Pituitary Abscess: a case report and review of the literature

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We present a 13-year-old patient with pituitary abscess, who suffered from vertigo, headache and left temporal hemianopsia. Intrasellar or suprasellar lesion was suspected clinically. The CT and MRI showed an intrasellar mass with left suprasellar extension, and marked peripheral wall enhancement was identified. A pituitary abscess or abscess formation in a pituitary tumor was impressed preoperatively. Primary pituitary abscess formation was confirmed by the trans-sphenoidal surgery. Enhanced CT and MRI could contribute to the pre-operative diagnosis.

Key words: Pituitary Abscess; Pituitary, CT; Pituitary, MR

Pituitary abscess is relatively rare. It may be caused either by hematogenous seeding into the pituitary gland or by direct extension of an adjacent pathological abnormality, or secondary infection from either hematogenous spread or direct extension from an adjacent infection [1]. We reported a young female with pituitary abscess, and the CT and MRI will be presented.

CASE REPORT

A 13-year-old female was admitted to our hospital with the chief complaints of headache and vertigo for two to three months. A left pre-auricular sinus and a protuberance of left craniopharyngeal pouch were noted on physical examination. The neurological examination revealed left temporal hemianopisa. CT showed a heterogeneous hypodense mass in the sellar turcica with upward extension compressing the left optic tract. The lesion had a lower density core with peripheral rim of contrast enhancement (Fig. 1). No sinusitis was observed in the sphenoid sinus.

MRI showed a well-delineated intrasellar and suprasellar mass. On T1WI, the mass was characterized by heterogeneous hyperintense signal (Fig. 2) and marked peripheral wall enhancement on the post-contrast T1WI study (Fig. 3a, 3b). On T2WI, the entire lesion showed high signal intensity (Fig. 4). The patient underwent trans-sphenoidal surgery with evacuation of pus-like necrotic materials and a few pieces of tissue. The tissue fragments were composed of necrotic material, and numerous leukocytes. Staphylococcus epidermidis was isolated from the culture of the pus. The patient had an uneventful post-operative course and regular following up in our hospital.

DISCUSSION

Pituitary abscess is a rare but potentially life-threatening disease. The abscess may present as a primary pituitary lesion, may arise in an underlying sellar pathological abnormality, or secondary infection from either hematogenous spread or direct extension from an adjacent infection [1]. We reported a young female with pituitary abscess, and the CT and MRI will be presented.
infection (such as meningitis, sphenoid sinusitis, cavernous sinus thrombophlebitis, or a contaminated CSF fistula). The risk factors of the pituitary abscess include immunocompromised or concurrent pituitary lesions, e.g. Rathke cleft cyst, pituitary adenoma, or craniopharyngioma [1, 2]. Previous surgery involving the pituitary gland and irradiation for pituitary disease are also risk factors for the formation of a pituitary abscess [3, 4]. In our case, the remnant of craniopharyngeal duct (pouch) seems to be the ascending infective route for the pituitary abscess formation.

The usual clinical features of pituitary abscess are chronic headache, visual disturbance, and diabetes insipidus, which are less common in association with pituitary adenoma than with abscess [1, 4]. The common visual abnormalities are bitemporal hemianopia and ocular movement disorders [1, 4]. The clinical manifestations of our case, which are headache and vertigo for months, are compatible with previous surveys. Because the abscess compressed the left optic tract, the left temporal hemianopia thus occurred. As in our case, the usual organisms associated are staphylococci and streptococci [1].

The CT and MRI play important roles of preoper-

Figure 1. Coronal post-contrast CT shows a sellar mass with suprasellar extension. The lesion has a central area of decreased density and a peripheral wall enhancement.

Figure 2. Coronal T1WI shows a high-intensity mass in the sellar region with suprasellar extension.

Figure 3a. Coronal post-contrast T1WI shows the hyperintense mass with enhanced peripheral wall and left supra-sellar extension. b. Sagittal post-contrast T1WI shows a hyperintense mass with well enhanced upper rim, arising from the pituitary fossa and supra-sellar extension.
ative diagnosis of pituitary abscess. Brain CT shows an intra or suprasellar lower density mass with peripheral contrast enhancement rim, which is usually thick, as shown in our case [5, 6]. The imaging findings are suggestive rather than specific for the diagnosis. The MRI features have been mentioned in the literatures [7-10]. Bossard et al [7] described a pituitary abscess presents as an intrasellar lesion with a low signal on T1WI and a high signal on T2WI, which suggests the cystic nature of the lesion. Post-gadolinium MRI reveals peripheral enhancement. Other MRI features have also been notified [7, 8]. The lesion may have been a medium-intensity or high-intensity signal on T1WI, which was resulted from hemorrhage and/or protein-rich fluid. In our case, the CT showed the typical central low density mass with strong rim enhancement. The MRI showed an intra and suprasellar mass with a medium to high-intensity signal and clearly delineated margin on T1WI. On T2WI, the mass showed high signal similar to the CSF signal. Post-gadolinium images showed intense, homogeneous enhancement of the wall. The differential diagnosis of our case should include: pituitary adenoma especially those of hemorrhage or infarct resulting from apoplexy, craniopharyngioma especially considering the age of our case is of high incidence, Rathke’s pouch cyst, and dermoid or epidermoid cyst. These diagnoses should be carefully excluded regardless of the signal of the abscess, since abscess might complication of a sellar lesion [10]. The trans-sphenoidal approach is the treatment of choice for pituitary abscess, which prevents contamination of the CSF.

We conclude that, the clinical presentation of pituitary abscess is variable and often simulate a pituitary tumor. Enhanced CT and MRI are reliable diagnostic tools and typical imaging appearances may be highly suggestive of the diagnosis.

REFERENCES


Figure 4. Sagittal T2WI shows a hyperintense mass in the pituitary fossa with supra-sellar extension.
腦下垂體膿瘍：病例報告

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我們報告一位患有腦下垂體膿瘍之13歲女性，臨床上表現出頭痛、暈眩及左顴部視野偏盲。電脳斷層與磁振造影顯示出一蝶鞍內腫塊併有蝶鞍上突出，引起左視神經徑壓迫，此腫塊周邊壁呈現出強烈的顯影劑增強，在開刀前由影像學的診斷，強烈懷疑為腦下垂體膿瘍。經過開刀治療後，病人情況良好並定期在門診追蹤。

關鍵詞：腦下垂體膿瘍：腦下垂體，電脳斷層：腦下垂體，磁振造影