

Introduction

We describe the outcomes for patients with intracranial arteriovenous malformations (AVMs) who presented with seizures prior to radiosurgery.

Methods

A series of 111 patients with intracranial AVMs underwent CyberKnife radiosurgery at Stanford between 1999-2013. Twenty-one patients had seizures not completely controlled on medications prior to radiosurgery. Among these patients with refractory seizures, six were female and fifteen were male. The median age was 33 years (17-75), and three patients were pediatric (<18y). Five patients (24%) had prior hemorrhages and the median Spetzler-Martin Grade was 3 (1-5). All AVMs involved the cerebral hemispheres and three had deep extension. The median AVM diameter was 4cm. Seventeen patients (81%) underwent prior embolization, and three patients (14%) underwent surgical resection prior to CyberKnife treatment.

Results

Among the 21 patients with refractory seizures secondary to intracranial AVMs who underwent CyberKnife radiosurgery, all 21 had clinical follow-up and the median follow-up time was 36 months. Thirteen patients (62%) had complete resolution of seizures at a median time of 18 months following radiosurgery. The remaining eight patients had no change in their seizure frequency. Of note three patients who had never had seizures experienced at least one new seizure after radiosurgery (3%), which ultimately resolved for all three patients.

Conclusions

This series demonstrates a high control rate following CyberKnife radiosurgery for AVM-induced seizures. The risk of having a new seizure is low, and the chance of becoming seizure free is high at one to two years following treatment.

Learning Objectives

To understand that seizures may be controlled with CyberKnife Radiosurgery even before complete obliteration.