A 45-year-old man was involved in a motor vehicle accident as an unrestrained driver. At the time of his arrival in the emergency room, he was hemodynamically stable but complained of severe chest pain and shortness of breath. A chest radiograph showed a wide mediastinum, and a CT scan of the chest suggested anterior mediastinal hemorrhage. A bedside transesophageal echocardiogram (TEE) performed in the emergency room showed 2 separate traumatic aortic injuries. A circumferential tear with a flap was imaged at the sinotubular junction and was associated with an aortic–left atrial fistula (Figures 1 and 2) and aortic insufficiency. A second traumatic aortic injury was demonstrated as a flap with hematoma at the level of the aortic isthmus just distal to the arch. At catheterization, aortography showed extravasation of contrast into the left atrium (Figure 3). The mean pulmonary wedge pressure was 41 mm Hg.

Aortic–left atrial fistulae have been reported in infective endocarditis and aortic dissection. To the best of our knowledge, this is the first report of this type of fistula caused by chest trauma to be diagnosed by TEE with confirmation by catheterization.

Figure 1. TEE of ascending aorta in longitudinal plane during systole. A distinct flap is shown protruding into lumen above aortic valve, along with a disruption of posterior aortic wall (arrow).

Figure 2. TEE longitudinal plane color flow Doppler view showing turbulent flow from aorta to left atrium through disrupted aortic wall.
Figure 3. A 45° left anterior oblique (LAO) aortogram showing opacification of left atrium (LA) after injection of dye. Ao indicates aorta.
Traumatic Communication Between Aorta and Left Atrium Diagnosed by Transesophageal Echocardiography
Mian A. Hasan, Mark Rorie, Sharon Stamper, Annette Smith, Gong-Yuan Xie and Mikel D. Smith

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