Blocking Before Cutting: Celiac Plexus Block Guides Definitive Treatment of Median Arcuate Ligament Syndrome (MALS)

Renira Rugnath MD, Nickhil Rugnath MD, Anand Prem MD

The University of Mississippi Medical Center, Department of Anesthesiology

Introduction

- **Median arcuate ligament syndrome (MALS)** is a rare disorder caused by extrinsic compression of the celiac artery by the median arcuate ligament.
- Estimated prevalence: **~2 per 100,000 individuals**
- Common symptoms include:
  - Postprandial abdominal pain
  - Nausea and vomiting
  - Early satiety/bloating
  - Unintentional weight loss
- MALS is challenging to diagnose because symptoms are **nonspecific** and overlap with other GI disorders.
- CTA and mesenteric duplex can demonstrate **celiac artery compression and post-stenotic dilation**, but imaging findings do not reliably predict symptom severity or surgical response.
- **Celiac plexus block (CPB)** may provide functional evidence of a neuropathic pain component.
- A significant response may help identify patients who could benefit from **definitive surgical decompression.**

Case Report

- **22-year-old woman** with CRPS type 1, Ehlers-Danlos syndrome, POTS, and PVCs presented with progressively worsening **upper abdominal pain, poor appetite, early satiety, and nausea**.
- Symptoms had persisted for several years despite an extensive gastrointestinal evaluation and prior **cholecystectomy, hysterectomy, gastric stimulator, and bladder stimulator placement**.
- **CTA and mesenteric duplex** subsequently demonstrated findings consistent with MALS, and she was referred to the pain clinic for diagnostic CPB prior to planned surgical decompression.
- **Initial bilateral CPB** produced **>70% pain relief lasting approximately 6 months**, with gradual return of symptoms. This response allowed her to postpone surgery.
- A **repeat bilateral CPB 10 months later** produced excellent pain relief, demonstrating a reproducible response.
- Given the magnitude and reproducibility of pain relief following CPB, her vascular surgeon proceeded with **exploratory laparotomy, median arcuate ligament release, celiac plexus neurolysis, and lumbar sympathectomy**.
- At **2-month postoperative follow-up**, she reported **>50% improvement in abdominal pain**, improved appetite, minimal nausea, and some weight gain. The patient was overall **pleased with her surgical outcome**.

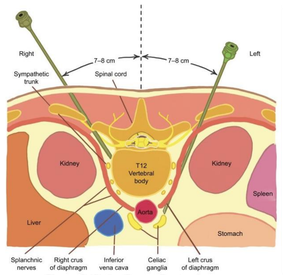


Figure 1: Celiac Plexus Block diagram

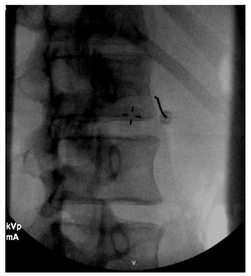
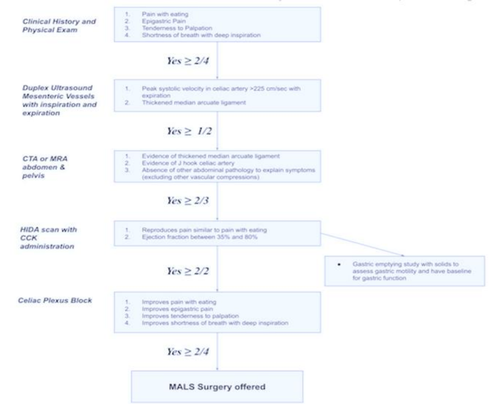


Figure 2: Patient's X-ray at time of procedure





Discussion

- MALS remains a diagnostic challenge because **anatomic celiac artery compression can occur without clinically significant symptoms**.
- The discordance between anatomic findings and clinical presentation creates uncertainty when determining which patients may benefit from intervention.
- A functional assessment of the **celiac plexus** may provide complementary information beyond structural imaging.
- CPB may help distinguish patients with a clinically relevant **neuropathic pain component** from those with incidental vascular compression.
- Incorporating a pain medicine evaluation into multidisciplinary MALS care may therefore contribute to more informed treatment selection.
- Existing evidence supporting CPB as a predictive tool remains limited.
- **Standardized selection criteria and procedural protocols have not been established**.
- Prospective studies are needed to determine whether the magnitude or duration of CPB response correlates with long-term outcomes after surgical decompression.
- **The reproducibility of pain relief after CPB may strengthen its potential value as a functional diagnostic test**, although the predictive relationship between block response and surgical outcomes requires further validation.

Conclusion

- **Structural abnormalities alone may not fully define clinically significant MALS.**
- Celiac plexus blockade represents a potential **functional component of MALS evaluation** that may complement vascular imaging.
- Multidisciplinary integration of interventional pain assessment with vascular evaluation may improve **diagnostic confidence and treatment selection**.
- Further prospective research is needed to establish the role of CPB in standardized MALS diagnostic pathways.

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