Spontaneous Rupture of Intracranial Dermoid Cyst with Chemical Meningitis

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ABSTRACT

Intracranial dermoid cysts are rare benign lesions of neuraxis. They present with symptoms of a space occupying lesion or rupture leading to chemical meningitis. Rupture of dermoid cyst result in the characteristic neuroimaging pattern. We recently encountered an interesting patient in sixth decade of life who presented with spontaneous rupture of intracranial dermoid cyst leading to chemical meningitis. We report the case for its unusual presentation and complete recovery.

Key words: Chemical meningitis; dermoid cyst; intracranial tumors

Introduction

Intracranial dermoid cysts are rare benign lesions of the neuraxis seen in less than 1% of all intracranial lesions.[1] They commonly present with symptoms of a space occupying lesion, rupture leading to chemical meningitis or detected asymptomatically. Rupture of dermoid cyst is usually spontaneous or secondary to closed head injury resulting in a characteristic neuroimaging pattern. There are only about 70 cases of ruptured dermoid cyst reported till date in the world literature.[2] We recently encountered an interesting case of spontaneous rupture of intracranial dermoid cyst.

Case Report

A 60-year-old male patient presented with progressively worsening headache of one year duration and repeated seizures of 3 days duration. He denied any focal deficit and visual changes. Clinical examination revealed a normotensive individual with neck rigidity. Contrast enhanced CT showed a well defined, lobulated extraaxial mass lesion on the left side extending from basifrontal region to parasellar region compressing the left lateral ventricle [Figure 1]. Surrounding brain parenchyma does not reveal any perifocal edema. The lesion measures 58 × 52 × 58 mm (AP × CC × TR) in its maximum dimensions and is heterogeneously hypodense (–20 to –80 HU) showing the fat density and did not show contrast enhancement. Peripheral irregular calcific areas are seen involving the anterior and posterior parts of the lesion. Bilateral scattered areas of the fat density are seen in sulcal spaces in both frontal, temporal, right occipital, left parietal, 3rd ventricle, atrium of both lateral ventricles, interpeduncular cistern and frontal horn of the right lateral ventricle forming a fat-fluid level. An MRI confirmed the findings of a heterogeneously hyperintense mass lesion in the left basifrontal region on T1 and T2 weighted images showing the fat intensity, predominantly in its superior aspects [Figures 2 and 3]. On the basis of the imaging findings, diagnosis of ruptured intracranial dermoid cyst with intraventricular and subarachnoid dissemination of its fatty contents was suggested. The patient underwent a left frontotemporal craniotomy for the removal of the cyst and its contents. The fat like substance was aspirated from the subarachnoid spaces of the frontal and temporal lobes. The cyst wall was punctured and the fatty substances were aspirated initially. Later on the cyst was dissected in entirety at surgery and revealed squamokeratinous debris with few hairs as its contents. Histopathological examination confirmed the diagnosis of dermoid cyst and the patient had no recurrence of seizure during the one month postoperative observation period. The possibility of regrowth of the cysts could not be checked as the patient was lost to follow-up after 4 months.

Discussion

Dermoid cysts are thick-walled cysts lined by keratinized squamous epithelium and constitute 0.1% to 0.2% of all

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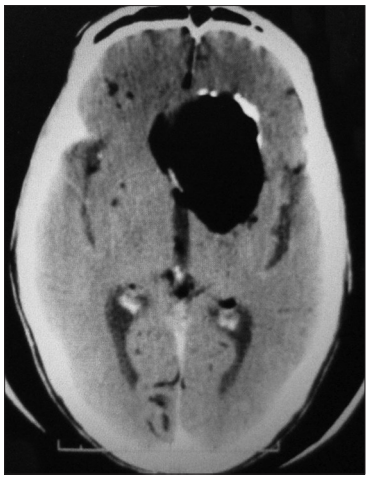

Figure 1: CT scan showing well defined round hypodense suprasellar mass lesion with attenuation consistent with fat and peripheral irregular calcification and multiple areas of the fat density

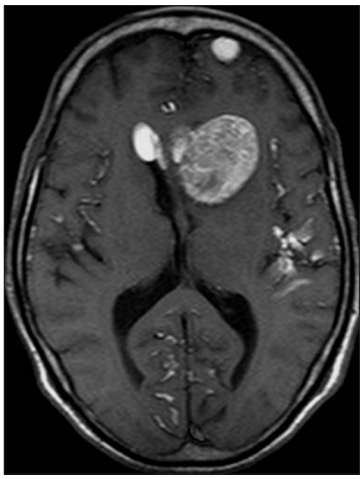

Figure 2: T1 weighted axial image showing hyperintense soft tissue mass in the left basifrontal region

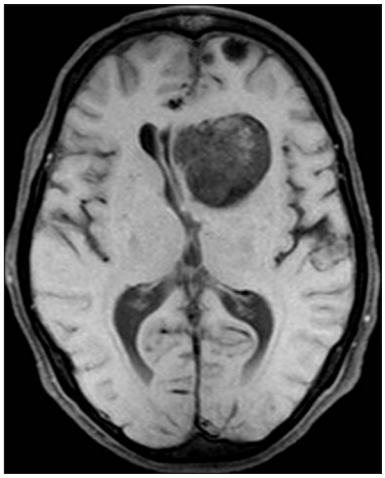

Figure 3: T1 weighted fat saturated axial image showing suppressed hyperintense foci confirming the fat content

intracranial tumors. They arise from the inclusion of ectopic embryonic rests of the ectoderm in neural tissue. The cyst material contains skin appendages like hair follicles, hairs, sweat glands, sebaceous glands, teeth or nails.[3] Dermoid cysts are commonly seen in posterior fossa in midline. Supratentorial dermoid cysts are uncommon and are seen to originate from parasellar, suprasellar and parasagittal areas.[4] Although dermoid tumors develop from the embryonic period, symptoms may not occur until adulthood due to their slow growth.

Posterior fossa dermoid cysts present early where as supratentorial dermoid cysts present in the 3rd to 4th decade of life. Our patient presented in sixth decade of life and with features of headache and recurrent seizures. Dermoid cysts have a tendency to expand into the subarachnoid spaces. Unruptured dermoid cysts are asymptomatic with mild symptoms secondary to tumor's slow growth. Rupture is relatively rare, occurring spontaneously or following closed head trauma. Acute symptoms are related to rupture of cyst leading to aseptic meningitis and spread of fat droplets in the cerebro-spinal fluid.[5] Our patient had spontaneous rupture of cyst leading to chemical meningitis and denied history of associated trauma. The spontaneous rupture in our patient could be due to large size of the cyst with weak cyst wall leading to dehiscence. The differential diagnosis of dermoid cysts includes epidermoid cysts, arachnoid cyst and craniopharyngioma.[6] Epidermoid cysts are more common, variable in location, arise away from midline and frequently recur when compared to dermoid cysts. Arachnoid cyst and cystic craniopharyngioma are differentiated based on the signal characteristics on neuroimaging using FLAIR sequences and the demonstration of fat droplets in dermoid cyst. The diagnosis may be confirmed by the histopathological examination of the cyst demonstrating the presence of stratified squamous epithelium, sebaceous gland and keratinous debris. The diagnosis was evident in our case due to typical radiological picture. Surgical removal of the cyst with extensive irrigation of the subarachnoid space is the mainstay of management of ruptured dermoid cyst. Aseptic meningitis is the most frequent preoperative complication.

To conclude, the unique features in our patient include presentation of spontaneous rupture of supratentorial dermoid cyst in the sixth decade of life along with complete recovery in postoperative period.

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