
TRANSESOPHAGEAL ECHOCARDIOGRAPHY:

WHAT IS IT AND WHAT ARE THE INDICATIONS FOR ITS USE

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Transesophageal echocardiography (TEE) is a relatively new technique for ultrasound imaging of the heart and great vessels via a gastroscope modified to house an ultrasound transducer on its tip. Imaging of cardiac and vascular structures is performed from within the esophagus and stomach. TEE probes have Doppler and color-flow imaging capabilities to provide detailed information about cardiac structure and function. A review of the esophageal intubation technique, structures visualized, and indications for TEE in medical practice is presented.

Transesophageal echocardiography (TEE) is a relatively new cardiac ultrasound technique for high resolution imaging and blood-flow analysis of the heart and great vessels. TEE utilizes a small 5 MHz ultrasound transducer mounted within a standard flexible gastroscope. Newer TEE probes make use of two ultrasound transducers, for both transverse and longitudinal imaging of cardiac structures.

Standard thoracic echocardiography many times is limited acoustically by the thorax (lungs, bony structures) and provides images at a relatively far distance from structures of interest. An ultrasound transducer in the esophagus or stomach is fairly close to the heart and great vessels, and therefore high frequency, high resolution probes can be used. Impediments from lungs or bony structures are not a problem.

In order to obtain the required imaging planes, the TEE probe is passed into the esophagus and stomach and is manipulated in a manner similar to that of upper gastrointestinal endoscopy.

PREPARATION FOR EXAMINATION

It has been recommended that the patient be NPO for at least 4 hours before the TEE procedure. The author prefers to keep patients NPO after supper for an AM

case, and to have only clear liquids before 7 AM for an afternoon case. After informed consent has been obtained, the patient is made ready with an intravenous line, a finger pulse oximeter, an automatic blood pressure cuff, and oxygen per nasal cannula at two liters per minute. The patient then assumes the left lateral decubitus position. Topical anesthesia of the oropharynx and intravenous midazolam (Versed) and meperidine (Demerol) are given. Only patients with prosthetic heart valves need antibiotic prophylaxis.

After the procedure, which usually lasts 5-15 minutes, the patient is monitored in the endoscopy laboratory for 2 hours. Because of sedation, the patient should not drive until the following day.

TEE ANATOMY

There are three basic planes used for evaluation of the cardiac structures (Figure 1). The basal short axis view provides images of the aortic valve, proximal aorta, atrial septum, right and left atria and their appendages, and the proximal coronary arteries (Figure 2).

The midesophageal four-chamber view is analogous to the transthoracic apical four-chamber view. This provides images of the atria, ventricles, tricuspid and mitral valves, and left ventricular outflow tract (Figure 3). ▶