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Case Report

Case Report- SMA Syndrome with Pancreatitis

Dr. Rucha Ulhas Puranik, Dr. Priscilla Joshi* and Dr. Amol Bandgar

Department of Radiodiagnosis, Bharati Vidyapeeth (Deemed to be University) Medical college Hospital, Pune, India

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***Corresponding author:** Dr. Priscilla Joshi, Department of Radiodiagnosis, Bharati Vidyapeeth (Deemed to be University) Medical college Hospital, Pune, India

ABSTRACT

This is a case report of 15-year-old boy who presented with abdominal pain ,bilious vomiting and fever since 2 days. In view of acute abdominal pain, CT Abdomen pelvis with contrast was performed. It showed an overdistended stomach and proximal duodenum, reduced SMA- aorta angle, reduced aorto-mesenteric distance and unenhancing areas in the head of pancreas. The diagnosis of SMA syndrome with pancreatitis was made. Laboratory tests were done which showed increased serum amylase and lipase levels. Treatment was initiated with IV fluids, antiemetics, anti-inflammatory drugs and naso jejunal (NJ) tube insertion with calorie specific feeds. Follow up USG was done to confirm the resolution of pancreatitis.

The patient subsequently had reduced abdominal pain, was discharged and sent home with NJ tube with specific dietary modifications.

SMA syndrome is a rare diagnosis which results due to compression of 3rd part of duodenum between the SMA and aorta. Its incidence in the pediatric age group is 0.1-0.3 %. Coexistence of pancreatitis with SMA syndrome is even rarer, with exact incidence not available in literature. We present a unique case report showing coexistence of both these conditions and importance of radiological imaging modality for timely diagnosis to help in early intervention and rehabilitation of the patient.

Keywords: SMA syndrome; Pancreatitis; Pediatric

Introduction

A 15-year-old boy was referred to the Radiology department of our hospital for a CT scan. He presented with severe right hypochondrium pain and multiple episodes of bilious vomiting. An ultrasound done elsewhere was suggestive of small bowel obstruction.

CT revealed a grossly distended stomach with dilatation of the 1st and 2nd part of duodenum. There was abrupt narrowing of the 3rd part of duodenum between the superior mesenteric artery (SMA) and abdominal aorta. The SMA to aorta angle was decreased and measured 19 degrees **(Figures 1 and 2)**. The aorto-mesenteric distance was also reduced and measured 7 mm. The left renal vein was also compressed between the SMA and aorta.

The head and uncinate process of the pancreas appeared hypodense and poorly enhancing compared to the rest of the pancreatic parenchyma **(Figure 3)**. A small amount of ascites was also noted. Thus, a primary diagnosis of SMA syndrome with pancreatitis was made.

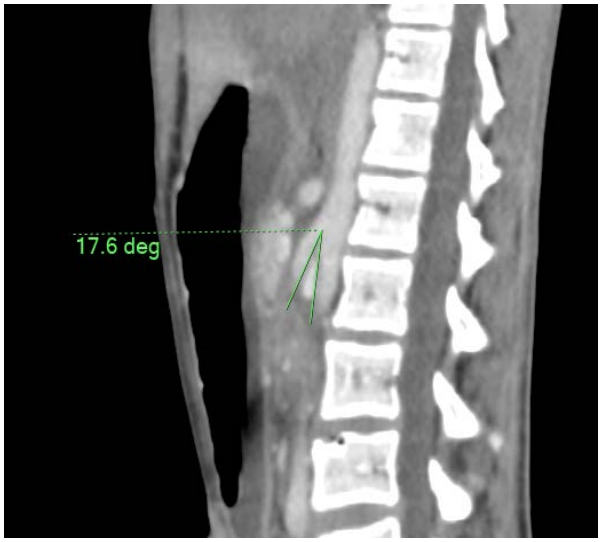

Figure1: CT contrast sagittal section showing reduced SMA-aorta angle which measures 17.6 degrees.

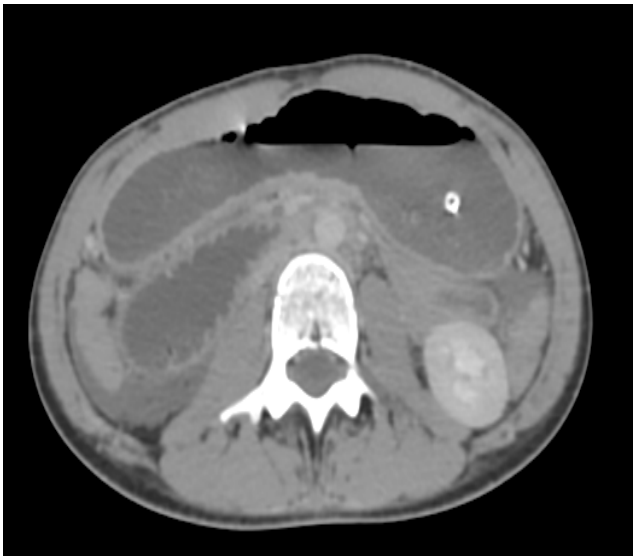

Figure 2: CT contrast axial section showing compression of the third part of the duodenum between the aorta and SMA (arrow).

Figure 3: CT contrast axial section showing a hypodense head and uncinate process of the pancreas.

The serum amylase and lipase levels were grossly elevated (Ser Amylase 676 U/L (25-125 range) and lipase 1479 U/L (0-60 range) thus corroborating the radiological findings of acute inflammation of pancreas.

The patient was subsequently fed with a naso jejunal tube with calorie specific diet. Symptomatic treatment of anti-emetics, antipyretics, parenteral fluids was given.

The lipase, amylase returned to normal levels after 10 days. Patient was counseled about the dietary restrictions and advised follow up.

A follow up ultrasound done after a fortnight revealed a normal pancreas with a reduced SMA- aorta angle and compression of the left renal vein **(Figures 4 and 5)**.

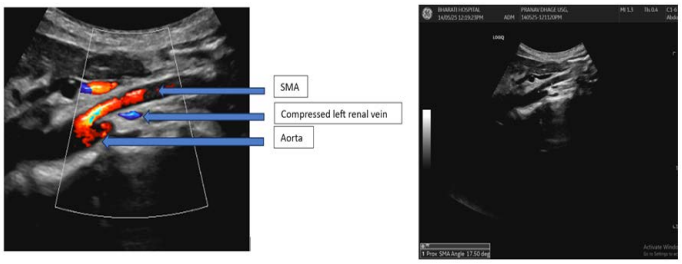

Figure 4: USG axial section showing compressing of left renal vein between SMA and aorta.

Figure 5: Follow up USG (after 15 days) post treatment showing head and neck of pancreas (arrow).

Discussion

Superior mesenteric artery syndrome (SMAS) is a rare condition characterized by vascular compression, wherein the third part of the duodenum is compressed between the aorta and the superior mesenteric artery (SMA)[1]. The reported incidence of SMAS in literature ranges from 0.1% to 0.3%[2].

The normal SMA - aorta angle ranges from 38 to 56° and the aortomesenteric distance is 10 to 20 mm[3]. In patients with chronic illnesses, low BMI can lead to reduced fat between the vessels causing reduced SMA- aorta angle. Some of these patients may not have any clinical symptoms. Only a reduced angle or reduced aorto-mesenteric distance is not sufficient for diagnosis of SMA syndrome. The patient should have classical symptoms as well. The classic symptoms are post-prandial abdominal pain, nausea, vomiting, early satiety (feeling full quickly) and weight loss[4].

Pancreatitis is very rarely associated with SMA syndrome, with only a few case reports. The cause of pancreatitis is a secondary occlusive post papillary syndrome causing

retrograde reflux of bile into the pancreatic duct due to duodenal compression. This triggers an inflammatory process causing pancreatitis[5].

Overdistension of stomach can also be seen due to duodenal compression which is the reason why patients usually have multiple vomiting episodes with symptoms suggestive of bowel obstruction as was seen in our case.

The gold standard for diagnosis of SMA syndrome is CT Abdominal Angiography. The accurate angle and distance between the vessels can be calculated which is helpful for clinicians. CT also helps to rule out other coexisting conditions like pancreatitis, gastric necrosis, portal vein gas, etc[6].

Abdominal USG plays an important role in evaluating the patient for resolution of pancreatitis since there is no radiation exposure especially in the pediatric age group.

Barium studies can also be done to evaluate the exact site of compression of duodenum. No passage of contrast beyond the narrowed segment or reversal of contrast flow in the dilated proximal segment further aid in diagnosis.

A radiograph of the abdomen can be done to look for small or large bowel obstruction. In our case, radiographs were done to confirm the NJ tube position by the clinicians and not for primary diagnosis.

Conclusion

This case shows the rare coexistence of SMA syndrome and pancreatitis. Early diagnosis with radiological modality led to timely intervention by the physician. Proper calorie specific diet will further help to alleviate the symptoms. This case also highlights that timely medicines helped in reversal of pancreatitis which otherwise would have led to severe complications.

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