Letter to the Editor

Esophageal perforation after transesophageal echocardiography

Jacques B. Jougon, Philippe Gallon, Taroun MacBride, Jean Dubrez, Jean François Velly

Department of Thoracic Surgery, Pr J.F. Velly, MHL Haut-Lévêque Hospital, 33604, Pessac, France
Department of Anesthesiology and Intensive Care Unit, Pr G. Janvier, MHL Hôpital du Haut-Lévêque, 33604 Pessac, France

Received 10 May 1999; received in revised form 13 August 1999; accepted 22 September 1999

Keywords: Esophageal perforation; Echocardiography; Transesophageal; Adverse effects; Mediastinitis

Transesophageal echocardiography (TEE) is a very reliable method increasingly used in cardiology, cardiac surgery and intensive care because it is an accurate and non-invasive technique. TEE is nevertheless a semi-invasive method which does have some risks. Esophageal perforation is a rare but serious risk. The purpose of this paper is to emphasize on the seriousness of the affection and cautions that may be taken to avoid this complication after TEE.

Out of 87 patients treated in our department [1] for esophageal perforation between 1981 and 1998, two esophageal perforations followed transesophageal echocardiography (TEE). Indications were to rule out an endocarditis in a 86-year-old man and for transit ischemic attacks in a 65-year-old woman. Manifestations of esophageal perforation were septic shock in one case and progressive subcutaneous emphysema in the other. The two patients were operated on. One frail patient died and one is alive.

Perforation incidence after TEE is extremely low. In a multicenter study [2] concerning 10 419 TEE, complication rates and mortality rates were 0.18 and 0.0098, respectively.

In both our observations perforations were situated in the cervical esophagus, some centimeters above the upper esophageal sphincter. At the cervical level the esophageal wall showed weakness caused by the crossing of fibers from the constrictor of the pharynx muscle and the crico pharyngeal muscle [3]. This zone projects in regard of the cervico-thoracic junction (C5–C6 vertebrae). Perforation risk at this level is increased by upper extension of the neck or by anterior vertebral protrusion formed by spur formation that create a ‘bone block’ under the posterior wall of the esophagus. Flexion of the neck enables opening the cervico-thoracic junction and diminishes the risk of perforation [3]. In both our cases, the mechanism consisted in direct perforation of the posterior wall of the esophagus by the extremity of the probe. In sedated patients, the flexed position of the tip of the probe for a long time and moving of the probe in a locked position will be also responsible for tearing or perforating ulceration of the esophageal wall [4].

The appearance of dorsal pain, fever, or subcutaneous emphysema after TEE implies investigation for of an esophageal perforation. This is a surgical emergency and prompt recognition and initiation of treatment is essential to a favorable outcome [1,5]. The treatment should be surgical and consist in a double layer reinforced suture of the esophagus regardless of the delay in diagnosis. Drainage of the mediastinum and pleural cavity, correct reestablishment of the clearance of the esophagus, as well as correct control of the gastric acid reflux are all the other goals to satisfy for favorable outcome. Surgical aggressiveness is justified by the severe prognosis of this affection: Jones and Ginsberg [5] reported mortality rates of 6, 34 and 29%, respectively for cervical, thoracic and abdominal esophageal perforation in a collected review.

References

