# Case Report

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# Superior mesenteric artery syndrome: a new concept in the treatment

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#### **ABSTRACT**

Superior mesenteric artery syndrome (SMA) is an unusual cause for recurrent vomiting. The possibility should be considered in children with severe cachexia. The illness can be managed conservatively in acute settings and in children who cannot tolerate the stress of anesthesia.

Keywords: Anesthesia, Cachexia, Jejunostomy, Superior mesenteric artery syndrome

#### INTRODUCTION

Vomiting in the Pediatric age group may be due to various factors. Back ground history of the patient is important in elucidating the cause and it should be considered when the child with intense cachexia develops severe persistent vomiting.

We came across a patient with SMA. It was a child in a continuous vegetative state. It happened after an accident.

#### **CASE REPORT**

Age of the patient was 17-year, a male in a continuous vegetative state after a traffic accident, on tracheostomy care and Naso Gastric (NG) feeds, presented with vomiting and abdominal distention for 2 days and reduced urine output for 1 day. On examination, the child had dehydration. Initial investigations-complete blood counts, cultures, function of liver and that of kidneys were normal but C-Reactive Protein was elevated. Hence, sepsis was suspected. Dehydration was corrected and IV antibiotics were started. USG abdomen, Serum amylase and Lipase were normal. Vomiting persisted. To treat possible gastro esophageal reflux (GER) the child was

started on Domperidone and Pantoprazole. Child improved symptomatically and gradually NG feeds were restarted. The feeds were initially tolerated well but after 48 hrs, large volume bilious vomiting restarted. Oral contrast study was done which showed complete duodenal obstruction.

A CT abdomen was done which revealed features of superior mesenteric artery syndrome. (the SMA and the aorta was spaced by 3mm and between SMA and Aorta was less than an angle of  $10^{0}$ ).

Pediatric surgeon opinion was sought. In view of the child's vegetative state and general debility it was decided to manage the child conservatively. Feeding jejunostomy was done under local anesthesia and feeds were started. Gastric decompression was done with NG tube.NG aspirate, including bile was replaced through the jejunostomy every 3 hours, along with jejunostomy feeds thereby maintaining electrolyte and enzyme balance.

The child tolerated this very well. Child's vomiting and abdominal distension settled. Parents were educated about the care needed and the child was discharged. A few months later the child died of a respiratory illness.

#### **DISCUSSION**

The third part of duodenum is compressing the upper part of the gastrum in between the anteriorly placed Superior Mesenteric Artery and the posteriorly placed aorta leading to Superior Mesenteric Syndrome.<sup>1</sup>

Usually the angle of aorta mesenteric is 25° to 60 and the distance between the two is 10 to 28mm. In SMA syndrome, these two values are reduced, and varies from 6° to wards 15° and 2 up to 8mm². Symptoms are typically intermittent and include pain. In the epigastric region after food intake, emesis, abdominal distention leading to decrease in weight. Some patient may develop upper intestinal ileus unexpectedly.³ The risk factors which causes this syndrome can be summarized as: catabolic states leading to severe loss of weight using externally belts and casts and compression inside the abdomen and hypertension of mesenteric artery.⁴

Radiographic studies are needed to pinpoint the existence of superior mesenteric artery syndrome. For diagnostic purpose series of upper gastrointestinal tests, magnetic resonance (MR) angiography computed tomography (CT) scan or CT angiography, conventional angiography, and endoscopy ultrasonography have been done.<sup>5</sup>

The third portion of a dilated proximal duodenum is terminated aburptly in routine barium studies is a definitive and diagnostic feature for this syndrome. It can also show up in Contrast-enhanced CT scan the aortomesenteric angle, duodenal obstruction, the distance, fatty tissue pointing towards the probability of compression. Of late, ultrasound color Doppler imaging was advised for finding out a reduced aortomesenteric angle in notable cases.<sup>6</sup> Because of superior information content and non-invasiveness, contrast-enhanced CT or MR angiography is more appropriate as there is the ease of non-invasiveness and the content of superior information if the cause for duodenal obstruction is not certain. Moreover, upper gastrointestinal endoscopy also to be done to confirm the absence of obstruction of intestinal intralumen and ulcer in the gastric or duodenal regions disease that could be resembling the features of superior mesenteric artery syndrome.<sup>5</sup>

This syndrome is treated by the usual approaches. Keeping the Nasogastric tube in position for decompression of duodenum and gastrum and moving it into the left and lateral lying posture is done in the severe cases. The fluid and electrolyte balance has to be maintained, nitrogen balance has to be made positive d and weight of the patient to be made more leading to retroperitoneal fatty tissue getting restored with the angle of aortomesenteric increase. In patients with symptoms even when above treatment is done and no improvement, Surgery is advised.<sup>7,8</sup> The symptoms may get relieved in 2 to 12 days, but there are patients with treatment done up to 169 days.

The surgeries suggested are duodenojejunostomy or gastrojejunostomy so that the obstruction can be bypassed or a duodenal de-rotation procedure (also termed as the Strong procedure) to change the angle of aortomesenteric and keeping towards the right side of the artery i.e. superior mesenteric, the duodenal portions namely the fourth and third portions of it. 9-11

#### **CONCLUSION**

SMA could be diagnosed when severe, persistent vomiting is seen in a child with severe cachexia. If the child general condition is not suitable for general anesthesia and surgical procedures, feeding jejunostomy can be advised under local anesthesia. Shorter duration, Local Anesthesia and improvement comparatively are its benefits. The main drawback is that if there is a severe obstruction it requires nasogastric decompression followed by replacement of bile to maintain electrolyte and enzyme balance.

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