Epidermoid Cysts of the Callosal Region
—Three Case Reports—

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Abstract

Three patients with rare epidermoid cyst in the callosal region are described, two adjacent and one in the corpus callosum. Computed tomography revealed atypical features, i.e., a large, well-defined high-density mass unenhanced postcontrast and a well-defined hypodense mass with marginal calcification in one case each. Such a diffuse high-density mass may be caused by hemorrhage, highly concentrated protein or calcification of keratinized debris within the cyst. Marginal calcification may occur for unknown reasons. The cysts were subtotally removed.

Key words: epidermoid cyst, corpus callosum, computed tomography, mass lesion, calcification

Introduction

Intracranial epidermoid cyst accounts for 0.2–1% of all intracranial tumors. Cysts usually occur in the cranial base such as the cerebellopontine angle or suprasellar region, and rarely in the callosal region. Here we report three patients with intracranial epidermoid cyst and discuss the computed tomographic (CT) features.

Case Reports

Case 1: A 47-year-old female presented with a slowly progressive right hemiparesis in March, 1977. She was referred to the Department of Neurosurgery in Shizuoka Red Cross Hospital with a convulsive seizure on March 5, 1978. Precontrast CT scans showed a large, well-defined high-density mass in the corpus callosum without surrounding brain edema, which was not enhanced postcontrast. The multilobulated mass was apparently attached to the lower part of the falx (Fig. 1). Operation exposed a well-encapsulated pearly tumor tightly adherent to the corpus callosum but with no direct connection with the falx. Most of the capsule membrane and all inner contents were removed. Histologically the capsule membrane consisted of a stratified squamous epithelium without hair follicles or sebaceous glands. The cyst contained cellular debris and numerous cholesterol clefts. The diagnosis was an epidermoid cyst.

Fig. 1 Case 1. Precontrast CT scan, showing a large, well-defined high-density lesion without surrounding brain edema in the corpus callosum.
Case 2: A 77-year-old male presented at a local hospital with paroxysmal facial tremor persisting for about 1 month. He was referred to the Department of Neurosurgery in Shizuoka Red Cross Hospital on November 18, 1984 because of a CT abnormality. Neurological examination found no definite abnormality except slight dementia. Precontrast CT scans disclosed a well-defined hypodense mass with linear marginal calcification (Fig. 2). Operation disclosed a pearly tumor in the subarachnoid space attached to the corpus callosum. The tumor was subtotally removed except for some marginal calcified areas tightly adherent to the adjacent tissues. Histological examination showed that the tumor was an epidermoid cyst.

Case 3: A 39-year-old male presented at a local hospital with mental disturbances persisting for about 1 month. He was referred to the Department of Neurosurgery in Shizuoka Red Cross Hospital because of a CT abnormality on December 10, 1985. He had slight hyper-reflexia on the right and slight mental disturbance. Precontrast CT scans showed a well-defined hypodense mass in the callosal region (Fig. 3). Operation disclosed a pearly tumor after incising the thinned upper wall of the corpus callosum. The tumor was subtotally removed including the cyst wall. There was no direct connection between the cyst wall and ependyma. Histological examination showed that the tumor was an epidermoid cyst.

Discussion

Only seven cases of intracranial epidermoid cyst in the callosal region have been reported. Intracranial epidermoid cysts probably originate from epithelial inclusions isolated during the 3rd or 4th week of embryonic development. The origin of epidermoid cysts in the callosal region is similar to such cysts elsewhere, with epithelial implantation occurring in the longitudinal cerebral fissure during its formation through expansion and approximation of the forebrain vesicles.

The characteristic CT appearance of intracranial epidermoid cyst is a well-demarcated low-density mass (−8 to +32 Hounsfield units) not enhanced postcontrast. The low density is attributed to the lipid component, cholesterol. Some epidermoid cysts may appear as diffuse high-density masses unenhanced postcontrast as in our Case 1. This high density may be caused by hemorrhage, highly concentrated protein or calcification of keratinized debris within the cysts. Marginal calcification as in our Case 2 may also occur for unknown reasons. Differentiation from falx meningioma or callosal lipoma is sometimes difficult based only on CT. Greater availability of magnetic resonance imaging may solve this problem.

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