

# Gamma knife radiosurgery for treatment resistant choroid plexus papillomas

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**Abstract** *Objective* To report the results of gamma knife radiosurgery (GKR) for treatment resistant choroid plexus papillomas. *Methods* Six patients (median age 55 years; range 29–75) with residual ( $n = 2$ ) or recurrent ( $n = 4$ ) choroid plexus papillomas underwent GKR. All failed prior surgery and one failed prior proton beam radiation therapy. These six patients had a total of 11 locally or distant recurrent intracranial tumors. The median and mean tumor volumes were 2.7 and 3.9 cc (range, 0.23–21.1). A median margin dose of 12.0 Gy (range, 11.5–15) was prescribed to the tumor margin. *Results* The progression-free periods varied from 7 to 108 months (mean: 36.9). Four tumors were stable after GKR but seven showed progression. Four recurrent tumors in two patients were managed with repeat radiosurgery and three were observed. At the second GKR, the tumor volume varied from 1.3 to 12.4 cc, and the marginal radiation dose varied from 11 to 14 Gy. The overall survival after the first GKR varied from 15 to 120 months. Four patients were alive at the end of the study period. *Conclusions* Radiosurgery represents an

additional management strategy for patients who progress despite surgical removal. It may especially be useful for patients with small deep seated residual choroid plexus papillomas, and for tumors that recur at a site distant from their origin.

**Keywords** Adjuvant therapy · Choroid plexus papilloma · Gamma knife radiosurgery · Radiation therapy · Radiosurgery · Recurrence

## Abbreviations

APS	Automated positioning system
CPP	Choroid plexus papilloma
C-P	Cerebellopontine
GKR	Gamma knife radiosurgery
MRI	Magnetic resonance imaging
SPGR	Spoiled-gradient recalled acquisition in steady state

## Introduction

Although stereotactic radiosurgery has been used as a minimally invasive strategy to manage a variety of brain tumors, its use for choroid plexus papilloma (CPP) has been reported rarely [1–3]. Because of deep location, marked vascularity, or local invasion in underlying critical brain structures, complete and curative resection may not be feasible [3]. When such tumors recur despite surgery or spread within the brain, we believe they are treatment resistant despite their reported benign histology. We evaluated the role of GKR for CPPs that recurred locally or at a distance after complete resection or progressed after subtotal resection.

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