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Celebrating 35 Years of the AJNR

September 1981 edition

Central Nervous System Leukemia and Lymphoma: Computed Tomographic Manifestations

John J. Pagan¹
Herman I. Libshitz²
Sidney Wallace³
L. Anne Hayman²

Computed tomographic (CT) abnormalities in the brain of patients with leukemia or lymphoma. Abnormalities included hemorrhage (nine), abscess (two), other brain tumors (one), and leucoencephalopathy (one). CT was normal in 374 patients. Malignant masses were isodense or of greater density than normal brain tissue. Increase in size or number of the masses indicated worsening of the disease. Response to chemotherapy was manifested by development of an enhancing rim. CT findings correlated with clinical findings. The differential diagnosis of the various abnormalities is discussed.

Central nervous system involvement in leukemia and lymphoma is usually manifested as leptomeningeal disease. Extension of meningeal disease into the brain parenchyma is rare. Computed tomographic (CT) recognition of leptomeningeal disease is difficult. The CT description of brain involvement is quite limited. The intracranial manifestations of leukemic and lymphomatous disease in 405 patients is reviewed. Evidence of response to therapy as differential diagnostic considerations are presented.

Materials and Methods

Over a 4 year period, 405 patients with leukemia (24 non-Hodgkin; 12 Hodgkin) underwent cerebral CT. These lesions were correlated with the underlying malignancy, cerebrospinal fluid cytology, and histology.

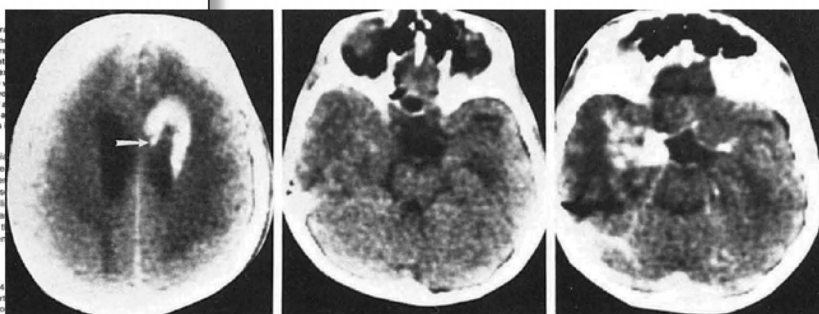
All CT studies were performed with an EMI 1010 scanner using a 60 sec scan time, 160 x 160 matrix, and 13 mm collimator. All scans were obtained either immediately after administration of 40 g of intravenous iodine or 1 hr following high dose (80 g iodine) contrast infusion [10]. Most patients also had noncontrast scans.

Results

Abnormalities in 24 of the 245 patients with leukemia, masses, hemorrhages, abscesses, other tumors. These are itemized by type of leukemia in table 1. Abnormalities in the lymphoma group and were patients (table 2).

Leukemia

Of the 245 leukemic patients, 59 underwent CT.

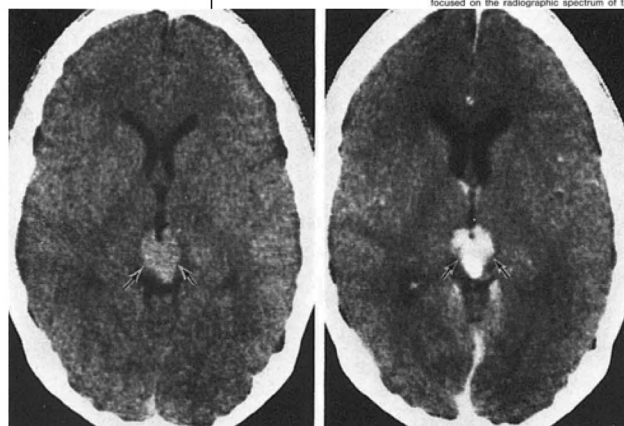


Pineal Region Tumors: Computed Tomographic-Pathologic Spectrum

Nancy N. Futrell¹
Anne G. Osborn¹
Bruce D. Cheson²

While several computed tomographic (CT) studies of posterior third ventricular neoplasms have included descriptions of pineal tumors, few reports have concentrated on these uncommon lesions. Some authors have asserted that the CT appearance of many pineal tumors is virtually pathognomonic. A series of nine biopsy-proven pineal gland and eight other presumed tumors is presented that illustrates their remarkable heterogeneity in both histopathologic and CT appearance. These tumors included germinomas, teratocarcinomas, hamartomas, and other varieties. They had variable margins, attenuation, calcification, and suprasellar extension. Germinomas have the best response to radiation therapy. Biopsy of pineal region tumors is now feasible and is recommended for treatment planning.

Tumors of the pineal region account for less than 2% of all intracranial neoplasms [1]. While several reports of computed tomography (CT) of third ventricular neoplasms have included an occasional pineal tumor [2, 3], few have focused on the radiographic spectrum of these uncommon lesions [4]. Some of many pineal tumors is virtually pathognomonic. A series of nine biopsy-proven pineal gland and eight other presumed tumors is presented that illustrates their remarkable heterogeneity in both histopathologic and CT appearance.



In 15,000 consecutive CT scans. Four for the females was 27 years; for the males, the ages ranged from 1 to 60 years. The masses, and coming, to Pineal and hypophyseal (table 1). Plain and contrast scans. Two were germinomas (atypical each was pineal hamartoma, benign or case was designated as a "malignant" case had insufficient tissue for pathologic examination. Lipoma from characteristic CT findings. Radiation therapy led to the presumptive diagnosis of no evidence of residual or recurrent tumor to follow-up.

Germinomas were either isodense or hypodense (1A) and showed marked, uniform enhancement (fig. 1B). Several were well circumscribed.