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Tc-99m Human Serum Albumin Lymphoscintigraphy with SPECT/CT in Chylothorax

Daiki Kayano, M.D., Ph.D.
Junichi Taki, M.D., Ph.D.
Hiroshi Wakabayashi, M.D.
Seigo Kinuya, M.D., Ph.D.

Daiki Kayano, Junichi Taki, Hiroshi Wakabayashi, Seigo Kinuya:
Department of Nuclear Medicine, Kanazawa University Hospital, Kanazawa, Ishikawa, Japan

Reprint: Daiki Kayano, Department of Nuclear Medicine, Kanazawa University Hospital, 13-1 Takara-machi, Kanazawa, Ishikawa, 920-8641, Japan

Abbreviated title: Lymphoscintigraphy with SPECT/CT in Chylothorax

Corresponding author: Daiki Kayano, Department of Nuclear Medicine, Kanazawa University Hospital, 13-1 Takara-machi, Kanazawa, Ishikawa, 920-8641, Japan
telephone number: 81-76-265-2333
facsimile number: 81-76-234-4257
e-mail: kayano@nmd.m.kanazawa-u.ac.jp

Abstract:
A 45-year old man who had refractory right chylothorax after esophagectomy for esophageal cancer underwent lymphoscintigraphy with Tc-99m human serum albumin. Focal abnormal uptake was seen in the mid abdomen on planar image 30 minutes after the tracer injection. SPECT/CT delineated the extent of the accumulation between the anastomotic site and the right pleural effusion area. SPECT/CT had a great impact for detecting the site of lymphatic leakage.

Key Words: lymphoscintigraphy, SPECT/CT, chylothorax

REFERENCES:
A 45-year old man with refractory right chylous pleural effusion after esophagectomy for esophageal cancer underwent lymphoscintigraphy. On planar image obtained at 30 minutes after injections of 74MBq of Tc-99m human serum albumin into the subcutaneous regions of each dorsum pedis, focal accumulation in the mid abdomen was seen (A, arrows). To confirm the site of lymphatic leakage, SPECT/CT was performed at 60 minutes after the tracer injection. SPECT/CT revealed that the accumulation corresponded to the area between the anastomotic site of esophageal hiatus (B, CT; C, SPECT; D, SPECT/CT, arrows) and the area of the right pleural effusion (E, CT; F, SPECT; G, SPECT/CT, arrows). SPECT/CT could correctly point out the site of lymphatic leakage. Thoracoscopic thoracic duct ligation and chylous pleural effusion aspiration were performed on the next day of the lymphoscintigraphy.

The mechanism behind chylothorax is leakage of chyle into the pleural space. Malformation, trauma, neoplasm and surgical procedures can cause chylothorax. Several case reports have demonstrated that lymphoscintigraphy was useful in investigating chylothorax and thoracic duct injury in the neck. In most reports, only planar imagings were performed. To our knowledge, SPECT/CT was performed in only one case report in a patient with chylothorax after child birth, in which SPECT/CT predicted the accurate location of the ruptured sites of lymph duct. In our case report, SPECT/CT provided the good definition of lymphatic leakage in a patient with chylothorax after esophagectomy. SPECT/CT had great impact for interpreting anatomical location in various situations. When abnormal accumulation is seen on planar image of lymphoscintigraphy, additional SPECT/CT is recommended to evaluate the precise anatomical location of the leakage and tracer distribution.