Ruptured Intracranial Dermoid Cyst: About two cases

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Abstract

Intracranial dermoid cysts are uncommon lesions. They account for <1% of all intracranial masses, with characteristic imaging appearances, they are usually well-defined lobulated midline masses that have low attenuation (fat density) on computed tomography CT and high signal intensity on T1-weighted the magnetic resonance imaging (MRI). Typically they do not enhance after contrast administration. Rupture of intracranial dermoid cysts (RICDC) is a rare phenomenon and in this article we report two additional cases to the literature. The rupture can be traumatic or non-traumatic and CT is often adequate in making a diagnosis of this entity, MRI can complete the characterization showing presence of T1 hyperintense droplets and leptomeningeal enhancement. This complication can be treated surgically or conservatively depending on the clinical symptoms.

Keywords: Ruptured Dermoid cysts.

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INTRODUCTION

The intracranial dermois cyst (DC) is a rare entity, accounting for 0.1-0.7% of all intracranial tumors [1,2,3]. Its frequency is 4-10 times lower than epidermoid cysts [2]. They are benign, slow-growing congenital neoplasms and are believed to arise from ectopic ectodermal cell rests incorporated in the neural groove at the time of closure. [4,5]. Rupture of intracranial dermoid cysts (RICDC) is a rare phenomenon and in this article we report two additional cases to the literature.

CASE REPORT

Case 1

A 40-year-old patient with no particular pathological history, who had a sudden decrease in visual acuity followed by a loss of consciousness in the context of apyrexia. The clinical examination found multiple dermatological lesions made of nodular lesions under the cutaneous scalp without any other associated abnormality. An enhanced cerebral CT scan was performed (Figure 1) and showed a calcified suprasellar cystic lesion with heterogeneous density and containing fat and fluid component with fat droplets in the subarachnoid spaces. The patient underwent surgery evolution was characterized by the disappearance of headaches with stability of visual acuity.

Case 2

A 52 year old woman came to the ER with a sudden-onset headache, left-sided weakness and generalized tonic clonic seizures. There was no past medical history or drug use. An unenhanced CT of the head showed a large low-attenuation lesion in her right
fronto-temporal lobe with calcified borders, there was an additional low-attenuation droplet in the subarachnoid space layering in the basal cisterns and cerebellar sulci, consistent with rupture (figure 2). The evolution was fatal in this case.

Imaging findings vary, depending on whether the cyst has ruptured [12]. On CT scans, dermoid cysts can have mixed densities, and rarely enhance following contrast administration [13-16]. The intracystic fat and disseminated fat droplets appears hypodense, whereas calcifications in the wall are hyperdense. Hydrocephalus and fat-fluid level may be present following rupture into the ventricular system. On MRI, dermoid cysts are hyperintense on T1-weighted sequences and variable on T2-weighted sequences, although the presence of cholesterol can often make them appear hypointense on T2 as well [12, 16-18]. Dermoid cysts can be differentiated from epidermoid cysts in that the former demonstrates fat signal on CT and MRI whereas the latter resembles CSF [19-21]. Differentiating a dermoid cyst from craniopharyngiomas is relatively easier, as the latter enhances strongly on CT [22, 23]. In addition, the craniopharyngioma cyst walls also display strong enhancement on T1-weighted MRI sequences [24, 25]. Teratomas help distinguish themselves via their calcifications, which are hyperintense on CT [26, 27].

Computed tomography is the initial imaging method used in emergency departments [28], but the capability of MR to evaluate the associated vessel displacement, either by flow void or MR angiography, paired with better visualization of the lesions relative to the base of the skull owing to lack of bone interference and multiplanar imaging capability, make MR the preferred preoperative imaging method [29].

Ruptured intracranial dermoid cysts in general require surgical removal with extensive rinsing of the subarachnoid space during the surgery [30]. Conservative treatment may be considered for broken cysts where there is a risk of intraoperative vascular involvement, but with a risk of recurrence of rupture [31]. In the absence of surgical treatment, regular monitoring by MRI is strongly recommended, in order to follow the evolution of the extent of the spread of lipid droplets and to detect a possible aggravation, and to detect a possible recurrence in the framework of the postoperative follow-up [32].

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