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CASE IMAGE

A case of superior mesenteric artery syndrome characterized by deep forward bending posture in a cross-legged position on the floor

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Key Clinical Message

A 17-year-old healthy male presents with severe epicardial pain and frequent vomiting 1 h after lunch, preferring to sit cross-legged on a stretcher with a deep forward bending posture along with difficulty lying down. SMA syndrome should be considered in the differential diagnosis of patients demonstrating such posture.

KEYWORDS

bowel obstruction, dyspepsia, gastroesophageal reflux, lateral decubitus

1 | CASE

A 17-year-old previously healthy male presented with acute severe epicardial pain and reported frequent vomiting 1 hafter lunch. Two hours after onset, the patient visited a hospital, where blood was tested and a plain computed tomography (CT) scan of the abdomen was performed. However, the cause could not be identified, and the patient was referred to our hospital 4 h after the onset of his illness. The patient had previously visited another hospital twice within a year for similar symptoms; however, the cause was unknown. There was no history of weight loss. On presentation, the patient was in agony, holding his abdomen and vomiting repeatedly. The patient had difficulty lying down and preferred to sit cross-legged on a stretcher with a deep forward bending posture (Figure 1). Physical examination revealed a height of 160 cm, body weight of 50.1 kg, a flat and soft abdomen, tenderness in the pericardial area, and no signs of peritoneal irritation. A review of a plain axial section CT performed at the previous hospital showed gastric dilatation and presence of fluid. Parenteral fluids, scopolamine, and metoclopramide were administered intravenously. After about an hour, he was able to get into the supine position, so additional contrast-enhanced CT demonstrated that although gastroduodenal dilatation had disappeared, the bifurcation angle between the abdominal aorta (Ao) and superior mesenteric artery (SMA) was steep at 14°, and a narrow width of 9 mm between the Ao and SMA was present (Figure 2A,B). The patient's symptoms resolved promptly after admission without additional treatment, and upper gastrointestinal endoscopy performed the next day revealed no abnormalities. Furthermore, the patient was diagnosed with SMA syndrome and subsequently discharged from the hospital. We instructed him to eat less per meal and more often. Thereafter, no subsequent recurrence was observed for at least 1 year.

Superior mesenteric artery syndrome is a rare disorder in which the space between the Ao and SMA is narrow, resulting in compression of the horizontal duodenal leg and duodenal compression. Symptoms of SMA syndrome are relieved by releasing the angle between the

FIGURE 1 The patient was on a stretcher, leaning forward cross-legged and holding his abdomen in agony.

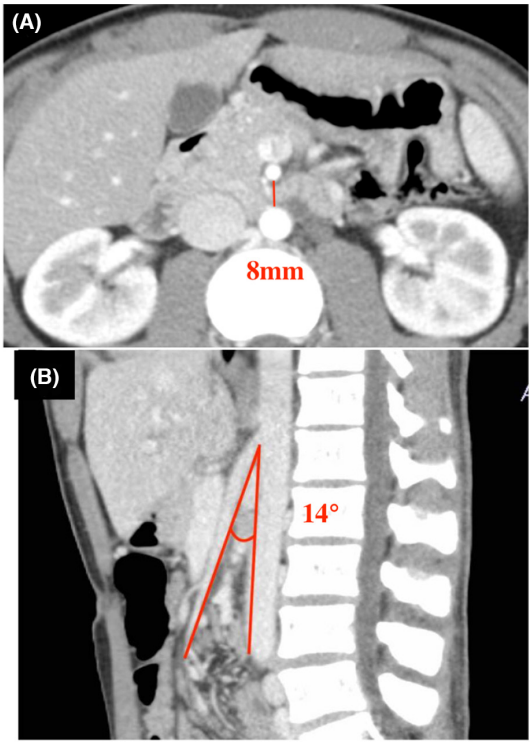

FIGURE 2 (A) Arterial phase of contrast computed tomography (CT) axial section. The distance between the aorta and superior mesenteric artery (SMA), where the duodenum passes through, is 9 mm. (B) Arterial phase of contrast CT sagittal section: SMA bifurcates at a 14° angle from the aorta.

Ao and SMA by demonstration of the prone position, left lateral decubitus, and knee-chest positions.[1] CT images with Ao-SMA bifurcation angles <22° and/or an Ao-SMA spacing <8 mm are considered specific to SMA syndrome.[2] However, it is easy to miss in the axial section of abdominal CT and misdiagnose it as functional dyspepsia without an etiology. Consequently, if a patient presents with abdominal pain and vomiting that are relieved in a cross-legged, forward bending position on the floor, SMA syndrome should be considered in the differential diagnosis, and the patient's vascular geometry should be evaluated.

AUTHOR CONTRIBUTIONS

Hiroki Isono: Writing – original draft; writing – review and editing. **Koki Nakanishi:** Writing – original draft.

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CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY STATEMENT

A data availability statement is not required because no datasets were generated or analyzed during case management.

ETHICS STATEMENT

All procedures performed were in accordance with the ethical standards. The examination was made in accordance with the approved principles. The illustration in Figure 1 is original: it was created by ourselves and is not used elsewhere. The copyright is owned by Hiroki Isono.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

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