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RECURRENT POSTERIOR FOSSA HEMANGIOBLASTOMA: A CASE REPORT

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ABSTRACT

Hemangioblastomas are benign, highly vascular neoplasms of the central nervous system (CNS WHO grade 1), most commonly found in the cerebellum. Despite their low-grade classification, these tumors can recur following incomplete excision. We present the case of a 45-year-old female who had undergone two previous posterior fossa tumor resections (in 2008 and 2014) and re-presented in 2025 with recurrence. A repeat suboccipital craniotomy was performed, and the lesion, which appeared vascular and fibrous with dural attachment, was excised piecemeal with dural repair. Histopathological analysis confirmed recurrent hemangioblastoma (CNS WHO grade 1). This case highlights the surgical challenges, recurrence potential, and long-term follow-up considerations in re-operation in recurrent posterior fossa tumors.

KEYWORDS: Hemangioblastoma; Posterior fossa; Recurrence; Redo surgery; Immunohistochemistry.

INTRODUCTION

Hemangioblastomas are rare, slow-growing, and highly vascular central nervous system tumors classified as CNS WHO grade 1. They occur predominantly in the cerebellum but may also affect the brainstem, spinal cord, cerebral hemispheres, or retina. These lesions may present sporadically or as part of von Hippel–Lindau (VHL) syndrome.[1] Although hemangioblastomas represent less than two percent of all CNS tumors, their clinical relevance lies in their vascularity, recurrence tendency, and surgical complexity. Patients typically present with symptoms related to mass effect in the posterior fossa, such as headache, nausea, vomiting, and gait disturbance. Radiological studies often reveal solid-cystic masses with enhancing mural nodules and prominent flow voids, consistent with their vascular nature. Histologically, hemangioblastomas comprise of neoplastic stromal cells interspersed among numerous non-neoplastic thin-walled capillaries, and immunohistochemical studies confirm their identity through markers such as inhibin-α, S100, and D2-40 positivity.[1]

Despite their benign nature, hemangioblastomas can recur following incomplete excision or when resection planes are ill-defined. Surgical management of recurrent lesions is often challenging due to postoperative scarring, altered anatomy, and proximity to critical neurovascular structures. Careful preoperative planning and meticulous microsurgical technique are vital to achieving gross total resection while minimizing complications.[2]

CASE REPORT

A 45-year-old woman initially presented in 2008 with progressive headache and vomiting. Neurological examination revealed cerebellar ataxia. Neuroimaging (CT and MRI) demonstrated a large left cerebellar lesion with both cystic and solid components exhibiting contrast enhancement. Following detailed counseling regarding surgical risks and benefits, the patient underwent posterior fossa craniotomy and complete excision of the lesion. The postoperative course was uneventful, and histopathology confirmed hemangioblastoma, CNS WHO grade 1. She was discharged with a plan for annual follow-up with MRI surveillance.

In 2014, imaging showed regrowth of the lesion, corresponding to clinical recurrence with renewed headaches. The patient underwent repeat resection of the mass. Postoperatively, she recovered without complications. Subsequent surveillance imaging again demonstrated slow progressive regrowth of the tumor over the following decade. By 2025, MRI revealed a sizable recurrent mass in the posterior fossa and a redo-suboccipital craniotomy was performed. Intraoperatively, the lesion was highly vascular and firm, with dural adherence. Complete excision was achieved, followed by dural repair. Histological analysis once again confirmed hemangioblastoma, CNS WHO grade 1. The patient's recovery was uneventful, and she remains well under annual MRI follow-up.

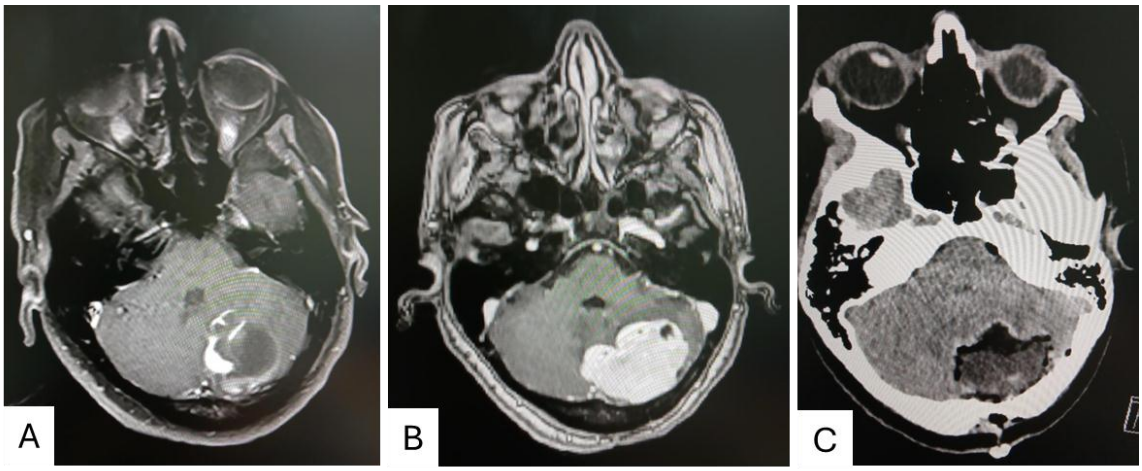

Figure 1. (A) Initial MRI at presentation (2008). (B) MRI in 2025. (C) Post-operative CT scan 2025.

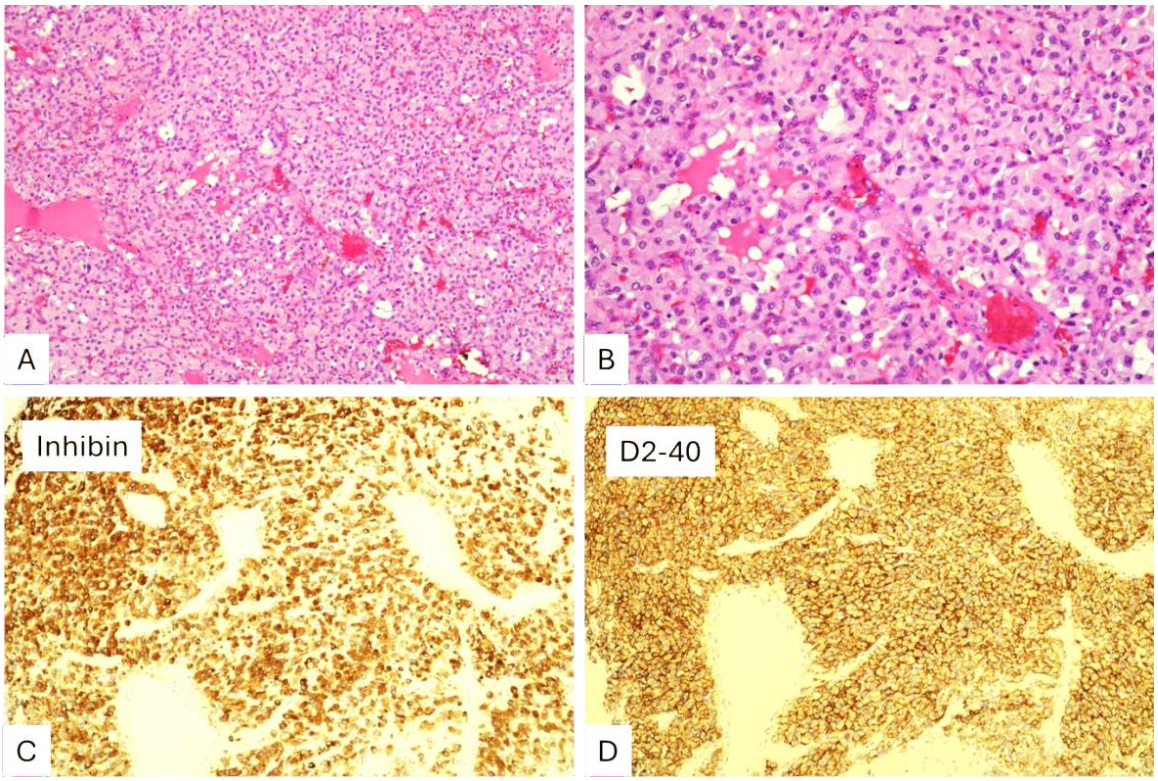

Figure 2: Histological picture of the hemangioblastoma with neoplastic foamy stromal cells and non-neoplastic capillary network (A, B). Neoplasm is immunopositive for -inhibin and D2- 40 (C, D).

DISCUSSION

This case illustrates a rare instance of triple recurrence of a posterior fossa hemangioblastoma over 17 years. Re-operative surgery within the posterior fossa demands exceptional precision due to previous scarring, distortion of anatomical planes, and proximity to venous sinuses. The tumor's intraoperative appearance, vascularity, firmness, and dural attachment, is typical of hemangioblastoma pathology.[2, 3]

Differential diagnoses for adult cystic or solid posterior fossa lesions include hemangioblastoma, pilocytic astrocytoma, and metastasis.[1,4] Although classical imaging features may assist in diagnosis, histopathology and immunohistochemistry are needed for definitive diagnosis. Positive expression of inhibin-α, D2-40, and S100, along with negative staining for EMA, CD10, and GFAP in stromal cells, helps distinguish hemangioblastoma from clear-cell renal carcinoma metastases.[4, 5]

The extent of resection remains the most significant predictor of recurrence.[2,6] For small residual or unresectable lesions, stereotactic radiosurgery (SRS) provides an effective, minimally invasive alternative, particularly for compact, solid nodules.[7,8] However, cystic components often respond less predictably and may necessitate surgical management. Given that approximately one-third of hemangioblastomas are associated with von Hippel–Lindau syndrome, comprehensive genetic evaluation and systemic screening are recommended, even in apparently sporadic cases. Lifelong radiological surveillance of the CNS and kidneys is advisable for early detection of new or recurrent lesions.[2,9]

CONCLUSION

This report describes a rare case of multiple same site recurrent posterior fossa hemangioblastoma managed with repeated surgical resection. The case underscores the importance of meticulous reoperative strategy, awareness of the potential role of stereotactic radiosurgery in management, and the need for genetic counseling and surveillance for von Hippel–Lindau syndrome. Long-term follow-up remains crucial to detect recurrence early and guide further intervention.

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