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**Title: Thoracoscopy guided by intraoperative indocyanine green
fluorescence lymphography for post-oesophagectomy chylothorax
(with video)**

**Titre : Thoracoscopie guidée par une lymphographie au vert d'indocyanine
pour chylothorax après oesophagectomie (avec video)**

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TEXT

Chylothorax after esophagectomy is an uncommon but potentially lethal complication, with a reported incidence of 1–9% (1). Prophylactic thoracic duct ligation is not a guarantee against chylothorax but prophylactic ligation could minimize the risk of postoperative chylothorax (2). The management of chylothorax complicating an oesophagectomy remains controversial. Even if medical management alone can be successful, early thoracic duct ligation or re-ligation has been proposed as an appropriate strategy for patients with high-output fistulas (defined in the literature as 1000 mL/d). The goal of early reoperation is to allow localization of the leak before any postoperative adhesions may develop.

The reoperation most commonly performed by thoracotomy raises 3 questions: 1) the specific morbidity of an iterative thoracotomy, 2) precise identification of the leak, 3) the efficacy of the ligation is hard to prove, depending on control vision and drying up of the surgical field (3). In the era of minimally invasive surgery, it has been proposed that thoracoscopy associated with a precise identification of the leak by indocyanine green (ICG) fluorescent lymphography may be a efficient strategy to answer these 3 questions by reducing the morbidity of the reoperation, identifying the leak, and immediately checking the effectiveness of its control. The video shows the case of a 44-year old patient who developed a high-output chylothorax on day 2 following an Ivor-Lewis procedure. The indication was a squamous cell cancer of a lower third of the oesophagus which received preoperative chemoradiation. The procedure was performed by laparoscopy and right thoracoscopy in prone position. The reoperation was performed on postoperative day 3 after radiological lymphography identifying the level and the side of the chyle leak. A thoracoscopic approach was performed on the side of the leak and it is considered that bilateral ligation is necessary in a few patients only. The video shows the different steps of the reoperation. A vial of infracyanine® powder (SERB SAS, 40 Av George V, 75008 Paris, France) 25mg / 10ml was sterile reconstituted with its solvent. After skin antisepsis, 2 ml (5 mg) were injected into the 1st and 2nd interdigital spaces of the right foot, then on the left foot. Eight milliliters containing 20 mg of ICG in total were injected without exceeding 0.5 mg / kg. The injection can be performed immediately before or during the operation because the opacification is rapid, the thoracic duct being visible in green fluorescence after a delay of 5 to 8 minutes. The persistence of fluorescence lasts about 60 minutes, allowing time to perform the planned procedure without requiring re-injection. Access to the right thoracic cavity was performed using 3 ports in prone position. Fluorescence imaging of the lymph flow was obtained using a near-infrared camera system. The fistula was located near the site of the ligation of the thoracic duct from the previous operation. A ligation including all tissue located between the right side of the aorta, the spine and the mediastinal pleura was performed. Once the ligation performed, the fluorescence showed that oozing of the chyle had stopped. The postoperative course was uneventful with ablation of the chest tube on day 3 and discharge on day 15. This video shows the different surgical steps necessary to control a chylothorax after esophagectomy using intraoperative fluorescence.

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