

## Remote Hemorrhage of a Pontine Cavernous Angioma Fifty-Two Years after Cerebral Irradiation\*

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### Introduction

It has been recently recognized that intracerebral cavernous angiomas can develop in children after irradiation of the brain for other pathologic conditions. These previously reported cavernous angiomas were diagnosed 2 to 10 years after irradiation [4]. Presented now is a patient who had a pontine cavernous angioma diagnosed 52 years after cerebral irradiation for a posterior fossa astrocytoma.

### Clinical Presentation

The patient is a fifty five years old female who underwent radiation therapy at age three following resection of a posterior fossa juvenile astrocytoma. Three years ago, she had a sudden onset left facial palsy that was presumed to be idiopathic (Bell's palsy) in origin. Recurrent episodes lead to hearing loss, onset of a sixth nerve palsy and exacerbation of her facial weakness. Brain MRI was consistent with a hemorrhagic pontine cavernous angioma (Fig. 1). She underwent a left temporal craniotomy, with translabyrinthine approach. Total resection of her pontine cavernoma was achieved without added morbidity. This was confirmed on the postoperative MRI. She was discharged home five days later.

This case is presented as the longest reported latency between cerebral irradiation and the diagnosis of a cavernous angioma.

### Discussion

The incidence of cavernous angiomas on MRI is 0.4% [2]. Fourteen percent are infratentorial and they bleed at a rate of 0.1% per year/lesion [2]. Six percent are familial [3]. No other predisposing factors were identified until recently when cavernous angiomas were reported to occur after irradiation of the immature brain in treating CNS neoplasms in children [4].

Six children were reported to have had intracerebral cavernous angiomas develop following CNS irradiation. Three presented with hemorrhage 7 to 10 years after irradiation, and the remaining three patients had their intracerebral cavernoma discovered four years after irradiation [4]. Secondary malignancies have been long known to develop in the central nervous system following the irradiation of primary CNS neoplasms [1]. Radiation also can cause vascular injury of the small and large vessels [1]. Thus, radiation therapy has been postulated to promote the formation of a cavernous angioma de novo [4]. In addition it may render a present but occult angioma more susceptible to bleeding [4].

In the case that we are presenting we believe that there is an association between the irradiation for the cerebellar glioma and the pontine cavernoma. The likelihood that a pontine cavernous angioma bled in a survivor of cerebellar astrocytoma by pure hazard is extremely small.

We think that more cases will be reported, now that it is established that intracerebral cavernous angiomas can develop in children after irradiation of the brain [4].

### Conclusion

Intracranial cavernous angiomas can become symptomatic decades after brain irradiation. This is another evidence of delayed deleterious effects of irradiation on the young brain.

\**Keywords:* Cavernous angiomas; brain radiation; pontine hemorrhage.

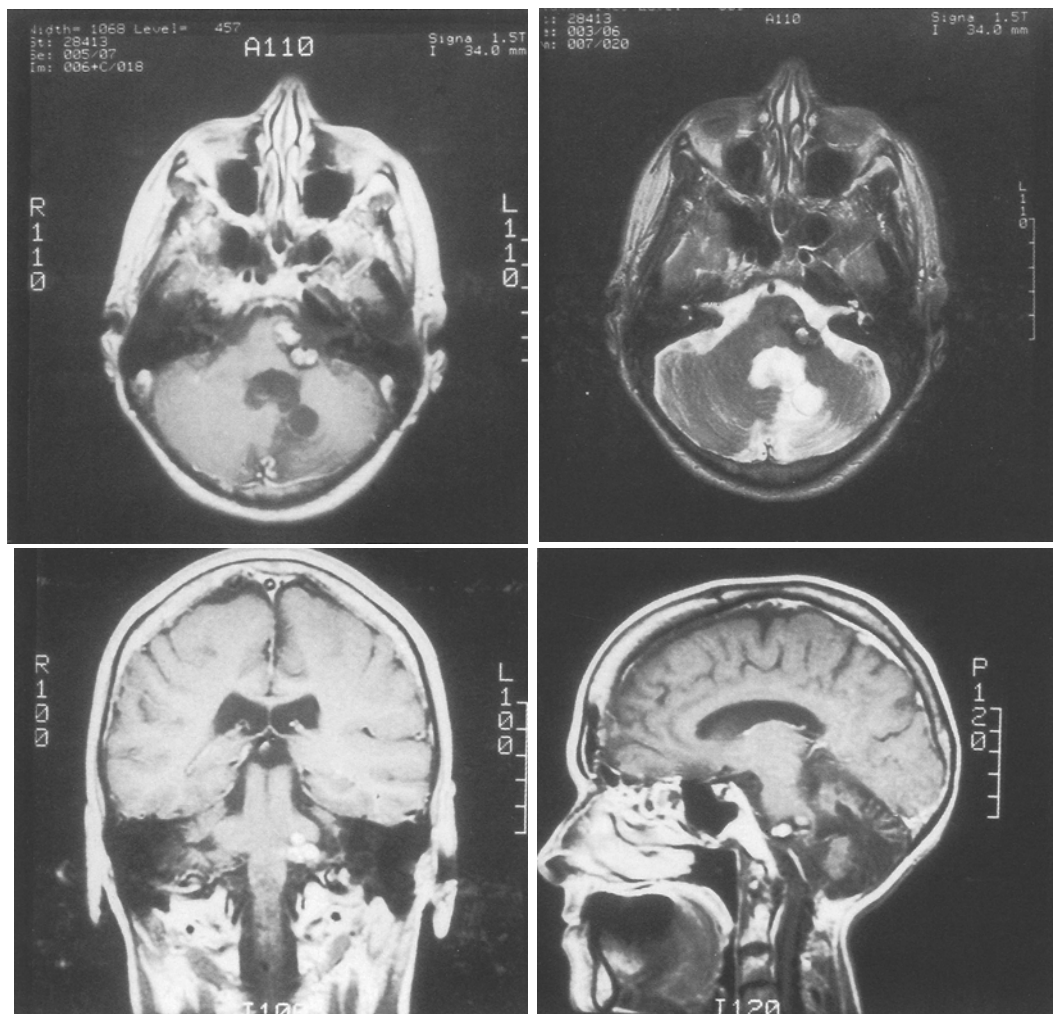


Fig. 1. Axial, coronal, and sagittal MRI's showing the characteristic signal change in the pons of cavernous angiomas

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