A simple method to control a malposition of inferior venous cannula in cardiac surgery using transesophageal echocardiography

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Transesophageal echocardiography in cardiac surgery can be a useful technique in detection of unrecognized problems caused by aortic or venous cannulas. Malposition of a venous cannula can reduce blood flow draining into the pump and cause a perfusion problem. We propose a very simple method to control the position of a venous cannula in the inferior vena cava and rule out a malposition in the hepatic veins (Fig. 1). We use a multiplane transesophageal probe and introduce it into the transgastric short axis (by advancement of the probe to the stomach and gentle anteflexion of the tip). In this position we can view a cross-section image of both ventricles; then, the probe is rotated clockwise to place the liver in the center of the field. Finally, we adjust the axis of interrogation between 0 and 60° to obtain a liver view with the inferior vena cava on the back face and the hepatic vein draining into the cava (Fig. 2). This simple maneuver permits us to anticipate a probable perfusion problem during the cardiopulmonary bypass.

Fig. 1. Transesophageal echocardiogram showing a malposition of venous cannula into the hepatic vein. 1, Liver; 2, vena cava; 3, hepatic vein; 4, venous cannula into the hepatic vein.

Fig. 2. Transesophageal echocardiogram showing a well-positioned venous cannula into the vena cava. 1, liver; 2, vena cava; 3, hepatic vein; 4, venous cannula in vena cava.

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