

Surgical Education and Self-assessment Program (SESAP)

Category 11, Item 9

Question

A 40-year-old woman has hemoperitoneum and hypotension after a motor vehicle crash. At celiotomy, a splenectomy is performed and the patient's hemodynamic parameters normalize. Intraoperative transesophageal echocardiography (TEE) shows a convex bulging along the inner wall of the proximal descending thoracic aorta.

The next step in management of this patient should be

- (A) aortography
- (B) computed tomography (CT) scan of the thorax
- (C) thoracotomy
- (D) observation
- (E) femoral-femoral bypass

For the incomplete statement above, select the lettered completion that is best of the 5 given.

Critique

Multiple injuries are common after blunt trauma. Patients may present with widening of the mediastinum as well as significant abdominal injuries. Transesophageal echocardiography (TEE) has emerged as an alternative to aortography to diagnose traumatic disruption of the aorta. In one recent prospective study, TEE had a sensitivity of 57% and a specificity of 91% for diagnosis of traumatic disruption of the aorta.

In the patient described here, TEE showed ductus diverticulum rather than traumatic aortic disruption. Ductus diverticulum appears as a convex bulging of the aortic isthmus and may be found in up to 25% of normal aortograms. The aortic lumen can be increased by an average of 4.3 mm in the presence of a diverticulum. In a clinical setting associated with a widened mediastinum, ductus diverticulum can be misinterpreted as indicating traumatic disruption of the aorta. Because this patient is now hemodynamically stable, an aortogram should be the next step in management to definitively exclude traumatic disruption of the aorta. Angiographic indications of traumatic disruption of the aorta include the presence of an intimal flap, a narrowed aortic lumen adjacent to a pseudoaneurysm, and delayed clearance of contrast material on digitally subtracted films.

A computed tomographic (CT) scan of the thorax would not be expected to confirm the presence of an aortic diverticulum. Thoracotomy would not be indicated if the patient has normal vital signs and aortography can be performed to confirm the presence of a ductus diverticulum. Observation is not indicated because aortography is required to establish a definitive diagnosis. Because ductus diverticulum is a normal variant, operative repair is not indicated.

A

References

1. Ferrera PC, Ghaemmaghami PA: Ductus diverticulum interpreted as traumatic aortic injury. *Am J Emerg Med* 15:371-372, 1997
2. Morse SS, Glickman MG, Greenwood LH, et al: Traumatic aortic rupture: False-positive aortographic diagnosis due to atypical ductus diverticulum. *AJR Am J Roentgenol* 150:793-796, 1988
3. Oxorn D, Saibil E, Boulanger B: The ductus diverticulum: False-positive angiographic diagnosis of traumatic aortic disruption. *J Cardiothorac Vasc Anesth* 11:86-88, 1997

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