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Superior mesenteric artery syndrome with superior mesenteric artery thrombosis: A case report

Superior mezenterik arter sendromlu hastada superior mezenterik arter trombozu birlikteliği: Olgu sunumu

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Abstract

Superior mesenteric artery (SMA) syndrome is a rare syndrome with symptoms including nausea, vomiting and epigastric pain. SMA syndrome is also known as Wilkie's syndrome, mesenteric root syndrome, chronic duodenal ileus syndrome. SMA syndrome is vascular compression of the third part of the duodenum between the SMA and the aorta. In this article, we will present an adult patient with SMA syndrome who was admitted to the emergency service with abdominal pain and associated thrombosis of her superior mesenteric artery, demonstrated by computed tomography. Since SMA syndrome is rare and symptoms are not frequent, some diagnostic difficulties might happen and this will lead unnecessary long-term symptomatic treatments for the patient. In such patients, mesenteric artery thrombosis should be considered in differential diagnosis of abdominal pain.

Keywords: Superior mesenteric artery syndrome, Superior mesenteric artery thrombosis, Acute abdomen, Wilkie's syndrome

Öz

Superior mezenterik arter (SMA) sendromu; bulantı, kusma ve epigastrik ağrı gibi semptomları olan nadir bir sendromdur. SMA sendromu ayrıca Wilkie sendromu, mezenterik kök sendromu, kronik duodenal ileus sendromu olarak da bilinir. SMA sendromu, duodenumun üçüncü bölümünün SMA ile aort arasındaki vasküler kompresyonudur. Bu yazıda, acil servise abdominal ağrı ve bilgisayarlı tomografi ile gösterilen superior mezenterik arterinin ilişkili trombozuyla başvuran SMA sendromlu yetişkin bir hastayı sunacağız. SMA sendromu nadir olduğundan ve semptomların sık görülmediğinden, bazı tanısal zorluklar ortaya çıkabilir ve bu hasta için gereksiz uzun süreli semptomatik tedavilere yol açacaktır. Bu hastalarda, karın ağrısının ayırıcı tanısında mezenterik arter trombozu düşünülmelidir.

Anahtar kelimeler: Superior mezenterik arter sendromu, Superior mezenterik arter trombozu, Akut abdomen, Wilkie sendromu

Introduction

Superior mesenteric artery (SMA) syndrome is characterized by compression of duodenum between the aorta and superior mesenteric artery and causing duodenal (+/- stomach) dilation. Superior mesenteric is separated from aorta with an angle of 45 degrees and if this angle drops below 20 degrees, clinical SMA syndrome manifestations appear. These angle values are valid for adult patients, for pediatric patients' values are lower [1]. However narrow superior mesenteric angle alone is not sufficient to explain symptoms and one should know that patients with low body mass index and children with narrow superior mesenteric artery angles may not display typical symptoms [2]. Carl Freiherr von Rokitansky first identified SMA syndrome in 1861 however, its pathology was obscure until 1927 when Wilkie published the first series of 75 patients [3].

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Case presentation

82-year-old woman patient admitted to our emergency service with abdominal pain, nausea, and vomiting after the meal. In her background, she had hypertension and stroke history, which she experienced 1 year ago. With mesenteric ischemia in her pre-diagnosis, the patient underwent computed tomography (CT) angiography. Her CT of the abdomen showed compression of third part of duodenum between the aorta and superior mesenteric artery, apparent narrowed duodenum lumen in that level and distended stomach and especially first proximal part of the duodenum (Figure 1, 2). In addition, there is no transfer of contrast agent because of thrombus from the level which duodenum passes between the aorta and superior mesenteric artery and from 3 cm distal to the orifice of superior mesenteric artery.

The patient was operated due to the mesenteric ischemia. In observation, from the 40th cm of Treitz ligament, all small intestines with half of the transverse colon were necrotic. Subtotal resection of the small bowel and the right hemicolectomy was performed. The patient died at postoperative 3rd week due to cardiopulmonary arrest. Written informed consent was obtained from the patient's legal representative.

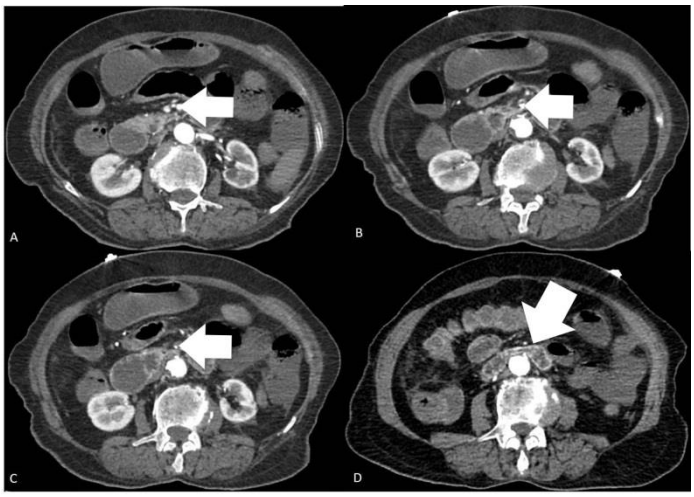

Figure 1: A: Contrast enhanced abdominal computed tomography shows patent superior mesenteric artery (arrow), B, C: Contrast enhanced abdominal computed tomography; there is thrombosed superior mesenteric artery (arrow), D: There is a narrow segment of duodenum between superior mesenteric artery and abdominal aorta (arrow)

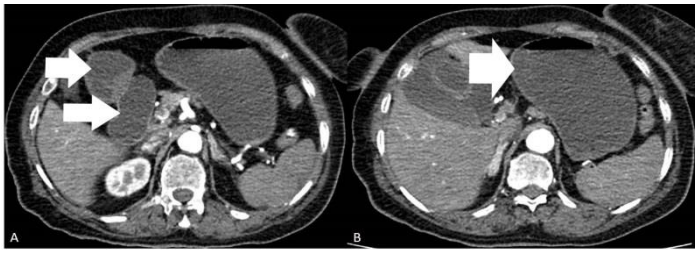

Figure 2: A, B: Contrast enhanced abdominal computed tomography; there are dilated duodenal segments and dilated stomach (arrow)

Discussion

The detection rate of SMA syndrome is 0.3% in patients who undergo upper gastrointestinal system examination with barium [4]. However, the rate of the symptomatic patient was very low. This syndrome was more frequently seen in women. Although there is no specific age range, it was seen most often in early adulthood. The most common comorbid conditions are mental and behavioral disorders like eating disorders and depression, tuberculosis and infectious diseases such as acute gastroenteritis, muscular dystrophy, neurological diseases such as Parkinson's disease and cerebral palsy [5].

Delay in SMA diagnosis may cause severe dehydration, electrolyte abnormalities, hypokalemia, rupture acute gastric or intestinal perforation, gastric distention, spontaneous upper gastrointestinal hemorrhage, hypovolemic shock, aspiration pneumonia, and sudden cardiovascular events [6]. Retroperitoneal fat and lymphatic tissue normally serves as a cushion for the duodenum, prevents the duodenum compression by the superior mesenteric artery. Lack of this structure, which serves as cushion and narrowing of the angle of superior mesenteric artery, leads to the syndrome.

SMA syndrome may be acute or chronic (congenital). Congenital causes can be listed as high insertion of the field ligament of Treitz of duodenojejunal flexure, SMA origin with short distance and the pressure as a result of peritoneal adherence linked with duodenum intestinal malrotation [7]. The causes of the acute form of SMA syndrome can be considered as long-term rest in the bed, spinal cord injury, spinal surgery for scoliosis, left nephrectomy. Even though many clinical conditions can be observed together, the combination of the SMA thrombosis is a rare condition that establishes a ground for the mesenteric ischemia in the acute period. Conservative treatment approaches are tried often. Generally, pediatric cases and acute presentation of SMA syndrome respond better to conservative treatment compared to chronic presentation of SMA syndrome. In pediatric cases, 6-week conservative treatment is recommended [8]. The aim of conservative treatment in SMA is making the underlying causes better and prevention of the weight gain. In acute cases, conservative approaches may be successful including relaxation of the bowel, fluid replacement, parenteral nutrition, correction of electrolyte balance and nasojejunal nutrition [9]. If the conservative approach is not successful or it is not applicable because of the severe disease, surgical interventions are necessary. The most common operation for SMA syndrome is duodenojejunostomy. In 1907, it has been tested by Bloodgood for the first time [10]. The aim of the open or laparoscopic surgery is providing the anastomosis between duodenum and jejunum thus to bypass the area, which is pressed by aorta and SMA [6].

In conclusion, the presence of SMA syndrome and thrombosis is rare clinical condition however since it might be overlooked because of its non-frequent and nonspecific symptoms, the differential diagnosis should be considered. Radiological methods including Barium X-rays, computed tomography, CT angiography and magnetic resonance imaging angiography can be used in diagnosis.

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