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

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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

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Legend:

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 chylothorax¹. Several case reports have demonstrated that lymphoscintigraphy was useful in investigating chylothorax and thoracic duct injury in the neck²⁻⁶. 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 duct⁷. 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 situations⁸⁻¹³. 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.

