

CASE REPORTS

Gallium-67 Citrate Scanning in Primary Mediastinal Seminoma

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A primary mediastinal seminoma in a young man accumulated gallium citrate. This uncommon tumor should be added to the list of mediastinal masses that concentrate radiogallium.

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Gallium-67 citrate has been reported to be effective in detecting mediastinal and other metastases from a variety of neoplastic processes, including testicular tumors (1-4). The present case report illustrates Ga-67 citrate uptake in a primary seminoma in the anterior mediastinum.

CASE REPORT

A 24-year-old white male who had enjoyed excellent health in the past was admitted to the hospital complaining of intermittent sharp pains, of 3 wk duration, in the upper retrosternal and interscapular areas. There was no history of cough, dyspnea, hemoptysis, fever, weight loss, or previous hospitalizations. Physical examination was entirely within normal limits; in particular, there was no lymphadenopathy, the lungs were clear to percussion and auscultation, and no abnormalities were present in the testicles. Urinalysis, CBC, and liver enzymes were normal. Determinations of alpha-feto-protein and human chorionic gonadotropin were negative. Chest radiograph (Fig. 1) showed a large, slightly lobulated, anterior mediastinal mass with no calcifications. On tomography the mass appeared to be primarily in the right paratracheal and hilar region. A Ga-67 citrate tomographic scan (Fig. 2) showed a large abnormal accumulation of the tracer in the mediastinum corresponding to the mass seen in the radiographs. No other abnormal accumulations of tracer were seen.

Open thoracotomy revealed a 15-cm, multinodular, nonencapsulated mass in the anterior mediastinum. Microscopic ex-

amination showed seminoma with metastasis to two mediastinal lymph nodes. No remnant of thymus was seen (Fig. 3).

DISCUSSION

Primary mediastinal germ-cell tumors are postulated to originate from primordial germinal cells that migrate into the thymus during embryogenesis (5). The fact that primary mediastinal seminoma has been described in females emphasizes the reality of this entity (6). All variants have been described, including seminoma, embryonal-cell carcinoma, adult teratoma, choriocarcinoma, and yolk-sac tumor (5). These tumors are quite similar to testicular neoplasms in age of presentation, incidence, and histology (6).

Gallium-67 citrate uptake in metastatic testicular carcinomas

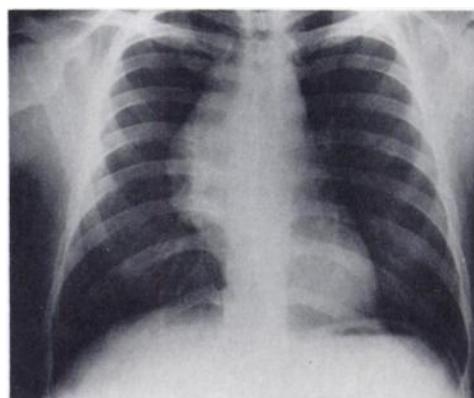


FIG. 1. Chest radiograph showing a large anterior mediastinal mass.

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FIG. 2. Anterior cuts of Ga-67 citrate tomographic scan at 48 hr after injection of tracer. Abnormally increased uptake in anterior mediastinum is apparent. Tracer accumulation in liver and colon is normal. Tomographic planes are defined in centimeters from moving detector.

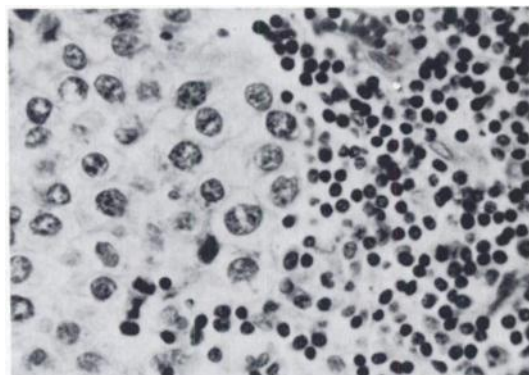
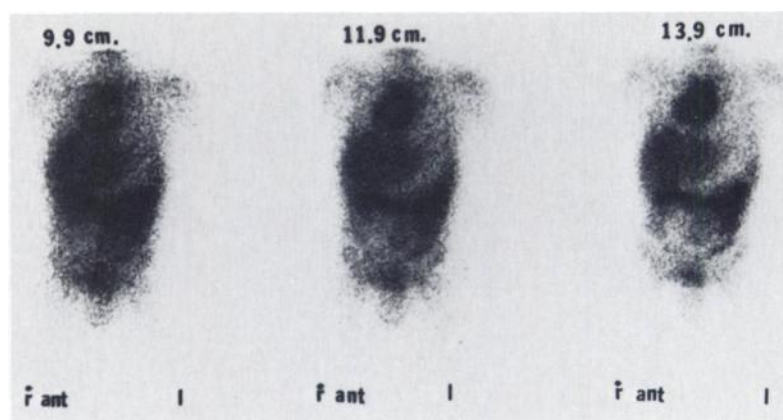


FIG. 3. Gross specimen of mediastinal mass (top). Light microscopic changes of mediastinal seminoma (bottom). Tumor cells are uniform with abundant clear cytoplasm. Note prominent lymphocytic infiltration typical of seminoma (240 X).

varies according to the cell type (3,6,7). It accumulates in a relatively high percentage of metastatic embryonal-cell carcinomas (74%), to a lesser extent in metastatic seminomas (57%), and in a lower percentage of teratomas (25%) (3). The present case illustrates marked Ga-67 citrate accumulation in a primary mediastinal seminoma. Although this type of tumor is uncommon, it should be added to the differential diagnosis of gallium-avid mediastinal masses.

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