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Letter to the Editor

Role of three-dimensional multidetector computed tomography for a huge superior mesenteric artery aneurysm management

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Abstract

Superior mesenteric artery (SMA) aneurysms are the third most common visceral artery aneurysms. Diagnosis of SMA aneurysm can be achieved by abdominal ultrasonogram, postcontrast computed tomography (CT), three-dimensional (3-D) multidetector (MD) CT, or selective angiography of the SMA. 3-D MD CT may play an important role for the evaluation of characteristic morphology of SMA aneurysm and for delineation of the correct relationship between SMA aneurysm and other adjacent branches of the abdominal aorta. We report a case of huge SMA aneurysm visualized by 3-D MD CT images in detecting anatomic details and its role for the best surgical approach in a patient with huge SMA aneurysm.

Keywords: Visceral artery aneurysms; Superior mesenteric artery aneurysms; Three-dimensional multidetector CT

1. Introduction

Superior mesenteric artery (SMA) aneurysms are the third most common visceral artery aneurysms, accounting for 5.5% of all visceral artery aneurysms [1,2]. These aneurysms may be saccular or fusiform and are almost always located within the first 5 cm of the SMA [3]. SMA aneurysms are not common, but complications such as rupture, small bowel ischemia are lethal [1]. Because of these potentially devastating consequences, appropriate and timely diagnosis and management of SMA aneurysms is essential to achieve satisfactory clinical outcomes [3]. Recently, the chances of detecting SMA aneurysm have been increasing with the advances in diagnostic instruments, such as abdominal ultrasonogram, CT scan, CT angiogram and three-dimensional (3-D) MD CT [4,5]. In our case, a huge SMA aneurysm was incidentally detected by ultrasound and subsequent 3-D MD CT provided a precise anatomic detail of SMA aneurysm and guided optimal surgical plan for this particular patient.

2. Case

A 68-year-old male who had a history of liver cirrhosis with esophageal varix visited our hospital for routine check up. He had neither other major medical history nor history of abdominal pain, abdominal trauma, or septic infection. Abdominal sonogram revealed a large echoic cystic mass lesion in the left upper abdomen and color Doppler examination showed turbulent arterial flow (Fig. 1). For further evaluation of this cystic mass, we performed abdominal CT scan. Abdominal CT scan demonstrated 9.3×8.9 cm-sized huge aneurysm with wall continuity to calcified SMA at renal hilum level (Fig. 2). To obtain further anatomic detail, CT angiography with multiplanar reconstructions was performed. Three-dimensional reconstruction demonstrated a huge saccular form SMA aneurysm (Fig. 3). No evidence of rupture was noted. He underwent operative resection of the SMA aneurysm via anterior transverse mesocolon approach on the basis of these non-invasive

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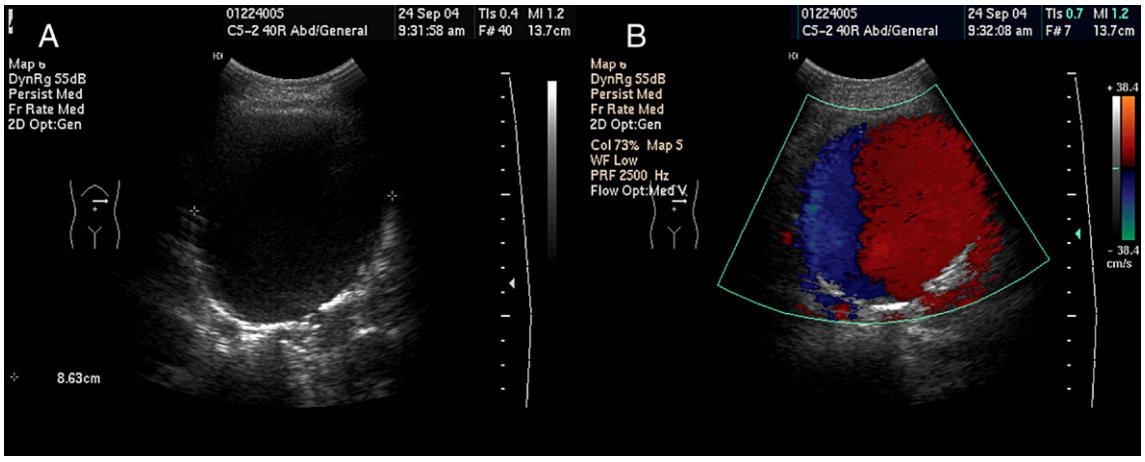

Fig. 1. Abdominal color Doppler sonography. A: A huge anechoic cystic mass lesion in left upper abdomen. B: Color Doppler shows turbulent jet flow in cystic lesion.

image studies. He was safely discharged without postoperative intestinal ischemic complications.

3. Discussion

SMA aneurysm is the third most common visceral artery aneurysm but definite diagnosis and management is not so easy [1,2]. The most common cause of SMA aneurysm is known to be infection which occurs secondary to subacute bacterial endocarditis caused by nonhemolytic streptococcus [3]. Atherosclerosis is present in up to 25% of reported SMA aneurysms. Inflammatory processes, particularly those associated with pancreatitis or biliary tract disease, are found in up to 12% of such aneurysms. Trauma is a rare

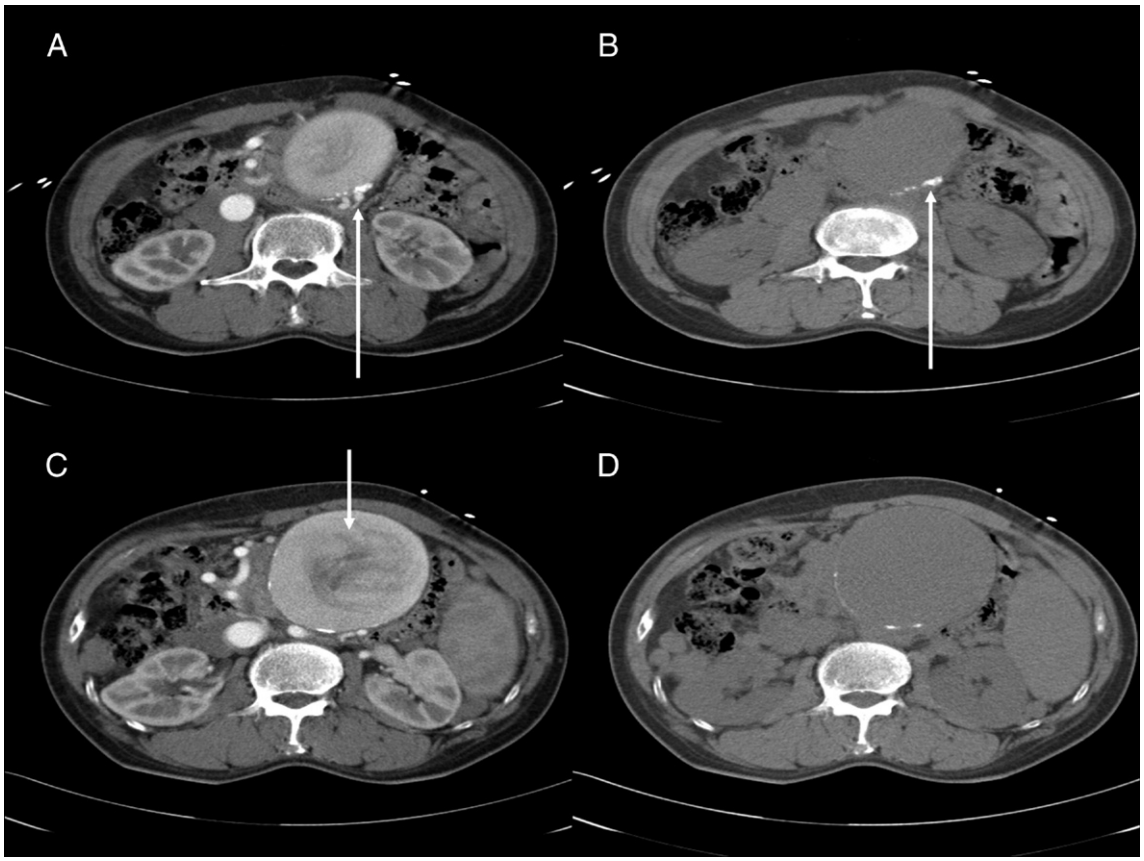

Fig. 2. Abdominal CT scan shows 9.3×8.9 cm-sized mass with wall continuity to calcified (upward arrow) SMA at mid abdomen renal hilum level. This lesion shows internal whirling enhancement and contrast jet (downward arrow).