Pituitary abscess

Epidemiology

Intrasellar abscess is an uncommon cause of mass lesions in the sella turcica. Few cases have been reported in the literature, and much remains unknown about the etiology and diagnosis of these lesions.

Infections of the hypothalamic-pituitary region are rare lesions, accounting for less than 1% of all pituitary lesions [1].

It is characterized with central nervous system (CNS) infection, mass effect, and endocrine dysfunction. These abscesses generally occur due to hematogenous spread in conditions such as paranasal sinusitis, sepsis, and where the blood brain barrier breaks down.

Clinical features

The clinical diagnosis of these infections can be difficult due to nonspecific nature of the disease (in many patients without symptoms of infection) and may be misdiagnosed as other pituitary lesions. The risk factors for infections of the hypothalamic-pituitary region are meningitis, paranasal sinusitis, head surgery, and immunocompromised host (diabetes mellitus, Cushing's syndrome, HIV infections, solid organ transplantation, malignancy). Infections can develop in a normal pituitary gland or in pre-existing pituitary lesions (adenoma, Rathke´s cleft cyst, craniopharyngioma). There are several modes of dissemination of the infection to the hypothalamic-pituitary region: hematogenous, iatrogenic (after neurosurgical procedures), and spread from paranasal or nasal cavity (through venous channels of the sphenoid bone). Hypothalamic-pituitary infections most commonly present with visual disturbances and headache, in some cases with fever and leukocytosis. A significant proportion of patients develop hypothalamic-pituitary dysfunction during the acute phase of the disease or months and years after successful antimicrobial therapy [2].

Diagnosis can be challenging and the hypothalamic-pituitary infection with formation of abscess or granuloma may be misdiagnosed as a pituitary tumor. Transsphenoid drainage followed by antibiotics, antimycotics or anti-tuberculous drugs are usually efficient in successful treatment of these patients [3].

Pituitary abscess remains a rare diagnosis that can be difficult to make and to confirm [4].

Treatment

Prompt treatment with surgical drainage and aggressive post-operative antibiotics can lead to a favorable outcome [5].

Transsphenoidal endoscopic endonasal approach for the surgery of pituitary abscess is effective [6].

Case series

2015

All examined patients had a history of antecedent transsphenoidal pituitary surgery within the preceding 10 months. All presented with headaches, three with progressive visual loss, one with meningismus, one with fever in the setting of an active cerebrospinal fluid leak, and one with fever, meningismus, hypotension, and progressive somnolence. No patient presented with acute endocrine abnormalities. A majority did not initially have any diffusion restriction present on MRI, but in one case we were able to track the evolution of diffusion restriction over sequential MRI scans. Two patients had complete resolution of presenting symptoms, while three experienced improvement or stabilization of their neurologic deficit. There were no mortalities.

They found a strong association between culture-positive abscess and recent pituitary surgery. When present, prompt treatment with surgical drainage and aggressive post-operative antibiotics can lead to a favorable outcome [7)].

2013

Following detailed clinical and hormonal examinations and imaging tests, 210 cases of pituitary neuroendocrine tumor and other sellar pathologies were operated on at the Neurosurgery clinic of Göztepe Training and Research Hospital.

All the patients showed fever, systemic signs of toxemia and endocrine dysfunction at the time of diagnosis. In these cases, a preoperative diagnosis of the disease was made thanks to characteristic MRI findings. The four cases were operated by the transnasal transsphenoidal approach and histopathological and microbiological studies were performed for surgical specimens.

Pituitary abscesses are rare disorders responsible for a high mortality risk. Mortality and morbidity can be reduced by early surgical drainage and appropriate antibiotic treatments. Additionally, these cases should be closely followed-up in terms of pituitary insufficiency, surgical complications and infection [8)].

Fungal sellar abscess is rare.

A 42-year-old man was admitted with 2-month headache characterized by right peri-orbital pain. An intrasellar mass was found to be simulated a pituitary neoplasm after magnetic resonance imaging examination, and operated on via an endoscopic trans-sphenoidal approach. Milk-like pus and a mass of ash black mixed and necrotic material were found and removed. Histopathology revealed numerous aspergillus hyphae. Itraconazole was given on a dosage of 200 mg twice a day orally for 6 weeks. No recurrence was observed during follow-up. Complete surgical resection through endoscopic trans-sphenoidal approach combined with systemic anti-fungal therapy, should be considered as the optimal treatment [9)].

[1)], [2)], [3)]
Pekic S, Miljic D, Popovic V. Infections of the Hypothalamic-Pituitary Region. 2018 Oct 7. In: De Groot LJ, Chrousos G, Dungan K, Feingold KR, Grossman A, Hershman JM, Koch C, Korbonits M, McLachlan R, New M, Purnell J, Rebar R, Singer F, Vinik A, editors. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-. Available from http://www.ncbi.nlm.nih.gov/books/NBK532083/ PubMed

PMID: 30321013.

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Huang KT, Bi WL, Smith TR, Zamani AA, Dunn IF, Laws ER Jr. Intrasellar abscess following pituitary surgery. Pituitary. 2015 Oct;18(5):731-7. doi: 10.1007/s11102-015-0651-8. PubMed PMID: 25814123.

6)
Yu H, Liu G. [Transsphenoidal endoscopic endonasal approach for the surgery of pituitary abscess]. Zhonghua Er Bi Yan Hou Tou Jing Wai Ke Za Zhi. 2014 Jan;49(1):16-9. Chinese. PubMed PMID: 24680331.

8)
Altas M, Serefhan A, Silav G, Cerci A, Coskun KK, Elmaci I. Diagnosis and management of pituitary abscess: a case series and review of the literature. Turk Neurosurg. 2013;23(5):611-6. doi: 10.5137/1019-5149.JTN.7443-12.2. PubMed PMID: 24101308.

9)
Hong W, Liu Y, Chen M, Lin K, Liao Z, Huang S. Secondary headache due to aspergillus sellar abscess simulating a pituitary neoplasm: case report and review of literature. Springerplus. 2015 Sep 24;4:550. doi: 10.1186/s40064-015-1343-6. eCollection 2015. PubMed PMID: 26435896; PubMed Central PMCID: PMC4582039.