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Cerebellopontine Angle Lymphoma

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Lymphoma of the central nervous system is uncommon, accounting for approximately 0.2–2% of all brain tumors [1–7]. Numerous descriptions of the CT appearance of primary and secondary lymphomas have been published [1–16]; however, to our knowledge, lymphoma presenting as a homogeneously enhancing, cerebellopontine angle mass has been reported only once before [13]. We reviewed our experience with intracranial lymphomas and discovered three more cases with this radiologic appearance.

Case Reports

Case 1

A 50-year-old man presented with dizziness, ataxia, and decreased hearing on the left side. CT revealed an isodense mass of the left cerebellopontine angle with homogeneous contrast enhancement (Fig. 1). No adjacent bony abnormality was present. The lesion was avascular at angiography. Surgical removal of a totally extra-axial mass yielded a pathologic diagnosis of diffuse histiocytic lymphoma.

Case 2

A 67-year-old woman with a 2½ year history of treated non-Hodgkin's lymphoma presented with recurrent cervical lymphadenopathy. A cranial CT performed for a declining mental status revealed a mostly homogeneously enhancing mass of the right cerebellopontine angle with irregular margins (Fig. 2). Although no surgical biopsy was performed, a presumptive diagnosis of lymphoma was made on the basis of positive CSF cytology.

Case 3

A 76-year-old woman was admitted with left facial paralysis, nausea, and vomiting. A routine chest radiograph revealed a left lower lobe mass, which on biopsy proved to be a lymphoma. A cranial CT disclosed a large, sharply defined, homogeneously enhancing extra-axial lesion in the left cerebellopontine angle with a broad base abutting the petrous pyramid, and with no adjacent bony abnormality (Fig. 3). The mass was avascular at selective angiography. Due to progressive neurologic deterioration, the patient underwent a left suboccipital craniectomy with subtotal resection of an extra-axial mass. The pathologic diagnosis was small-cell lymphoma.

Discussion

Intracranial lymphomas are relatively rare and can be classified as primary or secondary types, depending on whether

there are extracranial sites of involvement. However, most reports conclude that primary and secondary lymphomas of the brain are difficult to distinguish by CT appearance [11, 13, 15].

Typical CT findings in lymphoma include a large isodense or hyperdense mass with homogeneous contrast enhancement and a variable amount of surrounding edema [1–5, 7, 10–12, 14, 16]. Multiple lesions are seen in 30–50% of patients [4, 5, 7, 16], and the most common locations include the basal ganglia, thalamus, and corpus callosum [1–4]. Lesions in the frontal lobes, temporal lobes, and cerebellum have also been reported [5, 10, 11]. It has been previously noted that the lymphomatous mass is usually in contact with either an ependymal or subarachnoid surface [10].

The most common cerebellopontine angle mass is an acoustic neuroma, which accounts for 75–91% of tumors in this region [13, 17]. Meningioma is the second most common cerebellopontine angle tumor, constituting 2–10% of the total [10]. Both these lesions have a CT appearance similar to our cases. In general, erosion and expansion of the internal auditory canal suggests an acoustic neuroma, whereas a broad tumor base against the posterior temporal bone, calcification of the lesion, and enhancement and venous engorgement of the tentorium cerebelli, suggest a meningioma [10, 18]. The less common cerebellopontine angle masses, such as epidermoids, arachnoid cysts, glomus tumors, or primary brain tumors, usually have a CT appearance different from our cases. Cerebellopontine angle metastases have a variable appearance, but may simulate an acoustic neuroma or meningioma.

To our knowledge, only two cases of cerebellopontine angle lymphoma have been described [13, 19]. One was a homogeneously enhancing mass [13] and the other was so small that CT-gas cisternography was necessary for diagnosis [19]. In this report, one primary and two secondary cerebellopontine angle lymphomas are presented. All three are similar in appearance to the case reported by Nakada et al. [13].

The CT characteristics of these lymphomas may be indistinguishable from the other, more common cerebellopontine angle lesions. However, in contradistinction to most acoustic neuromas, there is no bony erosion of the internal auditory canal. The differentiation between lymphoma and meningioma may be much more difficult, since both are usually isodense or hyperdense on unenhanced CT and exhibit homogeneous

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Fig. 1.—A, Nonenhanced CT scan of posterior fossa shows isodense mass in left cerebellopontine angle (arrows) with subtle distortion of fourth ventricle. B, Enhanced CT scan shows homogeneous enhancement of lesion.

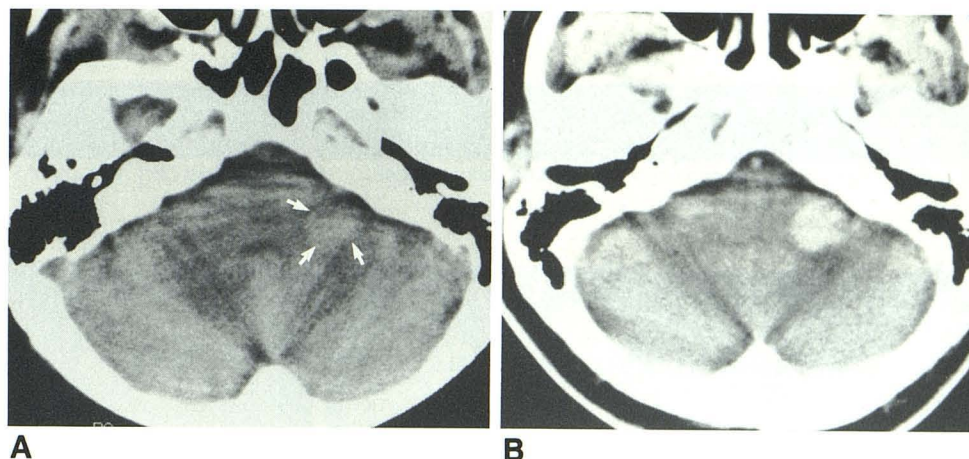


Fig. 2—CT scan after IV contrast administration demonstrates enhancing mass in right cerebellopontine angle with irregular margins. Note mild shift of fourth ventricle toward left.

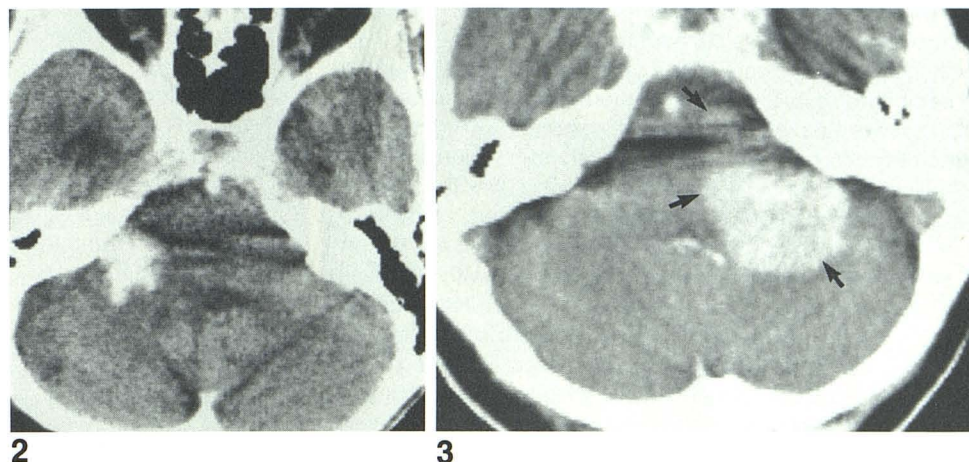


Fig. 3.—Contrast CT scan reveals homogeneously enhancing lesion of left cerebellopontine angle (arrows) with broad base toward temporal bone.

contrast enhancement. In such cases, angiography may be helpful, as a vascular mass with meningeal blood supply and a prolonged tumor stain would strongly favor a diagnosis of meningioma. Calcifications within the mass or venous engorgement of the tentorium cerebelli on CT would also suggest meningioma [10, 18].

In conclusion, intracranial lymphoma usually presents as a homogeneously enhancing mass in deep brain structures. Rarely, it occurs as a solitary extra-axial mass in the cerebellopontine angle. The CT appearance may then be similar to the more commonly occurring acoustic neuromas and meningiomas. Lymphoma, usually avascular at angiography, should be included in the differential diagnosis of cerebellopontine angle tumors, particularly in patients with systemic disease.

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