SUBCOSTAL APPROACH FOR REPLACEMENT OF FAILING CIRCULATORY PUMPS

To the Editor:

The technique presented by Rogers and colleagues¹ is easy to perform and very useful. In our institution, we use a similar technique with some modifications to replace failing circulatory pumps.

In the case of cable damage of the HeartMate II or HeartWare HVAD pump and a hemodynamically stable patient, we first prepare the femoral vessels and the cardiopulmonary bypass is left on standby. After dissection of the pump as described by Rogers and colleagues,¹ the new pump is brought into the operating field and the cable is tunneled through the skin and connected to the controller ready for use. One hundred fifty international units of heparin per kilogram of body weight are administered intravenously. In the case of HeartMate II, the screws are loosened and then disconnected. The assistant secures both the openings with thumbs and the surgeon first connects the new pump to the outflow graft, flushes the pump, and tightens the first screw. Alternatively, the openings may be temporarily closed by introducing and blocking a Foley catheter. The next step is to connect the pump to the inflow graft under continuous flushing and then tighten the second screw. In patients with the HeartWare HVAD, the outflow graft is cross-clamped, the pump is removed, and

the fixation ring is closed temporarily with a specially designed titanium plug (Fittkau Metallbau GmbH, Berlin, Germany). In the next step the outflow graft is unscrewed and detached from the damaged pump, connected to the new pump, and tightened. The pump is introduced into the fixation ring under continuous flushing (after removal of the titanium plug). Transesophageal echocardiography continuously monitors the cavity of the left ventricle and ascending aorta for air. This modification avoids the use of cardiopulmonary bypass and simplifies the procedure. For patients in unstable condition, however, cardiopulmonary bypass should be established for safety reasons.

In 1 case of HeartAssist5 and 1 of Terumo DuraHeart thrombosis, we used cardiopulmonary bypass through the femoral vessels and exchanged the pump for a HeartWare HVAD with a similar approach. In 1 case of repeat thrombosis in a second HeartMate II pump, a HeartWare HVAD was similarly implanted. In these cases, the inflow cannula was dissected and removed with the fixation ring. Next, the fixation ring of the HeartWare HVAD was sewn to the apex on the already existing opening and the outflow graft (10 mm) was sewn to the proximal part of the outflow graft of the HeartAssist5 or Terumo DuraHeart (12 mm) or HeartMate II (16 mm) end to end from the same approach.

From our experience, we can recommend the subcostal approach for pump exchange in the case of thrombosis or irreparable cable damage or pump removal after myocardial recovery.

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Reference

1. Rogers JG, Jollis JG, Milano CA. Replacement of continuous-flow left ventricular assist device via

left subcostal incision. *J Thorac Cardiovasc Surg.* 2012;143:975-6.

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EBUS-TBNA USAGE IN DIAGNOSING NODAL METASTASES: A CONCERN

To the Editor:

Carcinoma of the lungs remains a highly lethal lesion despite many interventions and advanced research during the past quarter of a century. Staging of these patients to avoid unnecessary thoracotomy and surgical resection has become a strong consideration in patients with mediastinal concerns. The article "Utility of Endobronchial Ultrasound-Guided Mediastinal Lymph Node Biopsy in Patients With Non-Small Cell Lung Cancer" presents a comparison between 2 biopsy modalities: endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) and mediastinoscopy.¹ The accuracy of the EBUS procedure in the clinical setting has been well presented and demonstrates a potential method for reducing morbidity and potential major complications of the mediastinoscopic approach.

EBUS-TBNA demonstrated a highly accurate staging of the 73 patients reviewed. In their discussion, Lee and colleagues¹ mentioned that mediastinoscopy would have changed the tumor stage and treatment planning in only 2 of the 73 patients (2.7%). They discussed the sensitivity, specificity, and negative predictive value as well as the accuracy of the procedure. Of note, they mentioned that the patients with positive mediastinal biopsy findings were not surgical candidates. Because of an advanced disease stage (IIIB) or unresectable disease, the patients did not undergo additional tissue acquisition from the mediastinum. They further mentioned that patients with positive biopsy results for metastatic carcinoma did not undergo mediastinoscopy.

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