

Acute aortic dissection detected by transesophageal echocardiography during abdominal aortic aneurysmectomy

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To the editor: Acute aortic dissection (AAD) is a rare complication that occurs during open abdominal aortic aneurysm (AAA) repair [1,2]. We report a case of intraoperative retrograde aortic dissection that occurred during elective abdominal aortic aneurysmectomy. Detection of AAD by transesophageal echocardiography (TEE) led to rapid initiation of treatment.

A 73-year-old man was operated for excision of an asymptomatic infrarenal AAA. After induction of general anesthesia, a TEE probe was inserted for purposes of another study. The TEE probe was operated within the esophagus because of the patient's gastric cancer. Investigation of the aorta by TEE showed no evidence of dissection. After a proximal aortic cross-clamp was applied below the left renal artery, the aneurysm was opened when aortic dissection was not apparent at the proximal side of the aneurysm. Aneurysmectomy and Y-graft interposition were completed as planned. After unclamping of the aorta, TEE examination was done again. It revealed an AAD extending along the aorta proximally to a site immediately below the branching of the left subclavian artery and, distally to the descending aorta to the furthest extent that TEE was visible within the esophagus. The proximal end of the false lumen was thrombosed and the entry of false lumen was not found. The result was communicated to the surgeons immediately and inspection of the abdominal aorta and the branches was done. No discoloration of the aortic wall proximal to the graft suture line was observed. Pulsations of the celiac artery, superior mesenteric artery, and bilateral renal arteries were well palpable, and the color of the intestines was unchanged. Urine output was unchanged and metabolic acidosis did not develop, without particular intervention. These findings suggested good perfusion of the abdominal aortic branches. For this reason, conservative treatment of the dissection was chosen. After surgery, the patient was transferred to the intensive care unit. His blood pressure was controlled strictly under artificial ventilation with sedatives. The patient was extubated on the fourth postoperative day. Postoperative thoracoabdominal enhanced computed tomography (CT) examinations showed that the entirely thrombosed dissection

extended from the distal arch to the proximal anastomosis of the abdominal aorta. The patient was discharged from our hospital on the twentieth postoperative day.

Acute aortic dissection (AAD) during surgery is initially suspected if there is a sudden onset of hypotension or volume loss with unknown cause. Although these signs of dissection were not likely to have been missed, lowered blood pressure, caused by unclamping and subsequent bleeding, may have obscured these signs in our patient. Early detection of intraoperative dissection is important because malperfusion of visceral or cervical branches, extension of the dissection to the ascending aorta, and periaortic hematoma often need additional operation. In AAD type B, medical treatment is currently the preferred method of treatment for patients without complications, and it has a very low mortality rate, of around 1% [3]. However, these patients still have a possibility of developing complications such as those described above. The results of surgery remain suboptimal in the current era, with a reported in-hospital mortality rate of 29.3%. Postoperative complications include cerebrovascular accident, paraplegia, visceral ischemia, acute renal failure, and hypovolemic shock [4]. Tools for diagnosing aortic dissection in the operating room are limited: the visual appearance of the aortic wall, aortography (if fluoroscopy is available), and echography including TEE. To evaluate aortic dissection, TEE is regarded as a useful tool [5]. We detected, by using TEE, that the proximal extension of the dissection stopped at the distal arch and that the branches of the arch were not involved. The information for diagnosis provided by TEE was not less than that provided by postoperative CT scans. Although we used TEE in this patient for the purposes of another study, the application of TEE to noncardiac surgery is controversial [6,7]. Nevertheless, it is important for anesthesiologists not to miss the signs of this rare complication; sudden onset of hypotension or volume loss with unknown cause. Once AAD is suspected, TEE examination should be undertaken immediately, because AAD tends to have a lethal outcome, such as cardiac tamponade and shock, without early diagnosis.

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