

## Anaesthetic considerations in coeliac artery compression syndrome

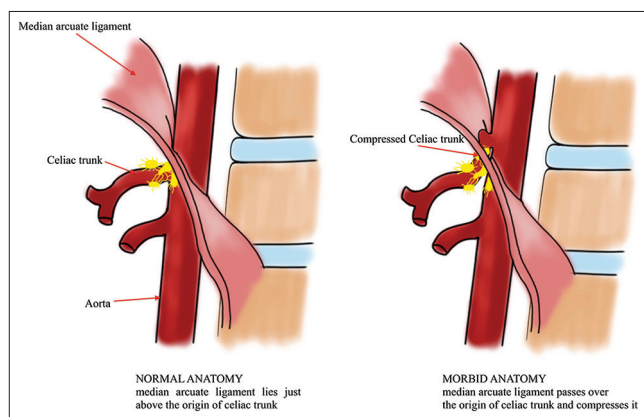
Sir,

Coeliac artery compression syndrome, also described as median arcuate ligament syndrome (MALS), is a rare clinical entity characterised by compression of the coeliac artery by the median arcuate ligament in the region where coeliac artery branches off the aorta above the diaphragm.<sup>[1]</sup> It was described independently by Harjola and Dunbar in 1963 and 1965 respectively, hence, bearing their names- Harjola-Marable syndrome or the Dunbar syndrome.<sup>[1,2]</sup> It is a diagnosis of exclusion, and the management includes laparoscopic median arcuate ligament release.<sup>[1]</sup> The operative management poses significant concerns to the anaesthesiologist, especially in a patient with co-existing ischaemic heart disease (IHD).<sup>[3]</sup> Due to the lack of literature on Dunbar syndrome with co-existent IHD, we discuss the relevant anaesthetic concerns in this particular case scenario for its effective management.

A 50-year-old female came to the surgical out-patient department with complaints of epigastric pain after having food and an unintentional weight loss of 5 kg in the last 1 year. Physical examination was unremarkable. After normal upper gastrointestinal endoscopy, CT angiography abdomen showed the focal narrowing of the proximal coeliac artery. She was diagnosed with Dunbar syndrome and planned for the laparoscopic release of the median arcuate ligament. However, she also had IHD-stable angina 2 months back for which she was on tablets glyceryl trinitrate 2.6 mg, metoprolol 50 mg, and ramipril 2.5 mg twice daily. On evaluation, the patient had no cardiovascular symptoms. Metabolic Equivalents (METS) score was >4. All investigations were within normal limits, electrocardiogram (ECG) showed non-specific ST-segment changes in all the chest leads. 2D- echocardiography was normal. Adequate blood products were arranged. Cardiac surgeons were informed before hand in case need arose. We had planned for epidural analgesia for adequate postoperative pain relief in case the laparoscopic procedure got converted into open. In the operating room, all the standard American

Society of Anesthesiologists monitors were attached. Radial arterial line and central line were placed. Patient was induced with fentanyl 2 µg/kg, etomidate 0.2 mg/kg, and rocuronium 0.6 mg/kg iv followed by tracheal intubation. Anesthesia was maintained with sevoflurane. The median arcuate ligament was divided laparoscopically, the surgery was uneventful. Paracetamol 1 g iv was given along with local port site infiltration with bupivacaine 0.25%. Patient was extubated uneventfully.

In MALS, abnormally low lying median arcuate ligament causes external compression of the coeliac artery [Figure 1]. These patients classically present with abdominal angina, weight loss, and rarely an abdominal bruit.<sup>[1]</sup> The laparoscopic median arcuate ligament release poses a significant concern for the anaesthesiologist because of proximity of surgery to the major vessels and the diaphragm, which can be further complicated by the co-morbidities of the patient, as in our case, with the history of IHD. There is a report of inadvertent aortic injury during laparoscopic surgery, necessitating the conversion to open.<sup>[4]</sup> Therefore, the anaesthesiologist must anticipate significant blood loss and arrange adequate blood products preoperatively. Cardiac surgeons should be intimated before proceeding to the surgery so that their immediate help be sought in case of intraoperative aortic injury. Wide bore iv cannula, invasive arterial line, and a central line should be placed. Vasopressors should be prepared beforehand. Intraoperative careful vitals monitoring and an eye on the laparoscopic screen to visualise surgical procedure helps prompt identification of catastrophe. Care must be taken to avoid the factors which might aggravate the IHD, including avoidance of



**Figure 1:** Sketch describes the normal anatomy of the coeliac trunk and morbid anatomy explaining the pathophysiology of the disease

perioperative pain, anxiety, hypoxaemia, and lighter planes of anaesthesia. Importantly, consideration for an epidural catheter should be made for adequate postoperative pain relief since a planned laparoscopic surgery might be converted into open anytime, and epidural analgesia may come handy especially in an elderly patient with IHD. Moreover, as this disease usually occurs in the sixth decade, fluid overload is to be avoided, especially in heart disease patients.<sup>[5]</sup> Another critical point in these patients is to preserve the renal function in case aortic cross-clamping is required for intraoperative aortic injury repair.

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#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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#### Conflicts of interest

There are no conflicts of interest.

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