EMERGENCY BEDSIDE ULTRASOUND DIAGNOSIS OF SUPERIOR MESENTERIC ARTERY DISSECTION COMPLICATING ACUTE AORTIC DISSECTION

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Abstract—Background: A timely diagnosis of aortic dissection is associated with lower mortality. The use of emergent bedside ultrasound has been described to diagnose aortic dissection. However, there is limited literature regarding the use of bedside ultrasound to identify superior mesenteric artery dissection, a known high-risk feature of aortic dissection. Objective: Our aim was to present a case of superior mesenteric artery dissection identified by bedside ultrasound and review the utility of bedside ultrasound in the diagnosis of aortic emergencies. Case Report: We report a case of superior mesenteric artery dissection identified by bedside ultrasound and review the utility of bedside ultrasound in the diagnosis of aortic emergencies. Case Report: We report a case of superior mesenteric artery dissection found on emergent bedside ultrasound in a 46-year-old male complaining of abdominal pain with a history of cocaine abuse and prior aortic dissection. Bedside ultrasound in the emergency department revealed an intimal flap in the descending aorta with extension into the superior mesenteric artery prompting early surgical consultation before computed tomography because of concern for acute mesenteric ischemia. Conclusion: Superior mesenteric artery dissection is a high-risk feature of aortic dissection and can be identified with emergent bedside ultrasound. © 2013 Elsevier Inc.

Keywords—aorta; dissection; superior mesenteric artery; bedside ultrasound

INTRODUCTION

Dissection is defined as a tear in the intimal wall of an artery. Blood then tracks into this tear to create a false lumen or “flap” between the intima and adventitia of the vessel wall. Blood flow may be interrupted, leading to downstream ischemia. Dissection of the superior mesenteric artery (SMA) most often occurs in conjunction with aortic dissection but may also be seen in isolation. Optimal management remains controversial, but is often dependent on the extent of bowel ischemia (1). Strategies include medical therapy, endovascular repair, and laparotomy. Diagnosis is most often made by computed tomography (CT), but bedside ultrasound may hasten the diagnosis, especially in those patients unstable for CT or in those who have contraindications for i.v. contrast.

CASE REPORT

Presentation

A 46-year-old male with a history of aortic dissection presented to the emergency department (ED) with sudden onset of abdominal pain. On arrival his blood pressure was 228/138 mm Hg, heart rate was 80 beats/min, respirations were 20 breaths/min, oxygen saturation was 99% (room air), and temperature was 36.8°C. His abdomen was diffusely tender; femoral and posterior tibial pulses were intact. Bedside ultrasound was performed using the

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curvilinear probe oriented in both the short and long axis over the patient’s epigastrium. This demonstrated an intimal flap in the descending aorta with extension into the SMA (Figure 1 and Video Clips 1 and 2). Intravenous labetalol and nitroprusside were immediately administered and surgical consultation was obtained secondary to concern for mesenteric ischemia. A CT was then obtained, which confirmed the diagnosis (Figure 2).

**DISCUSSION**

Dissection of the SMA is a rare but dangerous cause of abdominal and back pain. SMA dissection occurs most often in association with aortic disease, but less commonly it can be found in isolation (1). Concurrent dissection of a branch vessel is classified as complicated aortic syndrome and is associated with higher mortality (2). Involvement of a branch vessel also affects the treatment algorithm of aortic dissection. Although dissection of the descending aorta is most often medically managed, patients who have concurrent branch vessel disease may benefit from endovascular treatment, especially when there is evidence of mesenteric ischemia (3).

The use of bedside ultrasound to diagnose aortic dissection has been well described in the literature (4–6).

Bedside transthoracic ultrasound is often valuable for visualizing high-risk features of dissection, such as pericardial effusion or a dilated aortic root. In this case report, bedside ultrasound was used to identify dissection of the superior mesenteric artery in association with aortic disease. Timely identification of this high-risk feature facilitated early surgical consultation and transfer to a vascular center. To our knowledge, there have been no case reports on the use of emergent bedside ultrasound to identify dissection of the SMA.

**CONCLUSIONS**

Bedside ultrasound was used to identify SMA dissection in a patient with acute abdominal pain and prior aortic dissection. Branch vessel dissection is a high-risk feature of aortic syndrome and its early identification hastened
surgical evaluation. Bedside ultrasound remains a valuable diagnostic tool for acute aortic syndromes and is particularly useful in those patients who are too unstable for CT or have contraindications to i.v. contrast.

REFERENCES


SUPPLEMENTARY DATA

Supplementary video related to this article can be found at http://dx.doi.org/10.1016/j.jemermed.2013.04.025.