

Fused CT/Ga-67 SPECT Images for Detection of Pleural Lymphoma

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دمج صور CT/Ga67 SPECT لكشف اورام الجنب اللمفاويه

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A 58 YEAR OLD MALE PATIENT WAS admitted with a two month history of shortness of breath and left hypochondral pain.

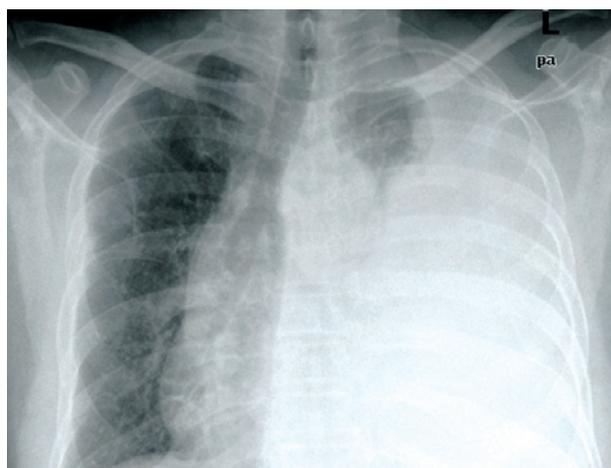


Figure 1: Frontal chest radiograph shows almost complete opacification of the left hemithorax with shift of the mediastinum to the right

The plain radiograph of the chest [Figure 1] showed large left pleural effusion. Computed tomography (CT) of the chest [Figure 2] confirmed the presence of a large left pleural effusion. In addition, it showed circumferential nodular masses involving the left parietal pleura. The gallium scan showed diffuse circumferential uptake in the left thoracic cavity. Fused CT/Ga-67 SPECT image, using Syngo fusion software (Siemens Medical Solutions), allowed the precise localization of the gallium uptake to the left pleura [Figure 2]. The patient underwent pleural biopsy, which showed a diffuse large B cell lymphoma.

Most of the tumours involving the pleura invade the pleura secondarily. The usual primary tumours are bronchogenic carcinoma, breast cancer, lymphoma, and ovarian or gastric tumours.¹ Primary benign and malignant tumours of the pleura are uncommon. Primary malignant pleural neoplasms can present as solitary nodular mass or diffuse infiltrating tumour.²

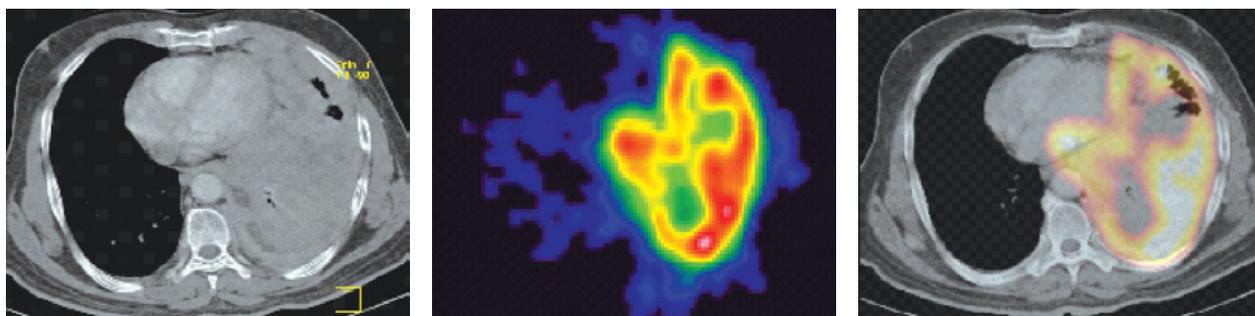


Figure 1: Fused CT/Ga-67 SPECT Image. Enhanced axial CT image at level of the lower thorax shows circumferential nodular pleural thickening. Note pleural effusion. The Ga-67 SPECT image of the chest shows circumferential high uptake along the left pleural cavity. The fused CT/ Ga-67 SPECT image clearly demonstrates the high uptake in the pleural masses shown on the CT

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Primary pleural lymphoma is rare. It occurs in both Hodgkin's and non Hodgkin's disease. The lymphomatous deposits arise from lymphatic channels and lymphoid aggregates in the subpleural connective tissue below the visceral pleura. Associated pleural effusion is attributed to obstruction of lymphatic channels by mediastinal lymphadenopathy.³ Although primary pleural lymphoma as the only initial site of malignancy is rare, lymphomatous involvement of the pleura not uncommonly occurs secondarily. In this circumstance, it appears associated with mediastinal lymphadenopathy or pulmonary parenchymal lymphoma or develops as a manifestation of recurrent disease.⁴

The standard non-invasive radiological examinations include plain radiograph and computed tomography. CT scans help in deciding the location and the extent of the tumour. Gallium scans play a complementary role in diagnosis and staging.

CT/⁶⁷Ga SPECT fusion imaging allowed precise localization of gallium uptake and correct attribution to the viscera involved, thereby altering the diagnosis in

20%-25% of studies in comparison with CT and ⁶⁷Ga SPECT analyses alone. CT/⁶⁷Ga SPECT fusion therefore appears valuable in facilitating the interpretation of ⁶⁷Ga scintigraphy and it is recommended for use in patients with lymphoma when CT and ⁶⁷Ga scintigraphy are planned.⁵

REFERENCES

1. Bonomo L, Feragalli B, Sacco R, Merlino B, Storto ML. Malignant pleural disease. *Eur Radiol* 2000; 34:98-118.
2. Shuman LS, Libshitz HI. Solid pleural manifestations of lymphoma. *Am J Roentgenol* 1984; 142:269-273.
3. Malatskey AM, Fields S, Lisbon E. CT appearance of primary pleural lymphoma. *Compute Med Imaging Graph* 1989; 13:165-167.
4. Dynes MC, White EM, Fry WA, Ghahremani GG. Imaging manifestation of pleural tumours. *Radiographics* 1992; 12:1191-1201.
5. Bernstine H, Bar-Sever Z, Ekstein J, Hardoff R. Ga-67 scintigraphy in a rare case of primary Hodgkin's lymphoma. *Clin Nucl Med* 1999; 24:880-881.