Pituicytoma Diagnosis

The accurate diagnosis of pituicytoma continues to depend on histopathological evidence. Microscopically, pituicytomas are composed of round to spindle-shaped cells with a fascicular or storiform growth pattern. The tumor cells have an abundant eosinophilic cytoplasm and a rich capillary network is visible. Tumor cell nuclei are round to oval, without evident atypia or mitotic figures [1)]

Zhi et al reported a pituicytoma with atypical histological features, including sparse intercellular reticulin surrounding the tumor cells [2)].

Immunohistochemistry

Immunohistochemically, tumor cells were diffusely positive for S-100 protein (21/21), vimentin (15/15) and TTF1 (14/14), while they were weakly or focally positive for GFAP (13/16) and EMA (6/12). CKpan was negative in all cases and Ki-67 proliferation index was low (<5%). Among the 18 patients with follow-up, all survived and 2 relapsed after surgery. Pituicytoma is a rare low-grade glioma of the sellar area. It is easily confused with other sellar tumors. Preoperative diagnosis is difficult. It needs to be confirmed by histopathology and immunohistochemistry [3)].

Radiographic features

CT

Typically pituicytomas are homogeneously enhancing, either within the pituitary fossa or in the suprasellar region. Size is variable, ranging from a few millimeters to a few centimeters.

MRI

T1: isointense solid mass; posterior pituitary bright spot often absent T1 C+ (Gd): bright contrast enhancement T2: heterogeneous, hypointense to isointense

DSA

Pituicytomas have a rich capillary network, accounting for their usual contrast enhancement and propensity to bleed at surgery. They receive their blood supply from the normal and extensive supply to the pituitary gland, including the meningohypophyseal trunk and superior hypophyseal arteries.

Radiologically, PTs were found anywhere along the hypothalamic-pituitary axis mimicking other, more frequent tumors growing in this anatomical region [4)].

The MRI features are non-specific with most case reports showing a solid, homogenous mass, iso-

intense on T1-weighted images and hyper-intense on T2-weighted images with homogenous contrast enhancement [5].

1)
Yang X, Liu X, Li W, Chen D. Pituicytoma: A report of three cases and literature review. Oncol Lett. 2016 Nov;12(5):3417-3422. doi: 10.3892/ol.2016.5119. Epub 2016 Sep 12. PMID: 27900014; PMCID: PMC5103963.
2)
Zhi L, Yang L, Quan H, Bai-ning L. Pituicytoma presenting with atypical histological features. Pathology. 2009;41(5):505-9. doi: 10.1080/00313020903041119. PMID: 19900097.
3)
Feng X, Bao W, Wang X, Rao Q, Shi QL, Yue Z. [Pituicytoma: a clinicopathological analysis of twenty-one cases]. Zhonghua Bing Li Xue Za Zhi. 2022 Apr 8;51(4):314-318. Chinese. doi: 10.3760/cma.j.cn112151-20210818-00579. PMID: 35359042.
4)
Salge-Arrieta FJ, Carrasco-Moro R, Rodríguez-Berrocal V, Pian H, Martínez-San Millán JS, Iglesias P, Ley-Urzáiz L. Clinical features, diagnosis and therapy of pituicytoma: an update. J Endocrinol Invest. 2018 Jul 20. doi: 10.1007/s40618-018-0923-z. [Epub ahead of print] Review. PubMed PMID: 30030746.
5)
Chu J, Yang Z, Meng Q, Yang J. Pituicytoma: Case report and literature review. Br J Radiol 2011;84:e55-7.