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## Is the Risk of Pleural Seeding after Computed Tomography-Guided Needle Biopsy of a Lung Cancer That High? Our Results and Tips to Reduce the Occurrence

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**Educational Poster Background:** Computed tomography-guided needle biopsy (CTNB) has been widely applied for obtaining a specimen before resection, especially in small lung nodules. However, an increased risk of tumor seeding has been reported, which does not correspond to our experience. At our single institute, 418 p-stage I lung cancers underwent CTNB before resection between October 2003 and December 2012. Procedures were performed following the same steps; briefly, an 18-gauge core biopsy needle was inserted into a lesion under CT-fluoroscopy; multiple penetrations of the pleura were avoided whenever possible (average 1.1 times/lesion); the insertion route was intentionally chosen to include some distance in the normal lung parenchyma. Forty-eight tumor recurrences were observed during the clinical follow-up (range 1–168 months, median 62 months). Among them, five cases developed either pleural- or chest wall-dominant recurrence. In contrast to some literature that reported high occurrence rates of the seeding, a lower rate of approximately 1% was observed in our case series. Tumor seeding caused by CTNB does not occur as frequently as it has been emphasized. Fewer times of pleural penetration and inclusion of the normal lung parenchyma in the insertion route are considered to contribute to a lower pleural seeding rate.

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## Lymphatic Intervention for Chylothorax following Thoracic Aortic Surgery

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**Objectives:** To evaluate the techniques and clinical outcomes of lymphangiogram and thoracic duct embolization (TDE) for chylothorax complicating thoracic aortic surgery. **Methods:** This retrospective study included nine patients (mean age = 38.9 years) who underwent interventional procedures for chylothorax following thoracic aortic surgery except valve surgery. Surgeries were aorta replacement ( $n = 7$ ) with ( $n = 2$ ) or without ( $n = 5$ ) lung resection and vascular ring repair ( $n = 2$ ). Magnetic resonance (MR) lymphangiogram was obtained in five patients. The median interval between surgery and conventional lymphangiogram was 9 days

(range, 4–28 days). Clinical success of TDE was defined as lymphatic leakage resolution with chest tube removal within 2 weeks. **Results:** MR lymphangiogram findings in five patients were contrast leakage from the thoracic duct ( $n = 4$ ) and no definite leakage ( $n = 1$ ) and well-correlated with the findings of conventional lymphangiogram. Technical success of conventional lymphangiogram was 88.9% (8/9); eight showed contrast leakage, while one patient with no definite leakage on MR lymphangiogram had small inguinal lymph nodes and failed to visualize thoracic duct on conventional lymphangiogram. Technical success rates of antegrade TDE and retrograde TDE via the pleural access were 75% (6/8) and 100% (2/2), respectively. There was no difference of clinical outcome judged by tube removal day after embolization between the low (<500 mL/day) and high (>500 mL/day) output chylothorax patients. The decrease of drainage amount was statistically significant from average 710.0 to 109.7 mL/day after lymphangiogram/TDE ( $P < 0.05$ ). Clinical success rate of TDE was 87.8% (7/8). **Conclusion:** Conventional lymphangiogram and TDE showed high technical success and encouraging clinical outcome for chylothorax complicating thoracic aortic surgery.

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## Successful Percutaneous Transhepatic Internal Biliary Drainage with Double Monorail Technique: A Case Report

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**Background:** A 71-year-old woman underwent left hepatectomy for intraductal papillary neoplasm of the bile duct. A hilar abscess occurred and US-guided drainage was performed. After drainage, intrahepatic bile duct was dilated due to inflammation of the abscess. **Results:** Percutaneous transhepatic biliary drainage (PTBD) was performed for both anterior and posterior branch of the bile ducts. Each bile duct was connected to the abscess cavity; however, because common bile duct (CBD) was not identified, cannulation to CBD was impossible. In combination with endoscopic retrograde approach, the drainage tube in the anterior branch was able to reach CBD, but the tube in the posterior branch was not. To address this issue, double monorail technique was used and the posterior tube was able to reach CBD. **Discussions:** When performing internal–external transhepatic biliary drainage, there are cases where cannulation of CBD is difficult due to inflammation, traumatic change, or tumors. In such cases, endoscopic retrograde cannulation of intrahepatic bile duct is commonly performed but often fails. In some cases, double monorail technique can be an alternative and effective method, and this is the first report of double monorail technique applied in PTBD. **Take Home Points:** This technique is used to connect space B and C where connections between space A and B and between space A and C are both established. A very few cases are reported with this technique, and they are limited only to pancreatic fistula. Our case report indicates the effectiveness of the technique in various fields including PTBD.