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On "Malignant Transformation of Acoustic Neuroma/Vestibular Schwannoma 10 Years after Gamma Knife Stereotactic Radiosurgery" (Skull Base 2010;20:381-388)

It was with great interest that we read the article titled "Malignant Transformation of Acoustic Neuroma/Vestibular Schwannoma 10 Years after Gamma Knife Stereotactic Radiosurgery" by Demetriades et al in the September 2010 issue of *Skull Base*.¹

We were surprised to see that the authors identified only 13 cases. We did a literature review and found 36 cases of malignant acoustic tumors. In two cases, the tumors have grown rapidly 7 years and 2 years consecutively and the patients passed away shortly without confirmation of the malignancy. There were nine reports that described malignancy in neurofibromatosis type 2 (NF2) patients, and interestingly, all of these nine patients had received stereotactic radiation as initial treatment for their tumor (Table 1).²⁻³⁰

It should also be noted that two of the cases identified by the authors referred to the same patient. In fact, Kudo and Matsumoto and colleagues have published the same case of malignant vestibular schwannoma twice: the first time in English and the second time in Japanese, 7 years later.^{3,31}

In addition, the experience from the National Centre for Stereotactic Radiotherapy in Sheffield showed not only one astrocytoma after gamma knife surgery for a cavernoma but also a new appearance of a glioblastoma multiforme in a patient 3 years after receiving radiotherapy for the treatment of his vestibular schwannoma.³²

We agree with the authors that long-term follow-up is mandatory after gamma knife treatment, because

Table 1 Summary of Reported Cases of Malignant Vestibular Schwannoma

Authors	Age/Sex	Side	NF2	Pathology	Previous Irradiation	Survival
Dastur 1967 ²	38/M	L	N	Melanotic schwannoma	N	8 mo
Kudo 1983 ³	54/M	R	N	MPNST	N	1 mo
Miller 1986 ⁴	74/M	N/A	N/A	Melanotic schwannoma	N	N/A
Hernanz-Schulman 1986 ⁵	2/F	N/A	N	MPNST	N	N/A
Best 1987 ⁶	24/F	R	N	Triton	N	1.5 mo
McLean 1990 ⁷	75/M	R	N	MPNST	N	2 mo
Han 1992 ⁸	47/F	R	N	Triton	N	2 wk
Maeda 1993 ⁹	38/M	R	N	Triton	N	3 mo
Mrak 1994 ¹⁰	40/M	L	N	MPNST	N	36 mo
Earls 1994 ¹¹	77/M	L	N	Melanotic schwannoma	N	N/A
Norén 1998 ¹²	18/F	R	Y	Triton	Y	N/A
Comey 1998 ¹³	50/M	R	N	Triton	Y	24 mo
Thomsen 2000 ¹⁴	19/F	R	Y	Sarcoma	Y	12 mo
Saito 2000 ¹⁵	69/M	L	N	MPNST	N	N/A
Baser 2000 ¹⁶	N/A	N/A	Y	MPNST	Y	N/A
Baser 2000 ¹⁶	N/A	N/A	Y	MPNST	Y	N/A
Baser 2000 ¹⁶	N/A	N/A	Y	MPNST	Y	N/A
Hanabusa 2001 ¹⁷	51/F	R	N	Sarcoma	Y	Autopsy
Bari 2002 ¹⁸	28/F	L	Y	MPNST	Y	3 mo
Shin 2002 ¹⁶	26/F	R	N	MPNST	Y	10 mo
Ho 2002 ²⁰	14/F	L	Y	Rapid growth	Y	2 wk
McEvoy 2003 ²¹	22/M	R	Y	Rapid growth	Y	3 mo
Wilkinson 2004 ²²	53/M	R	N	MPNST	Y	N/A

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Table 1 (Continued)

Authors	Age/Sex	Side	NF2	Pathology	Previous Irradiation	Survival
Kubo 2005 ²³	51/M	L	N	MPNST	Y	N/A
Muracciole 2004 ²⁴	61/F	L	N	Triton	Y	N/A
Maire 2006 ²⁵	N/A	N/A	N	MPNST	Y	N/A
Gonzalez 2007 ²⁶	43/F	L	N	MPNST	N	8 mo
Chen 2008 ²⁷	62/F	L	N	MPNST	N	4 mo
Scheithauer 2009 ²⁸	67/M	R	N	MPNST	N	1 mo
Scheithauer 2009 ²⁸	56/M	R	N	MPNST	N	2 mo
Scheithauer 2009 ²⁸	50/M	L	N	MPNST	N	36 mo
Scheithauer 2009 ²⁸	32/M	L	N	MPNST	N	3 mo
Scheithauer 2009 ²⁸	5/M	L	N	MPNST	N	N/A
Van Rompaey 2009 ²⁹	53/F	R	N	MPNST	Y	Autopsy
Yang 2010 ³⁰	74/M	L	N	Sarcoma	Y	2 mo
Demetriades 2010 ¹	37/M	L	N	MPNST	Y	6 mo

L, left; MPNST, malignant peripheral nerve sheath tumor; N, no; N/A, not available; NF 2, neurofibromatosis type 2; R, right; Y, yes.

most of the malignant transformation appeared at least 5 years after the initial radiotherapy, and in one case, it appeared after 19 years.²⁵

Therefore, even if stereotactic radiotherapy is widely used for vestibular schwannoma treatment in patients with small tumor and good hearing, we think that this therapeutic modality should be avoided or at least used with caution in NF2 cases and young patients.

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