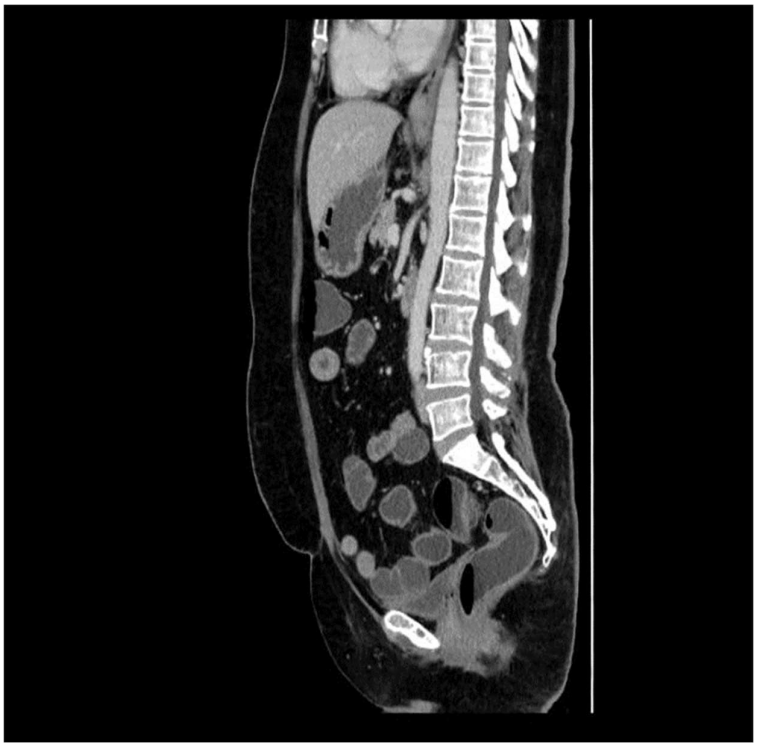

Fig 1: Evidence of Median arcuate ligament syndrome

Hence, based on clinical symptoms, median arcuate syndrome was identified, and surgery was scheduled to treat the condition. Laparoscopic-assisted release of the median arcuate ligament was done under general anesthesia and the celiac trunk was fully released till around 5 cm into the abdominal aorta. Her postoperative phase was unremarkable, she made a full recovery, and she was released with general instructions.

DISCUSSION

The case report of the 57-year-old female patient underscores several important aspects of MALS management. Firstly, the patient's clinical presentation was consistent with typical symptoms of MALS, prompting further investigation with imaging to confirm the diagnosis. The CT abdomen revealed narrowing of the celiac trunk due to the overlying thickened median arcuate ligament, confirming the anatomical basis of the patient's symptoms.

Secondly, surgical management was pursued promptly after diagnosis. The decision to perform laparoscopic-assisted release of the median arcuate ligament was appropriate, given its efficacy in decompressing the celiac trunk while minimizing surgical trauma and promoting faster recovery. The patient's postoperative course was unremarkable, with resolution of symptoms and no significant complications noted.

DECLARATION OF PATIENT CONSENT

All required patient permission paperwork has been collected. The patient has agreed on the form that his or her picture and other clinical data may be published in the publication. The patient is aware that their initials and name will not be disclosed; although every attempt will be made to hide his/her identity, anonymity cannot be ensured.

CONCLUSION

In conclusion, MALS is a rare but clinically significant cause of chronic abdominal pain and gastrointestinal symptoms. Timely recognition and appropriate surgical intervention can lead to significant improvement in the quality of life for affected patients. Continued awareness among healthcare providers, combined with advances in imaging and surgical techniques, are crucial for optimizing outcomes in patients with this challenging vascular disorder.

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