Rosette-forming glioneuronal tumour: Imaging features, histopathological correlation and a comprehensive review of literature.

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Abstract

Background. Rosette-forming glioneuronal tumour (RGNT) is a rare and novel brain tumour. We present a case of rosette forming glioneuronal tumour of the fourth ventricle and highlight the imaging and histological features of this tumour entity. We also performed a comprehensive review of the imaging features, treatments and outcomes of all past cases and make recommendations on diagnosis and management. Method. We conducted a PUBMED search using the words 'rosette forming glioneuronal tumour', and identified 48 cases of rosette forming glioneuronal tumour. We reviewed the location, imaging features of this rare tumour entity as well as the treatment and follow-up. We also present a case of a 42-year-old man with an incidental finding of a solid-cystic midline mass in the posterior fossa at the level of fourth ventricle with morphological features and immunohistochemical characteristic of a RGNT (WHO Grade I). Findings. RGNT is commonly found in association with the fourth ventricle often with local extension; however, it is known to occur at sites outside of its usual location. RGNT can demonstrate solid, cystic or mixed features on MRI and frequently shows focal contrast enhancement. It is often associated with an element of hydrocephalus. Gross or subtotal tumour resection was the most common treatment of choice. Due to the intimate relationship of these tumours to key neural structures in the cerebellum, variable degrees of postoperative neurological deficits were reported in half of the patients. Among the reported cases, no evidence of recurrence following gross or subtotal resection of tumour was seen in the majority of patients. However, owing to lack of lengthy follow-up, we recommend routine imaging follow-up. Conclusion. Knowledge of this tumour is of importance as they are relatively slow growing and exhibit benign histological characteristics, thus depending on its location maybe amenable to gross total resection.

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