

Median Arcuate Ligament Syndrome (MALS) - A Complex Curable Entity

Dr. Shweta Khopde¹, Dr. T Sankalecha², Dr. M Kirloskar³, Dr. N Chafekar⁴

Abstract: Median arcuate ligament syndrome (MALS) also known as celiac artery compression syndrome, or Dunbar syndrome is a rare condition characterized abdominal pain attributed to compression of the celiac artery and the celiac ganglia by the median arcuate ligament. The abdominal pain may be associated with meals, weight loss or abdominal bruit heard by clinician. MALS is diagnosis of exclusion as a healthy individual may have some degree of celiac compression. Screening for MALS is done with Ultrasound, computed tomography (CT) or magnetic resonance (MR) angiography. Here we present a patient who came to OPD with complaints of pain in abdomen increasing post meal, was found to have raised Blood pressure in right arm sitting position, where as it was a different reading in another arm. After investigations, in CT Aortogram suggestive of focal constrictions in the descending thoracic aorta along with focal narrowing noted at the origin of celiac axis due to mass effect caused by median arcuate ligament – MALS.

1. Introduction

The median arcuate ligament is a fibrous arch that unites the diaphragmatic crura on either side of the aortic hiatus. The ligament usually passes superior to the origin of the celiac artery near the first lumbar vertebra. In the general population, 10-24% of people may have indentation caused by an abnormally low ligament. Few of these patients have hemodynamically significant stenosis that would cause symptoms. We present the case of a patient with median arcuate ligament syndrome, found on an incidental finding in a young patient caused abdominal pain associated with nausea, emesis, and bloating, and found to have raised unequal blood pressures in both the arms.

2. Case Description

A 33yr, male, came to OPD with complaints of intermittent epigastric pain increasing post meal, along with sensation of bloating present. He had intermittent diarrhea and denied any radiating pain. On examination he was found to have BP of 150/100, pulse of 86 on right arm sitting position and bp of 160/96, pulse of 92 in left arm sitting position. His physical examination revealed epigastric tenderness to palpation but no other abnormalities. Systemic examination was normal. Patient was advised -

ECG – S/o – Left Ventricular Hypertrophy, 2d-ECHO – Normal 2 D ECHO with good LVEF – 65 % with mild LVH, mild Aortic regurgitations and Tricuspid regurgitations

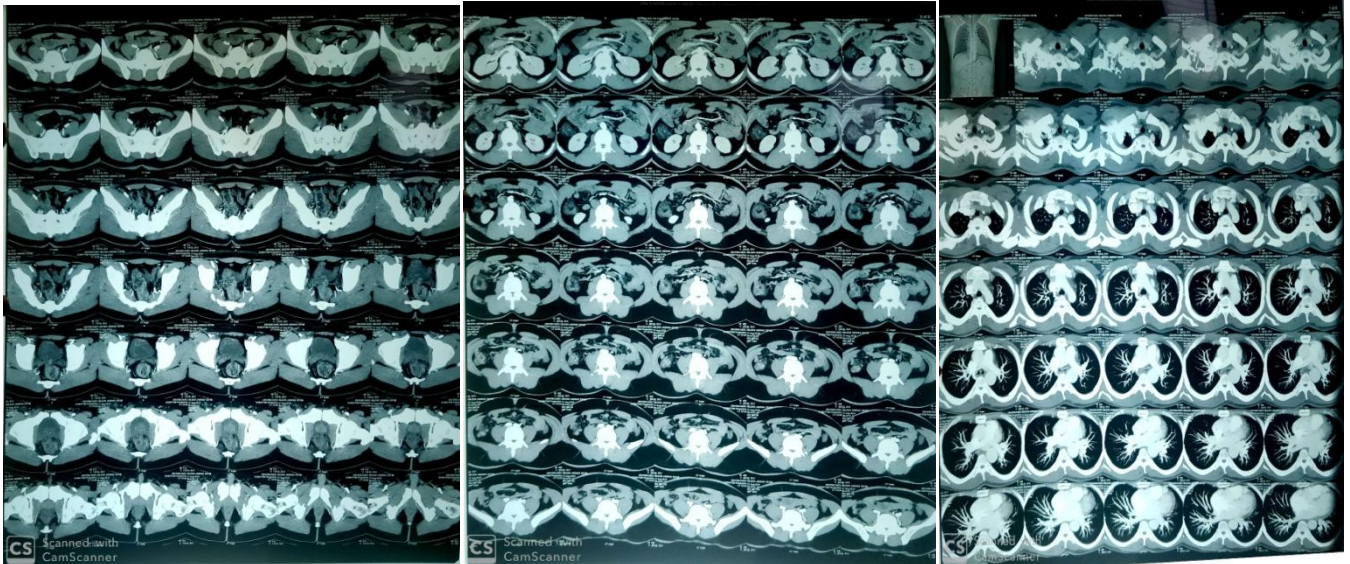
Renal Artery Doppler which suggested of – both main renal artery origins was not well visualized. Both mid and distal renal arteries shows low velocity waveform. both intra-renal arteries shows low velocity flow. Acceleration time is increased. findings s/o? bilateral proximal renal artery stenosis.

Pt then underwent a cardiac catheterisation – where the guide wire was not negotiated beyond the level of left subclavian artery. DSA at left subclavian artery showed Coarctation of descending aorta with 90% stenosis just distal to its subclavian artery. Patient was advised ct aortogram ct

aortogram s/o – Focal constriction in the descending thoracic aorta s/o coarctation of aorta. Focal narrowing at the origin of celiac axis due to mass effect caused by median arcuate ligament syndrome.

The patient underwent laparoscopic surgery to release the median arcuate ligament impingement on his celiac artery. The patient tolerated this procedure well and remained in the hospital for 23-hour observation. He had an uneventful hospital stay and was tolerating a liquid diet at discharge.





3. Discussion

- MALS
- celiac artery compression syndrome (CACS)
- Dunbar syndrome
- Harjola-Marable syndrome

Chronic abdominal pain is a very common condition that can have significant negative, long-term psychosocial consequences, including increased risk for anxiety, school and work absences, poor functional capacity, and a poor quality of life. While the exact cause of the pain is unknown, compression of the celiac artery and/or the celiac plexus nerves by the diaphragm can result in pain that is worsened with eating or sometimes with exercise. Other symptoms include nausea and weight loss. In some patients the symptoms can be devastating and can lead to erroneous diagnoses of an eating disorder, psychiatric conditions, or functional abdominal pain (e.g. irritable bowel syndrome, abdominal migraine). The diagnosis is made based on a combination of the clinical symptoms and radiology imaging. Surgical procedure is effective in approximately 60-80% of patients.

4. Conclusion

MALS is a difficult to diagnose syndrome and can be considered after exclusion of all diagnosis. Mostly it is found in young patients with age group of 20-50. If is diagnosed on CT AORTOGRAM and, Patients who have evidence of median arcuate ligament syndrome should undergo surgical decompression, which can be accomplished laparoscopically.

References

- [1] Duffy AJ, Panait L, Eisenberg D, Bell RL, Roberts KE, Sumpio B. Management of median arcuate ligament syndrome: a new paradigm. *Annals of vascular surgery*. 2009 Nov 1;23(6):778-84.
- [2] Siani A, Barone M. The laparoscopic approach in the median arcuate ligament syndrome: report of a case. *Swiss medical weekly*. 2007 Jun 16; 137 (2324).
- [3] Ozel A, Toksoy G, Ozdogan O, Mahmutoglu AS, Karpat Z. Ultrasonographic diagnosis of median arcuate ligament syndrome: a report of two cases. *Medical ultrasonography*. 2012 Jun 1; 14(2):154-7.
- [4] Horton KM, Talamini MA, Fishman EK. Median arcuate ligament syndrome: evaluation with CT angiography. *Radiographics*. 2005 Sep; 25 (5):1177-82.